

Innovative Transportation Planning Partnerships to Enhance National Parks and Gateway Communities

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Disclaimer

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LIST OF ABBREVIATIONS

ATPPL – Alternative Transportation in Parks and Public Lands
APVA – Association for the Preservation of Virginia Antiquities
CDOT – Colorado Department of Transportation
CMAQ – Congestion Mitigation and Air Quality Program
CTAA – Community Transportation Association
DSC – Denver Service Center (National Park System)
ESTA – Eastern Sierra Transit Authority
EPA – Environmental Protection Agency
FHWA – Federal Highway Administration
FTA – Federal Transit Administration
FOT – Field Operational Test
GDOT – Georgia Department of Transportation
ISTEA – Intermodal Surface Transportation Efficiency Act
ITS – Intelligent Transportation Systems
MaineDOT – Maine Department of Transportation
MDT – Montana Department of Transportation
NPS – National Park Service
SAFETEA-LU – Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users
SETD – Sunset Empire Transportation District
TEA-21 – Transportation Equity Act for the 21st Century
TRORC – Two Rivers-Ottawquechee Regional Commission
UDOT – Utah Department of Transportation
WATA – Williamsburg Area Transit Authority
ZNHA – Zion National History Association

CHAPTER ONE – INTRODUCTION

Introduction

Gateway communities and federal lands are interdependent. The communities rely heavily on the visitors that are drawn to the area for its natural beauty or historic significance; the national parks and forests depend upon the gateway communities to provide visitors with basic services and amenities to make travel easy and enjoyable. The transportation linkages between the parks and the surrounding area are crucial to supporting this critical relationship. The transportation system is often an integral part of the experience of visiting a federal land site. Railroads and motor coach tours provided the initial access to many national parks. Park roads, scenic overlooks, hiking trails, and bicycle paths are the focal points of many visits. Consequently, traffic congestion, vehicle-generated noise and air pollution, and deteriorating roadways are concerns at many national parks and public lands. These issues may also spill over to adjacent gateway communities.

The federal land management agencies, the U. S. Department of Transportation, state departments of transportation, local communities, foundations, regional organizations, businesses, and other groups are all responding to these opportunities, concerns, and challenges. The implementation and operation of transit services within national parks, as well as between national parks and gateway communities, represents one approach to addressing these concerns. Other approaches include implementing advanced technology to provide information on traffic conditions and parking availability, adding pedestrian and bicycling paths, and managing demand on existing roadways.

This report examines the innovative partnerships among national parks, gateway communities, state departments of transportation, federal transportation agencies, foundations, and other groups to address transportation issues with creative solutions. Case studies are presented highlighting new and existing transit services and other approaches in and around national parks, wilderness areas, and wildlife refuges. The information presented in this report should benefit staff and policy makers with the national parks, transportation agencies, gateway communities, and other groups interested in developing and operating transit services and supporting programs in, and adjacent to, national parks and federal lands.

Background

Providing access to, and travel within, national parks and other public lands and other federal lands represents an ongoing concern. Congested park roads, lack of available parking spaces, and vehicle-generated air and noise pollution detract from the visitor experience and degrade the fragile environment of these areas. Efforts at the federal, state, and local levels have combined to focus on addressing these issues.

At the federal level, the Intermodal Transportation Efficiency Act (ISTEA), the Transportation Equity Act for the 21st Century (TEA-21), the Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU), Presidential

directives, and interagency agreements established new directions for transportation within national parks and other federal lands during the 1990s and 2000s.

A 1996 Presidential Memorandum required the Secretaries of the Department of Transportation and the Department of the Interior to develop a plan to improve public transportation in national parks. The Secretaries responded to this directive by signing a Memorandum of Understanding (MOU) between the two agencies. Since 1997, the two agencies have been working cooperatively on a number of activities to develop and implement innovative transportation plans. The Secretaries of the Department of the Interior and the Department of Energy signed another Memorandum of Understanding in 1999. This Memorandum established the Green Energy Parks program to promote the use of renewable and energy efficient technologies and practices in national parks.

Section 3039 of TEA-21 required that the Secretary of Transportation, in coordination with the Secretary of the Interior, conduct a comprehensive study of alternative transportation needs in national parks and related federal lands. The Federal Highway Administration (FHWA) and Federal Transit Administration (FTA), in association with federal land management agencies, sponsored a study examining alternative transportation needs at 207 sites. Additional studies were conducted at 30 U.S. Forest Service (Forest Service) sites. Based on these assessments, the National Park Service developed an Alternative Transportation Program Strategy Plan for 2002 through 2006.

The Alternative Transportation in Parks and Public Lands (ATPPL) program, also known as the Transit in the Parks program, was established in SAFETEA-LU. This program provides additional funding for planning and capital projects in or near a federally-owned or managed park, refuge, or a recreation area that is open to the general public. Numerous planning studies, vehicle acquisitions, and supporting facilities have been funded through this program. In addition, some parks have used other federal funding, including the Congestion Mitigation and Air Quality (CMAQ) program and various Intelligent Transportation Systems (ITS) programs.

At the same time the various federal programs were moving forward, local efforts were also underway in many parks and gateway communities. While the potential of federal funds encouraged these initiatives, activities were already proceeding in many areas to address local concerns. Further, areas with existing services have been able to upgrade vehicles, expand service hours, and make other improvements.

It is important to note that differences exist in the planning processes and requirements for state departments of transportation and national parks and other federal lands agencies. State departments of transportation are able to program funds for longer periods of time, while parks are limited from committing funds beyond current appropriation cycles. While these differences exist, the various federal land management agencies, state departments of transportation, transit agencies, metropolitan planning organizations (MPOs), and other groups are working together in many areas to advance transportation projects that address the needs of all user groups.

Organization of this Report

The remainder of this report is divided into two sections. The case studies are presented next, focusing on the partners and institutional arrangements, and service delivery methods. Ten case studies are presented highlighting different approaches, institutional arrangements, and geographic areas. The common themes emerging from the case studies and areas for additional research are highlighted in the third section. The references used in developing the report are also provided.

CHAPTER TWO – CASE STUDIES

Overview

This chapter presents 10 case studies highlighting innovative partnerships among federal land management agencies, gateway communities, state departments of transportation, federal transportation agencies, foundations, businesses, regional organizations, and other groups. The case studies were selected to provide a mix of federal lands, size of the area and the system, geographic coverage, institutional arrangements, and approaches.

Figure 1 identifies the location of the 10 case studies. Eight of the case studies involve national parks, one focuses on a wilderness area in a national forest, and one is a national wildlife refuge. Two of the case studies, Reds Meadow Valley – Devils Postpile National Monument and white River National Forest – Maroon Bells-Snowmass Wilderness Area, have operated fee-based shuttle services since 1979. Both have enhanced service recently. Two other case studies, Acadia National Park and Zion National Park, were in the initial group of demonstration parks implementing service in 1999 and 2000, respectively. The case studies highlight more recent introductions of shuttle bus systems at Lewis and Clark National Historical Park, Glacier National Park, Rocky Mountain National Park, and the Colonial National Historical Park. Finally, the Marsh-Billings-Rockefeller National Historical Park and the J.N. “Ding” Darling National Wildlife Refuge case studies provide examples of recently completed and underway planning studies.



Figure 1. Location of the Ten Case Studies
Texas Transportation Institute Graphic

The following lists the 10 case studies and the closest gateway community.

- Acadia National Park and Bar Harbor, Maine.
- Zion National Park and Springdale, Utah.
- Lewis and Clark National Historical Park and Astoria, Oregon.
- Glacier National Park and West Glacier, Montana.
- Rocky Mountain National Park and Estes Park, Colorado.
- Colonial National Historical Park and Williamsburg, Virginia.
- Reds Meadow Valley – Devils Postpile National Monument and Mammoth Lakes, California.
- White River National Forest – Maroon Bells-Snowmass Wilderness Area and Aspen, Colorado.
- Marsh-Billings-Rockefeller National Historical Park and Woodstock, Vermont.
- J.N. “Ding” Darling National Wildlife Refuge and Sanibel Island, Florida.

Information for the case studies was obtained from a variety of sources. Reports, articles, press releases, and on-line information was obtained from parks, wildlife refuges, wilderness areas, federal agencies, local communities, transit agencies, foundations, and other groups. Additional information was obtained through e-mails and telephone conversations with representatives from these various groups.

Each case study follows a similar format. An overview and background are presented first, introducing key aspects of the case study. The partners and institutional arrangements are described next, followed by a summary of the major funding sources. Key elements of implementing and operating the transit system and other transportation projects are discussed. The major elements of the planning process are highlighted for the two planning case studies. The reactions from the federal land agency and the community and businesses are summarized. Each case study concludes with an overview of key success factors, lessons learned, and best practices.

Acadia National Park Bar Harbor, Maine

Overview

This case study describes the implementation and ongoing operation of the free Island Explorer bus service in Acadia National Park on the Maine coast. Initiated in 1999, the Island Explorer represents the coordinated efforts of Acadia National Park, the Maine Department of Transportation (MaineDOT), the Mount Desert Island League of Towns, Friends of Acadia, Downeast Transportation, local businesses, FHWA, and FTA. L.L. Bean became the single corporate sponsor in 2002, providing significant financial resources for the system. The Island Explorer has expanded over time, serving both visitors and residents, and the partners continue to work together on additional improvements.



National Park Service

Background

Acadia National Park comprises some 40,000 acres along the coast of Maine, Mount Desert Island, and other islands. Established initially as a National Monument in 1916 and given park status in 1929, Acadia represents one of the older parks in the system. With approximately 2.2 million annual visitors, it is also one of the most popular parks in the country. Rather than clearly defined boundaries, park lands and private lands are intermingled in much of the park, especially on Mount Desert Island. Bar Harbor and other towns are located on the Island and other towns and private lands are interspaced throughout the park.

Private individuals and groups built much of the infrastructure in the park, including 44 miles of carriage roads constructed under the direction of John D. Rockefeller. Concerns arose in the 1980s with the ability of these roads, small parking lots, and other facilities to accommodate the ever-increasing number of visitors and vehicles in both the park and the communities. Addressing air quality and environmental concerns were also priorities in the area.

In response to these concerns, a coordinated approach involving Acadia National Park, the MaineDOT, the Mount Desert Island League of Towns, local communities, local businesses, Friends of Acadia, and other groups was undertaken. A general management planning process for the park, initiated in 1987, identified the potential for an area-wide transportation system. Interest from the local communities emerged in the 1990s as traffic and parking congestion continued to worsen.

Partners and Institutional Arrangements

The 1999 agreement establishing the Island Explorer system included 22 signatories, representing the cooperative efforts of Acadia National Park, the MaineDOT, Mount Desert Island League of Towns, Friends of Acadia, local businesses, federal agencies, and other groups. The roles these agencies and groups played in developing the Island Explorer and continue to play in operating the system are highlighted below.

Acadia Island Explorer Partners

Acadia National Park
Maine Department of Transportation
Mount Desert Island League of Towns
Local Communities
Friends of Acadia
Downeast Transportation
L.L. Bean
Local Businesses
Federal Highway Administration
Federal Transit Administration

- **Acadia National Park.** The potential for an area-wide bus system was identified as part of the park's general master planning process. A transit system concept was defined, but not pursued until the local communities expressed interest as a way to address growing traffic and parking congestion in the area. Park staff took the lead in the planning process, working with other partners. The park's Deputy Superintendent played a key role in planning, implementing, and operating the Island Explorer. The park continues to play a key role in funding the service and working with other partners on improvements.
- **Maine Department of Transportation (MaineDOT).** MaineDOT has been a key partner in the Island Explorer from the beginning. MaineDOT assisted with planning the service, facilitated federal funding for the system, and provided state funding. It continues to provide ongoing operation support through the allocation of FTA 5311 funding. MaineDOT served as the applicant for, and received, the federal CMAQ program funding used to procure the initial Island Explorer buses. The Department also assisted with other federal funding. The Department's Strategic Passenger Service Plan included the development of a regional tourist/multimodal center. MaineDOT is the lead agency in planning and developing the Acadia Gateway Center in Trenton.
- **Mount Desert Island League of Towns.** The four towns on Mount Desert Island – Bar Harbor, Southwest Harbor, Mount Desert, and Tremont – and the surrounding communities of Trenton, Lamoine, and Cranberry Island collaborate as the Mount Desert Island League of Towns. The League's purpose is to examine issues common to all the communities and recommend coordinated and cost-effective solutions. The League, in cooperation with Acadia National Park and other partners, implemented the Island Explorer service.
- **Local Communities.** In addition to the local communities acting together as the Mount Desert Island League of Towns, each has participated individually throughout planning, implementing, and operating the Island Explorer. The four communities on Mount Desert Island – Bar Harbor, Southwest Harbor, Mount Desert, and Tremont – provide operating funding on an annual basis. The communities have also participated in locating transit centers, stops, and other system elements. Tremont is a key partner in the development of the Acadia Gateway Center.

- **Friends of Acadia.** Founded in 1986 as a 501 (c) (3) non-profit charitable organization, Friends of Acadia has played an instrumental role in the development and ongoing operation of the Island Explorer bus system. Representatives of Friends of Acadia were actively involved in planning and implementing the system. Friends of Acadia has also played a key role in securing private funding for the service. It facilitated a \$1 million donation from L.L. Bean in 2002 to support the service and to establish the L.L. Bean Research Fellowship and Kids in Acadia programs. In 2004, the organization also bought a three-year option to purchase 369 acres at Crippens Creek in Trenton for the Acadia Gateway Center. Friends of Acadia acted on its option in 2007 and acquired the property. Since Acadia National Park cannot purchase land outside the 1986 established park boundaries, the action of Friends of Acadia was critical to develop the Gateway Center.
- **Downeast Transportation.** Downeast Transportation is a non-profit transit provider based in Ellsworth, Maine. Downeast Transportation operates the Island Explorer. Downeast Transportation has operated bus service in Acadia since 1994, when the initial campground bus route was implemented. Downeast Transportation is responsible for all aspects of operating and maintaining the Island Explorer bus system. In addition, it provides commuter, shopping, and shuttle services in the region.
- **L.L. Bean.** L.L. Bean is an outdoor apparel and equipment company based in Freeport, MA. Founded in 1912, L.L. Bean has grown from a one-man operation to a global organization with annual sales of \$1.5 billion. L.L. Bean became the sole corporate sponsor of the Island Explorer in 2002 and reaffirmed this commitment in 2005. The company's contributions have reached \$2 million for the Island Explorer, Research Fellowship, and Kids in Acadia program. Island Explorer buses display the L. L. Bean logo and the company promotes its support of the bus system on its webpage, catalogues, and other marketing materials.
- **Local Businesses.** Local businesses in towns in the park and adjacent communities have provided ongoing support to the Island Explorer. Some businesses contribute financially for stops in front of their establishments, while others actively promote and market the shuttle to visitors.
- **Federal Highway Administration and Federal Transit Administration.** Funding from both FHWA and FTA has been used to support different components of the Island Explorer. Examples include funding from the CMAQ program, the ITS Field Operational Test, and different FTA programs. Staff from both agencies have been active participants in different planning efforts, operational tests, and ongoing improvements to the system.

Funding

A variety of federal, state, park, local, and private funding has been used to support the capital elements and the operation costs of the Island Explorer. Purchase of the initial propane-powered shuttle buses was funded through the federal CMAQ program. MaineDOT applied for and administered the CMAQ funds. The local match for the CMAQ funds was provided by the park, Friends of Acadia, and local towns. Acadia National Park was selected for an ITS Field

Operational Test (FOT). Funding for the ITS projects came from the U.S. Department of Transportation ITS Joint Program Office. A federal earmark in 2002 provided additional financial support. Acadia National Park purchased additional buses with funding from the National Park Service Alternative Transportation Program (ATP). The buses are loaned to the MaineDOT and leased to Downeast Transportation through a cooperative agreement. The park has also applied for, and received, funding for additional vehicles through FTA's ATPPL Transit in the Parks program.

Acadia National Park uses fee demonstration funds to help support development and operation of the Island Explorer. The park added the transit fee to the daily, weekly, and annual park passes in 2004. The four Mount Desert Island communities provide financial support for operation of the Island Explorer. This support requires annual approval. MaineDOT provides a portioning of the state's FTA 5311 funding to support operation of the Island Explorer. Local businesses contribute for front door service and some provide donations. In addition, private individuals have made donations to support the Island Explorer through Friends of Acadia, including a \$100,000 donation from one individual supporting the new Acadia Gateway Center.

The Island Explorer gained a new sponsor in 2002, when L. L. Bean became the single corporate underwriter. With close to 3 million annual visitors to its store in Freeport, L. L. Bean and Acadia share honors as the most popular destinations in the state. Announced as its 90th anniversary gift to the state, the sponsorship reflects the company's values to promote recreation and sound stewardship of the nation's natural resources and their corporate consciousness to help address local issues. The contribution, which has totaled \$2 million since 2002, was made to Friends of Acadia, which in turn provides the funds to support the Island Explorer. The funding from L. L. Bean has been used to extend service later in the fall, to introduce a bicycle express service, and to match federal funds.

Implementation and Operation

As noted previously, concerns over increasing traffic congestion and lack of parking in both the park and the Island communities focused interest on transit alternatives. Air quality and environmental issues also supported consideration of transit service in the area. The park's General Master Plan included a region-wide transit service concept. Support from the local communities and businesses for a bus system emerged during the mid-1990s as a way to address current issues and to allow for future growth in visitors, including the cruise ship market, which can bring more than 10,000 visitors to the area on popular weekends.

The transit system concept built on the experience with a campground shuttle bus. A \$2 fare was charged on the campground shuttle, which was operated by Downeast Transportation. In response to survey results indicating more people would ride the campground shuttle if it were free, Friends of Acadia provided funding to subsidize the service allowing for free service in 1997. Ridership on the campground shuttle increased by 600 percent during the first year of free service. This experience provided support for the transit system concept and for providing it as a free service for visitors and residents.

The Island Explorer transit system was implemented in the summer of 1999, with eight propane buses operating on six routes, linking hotels and businesses with key destinations in the

park. In response to the popularity of the service, a seventh route was added in 2000. Nine additional buses were also purchased to provide service on the new route and more frequent service on the existing routes. The operating season was extended from Labor Day to mid-October in 2003 with funding from L. L. Bean. An eighth route serving the Schoodic Peninsula was introduced in 2004. The Bicycle Express was added in 2005, providing service between Bar Harbor Village Green and Eagle Lake using a 12-passenger van and a bicycle trailer. The Bar Harbor Village Green serves as the focal point for the system. Figure 2 illustrates the Island Explorer routes in 2009. Service hours vary by routes. Buses begin operating at 6:45 a.m. on some routes and operate until midnight on many routes.

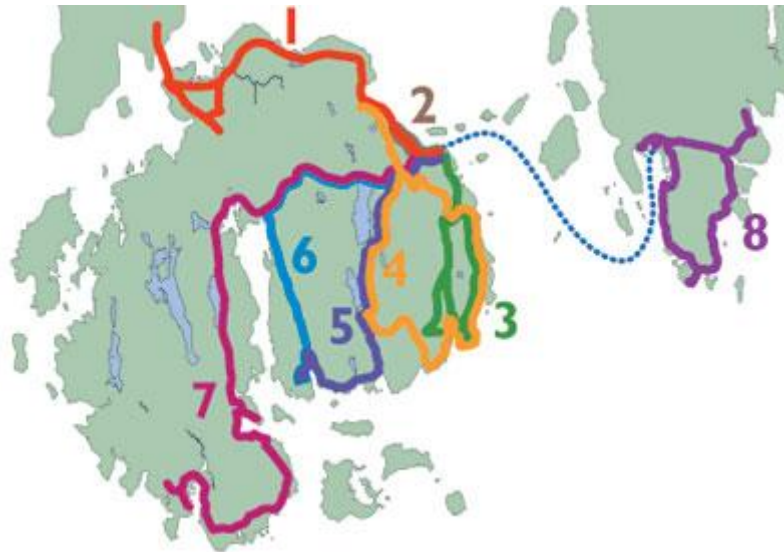


Figure 2. Island Explorer Bus Routes
National Park Service

Ridership on the Island Explorer has grown from 142,000 passengers during the first year of operation in 1999 to approximately 405,000 riders in 2008. The service has experienced ridership increases every year. The system averages some 4,980 passengers per day during the peak season. The highest one-day total in 2008 was 8,440 riders. In addition, the bicycle express transports over 12,000 bicycles during the summer.

Acadia National Park was selected for an ITS FOT sponsored by the U.S. Department of Transportation ITS Joint Program Office and the National Park Service. Many of the ITS technologies implemented in the FOT focused on the Island Explorer. Transit-related ITS projects in the FOT included two-way voice communication and automatic vehicle location (AVL) for Island Express buses. Other ITS projects were automated communicator systems and automated passenger counters for buses and real-time, next-bus arrival signs. Parking lot monitors, park entrance traffic volume recorders, automatic range vehicle geo-location, and a traveler information system represent the other Acadia ITS FOT projects.

The ITS projects were implemented in early-to-mid-2002. Real-time bus arrival information is available on electronic message signs at key locations in the park and local

communities. This information is also posted on the Island Explorer website, allowing riders to easily check on the status of buses. The information is updated every three minutes.

On-board ridership surveys were conducted on the Island Explorer from 2000 through 2006. These seven surveys provide a wealth of information about Island Explorer passengers, their likes and dislikes, and their reasons for using the bus. The surveys represent the most comprehensive database of park bus users in the country.

The results from these on-board ridership surveys show strong support for the Island Explorer and high levels of satisfaction among riders. Driver friendliness and helpfulness, clean buses, and free fares all generate high levels of satisfaction. The vast majority of riders indicate that the Island Explorer improves the quality of their visit to the Acadia region. While park visitors represent the majority of riders, local residents also use the Island Explorer, including going to and from work, making recreational trips, and conducting personal business. In the most recent surveys, local residents comprise approximately 20 percent of the Island Explorer ridership.

Acadia National Park and its partners in the Island Explorer continue to consider service improvements and opportunities to enhance the overall operation of the system. The Acadia Gateway Center in Trenton represents a major future improvement. This facility will include the Acadia National Park transportation information center and an intermodal hub. Project components are anticipated to include Island Explorer bus maintenance and dispatch facilities, a visitor complex, parking areas, and park-compatible businesses. MaineDOT is the lead for this project, working with the City of Trenton, the park, Friends of Acadia, and Downeast Transportation. As noted previously, Friends of Acadia acquired 369 acres for the facility since Acadia National Park is prohibited from purchasing land outside the park boundaries established in 1986. Completion of the facilities will represent the ongoing efforts of all partners.

The Island Explorer Short Range Transit Plan was completed in 2006-2007. The plan was prepared for the National Park Service and MaineDOT. Development of the plan was guided by an Advisory Committee, which included representatives of Acadia National Park, Friends of Acadia, Downeast Transportation, MaineDOT, area towns, and local businesses. The plan contains a number of elements, including an evaluation of existing services, service design alternatives, bus stop issues, marketing and public involvement strategies, and a capital and financial plan. The plan is being used to guide future service changes and improvements, as well as capital projects.

Federal Lands Agency Reaction

The Island Explorer provides benefits to Acadia National Park visitors, the local communities, businesses, residents, and the environment. In operation for 11 summers, the Island Explorer has become a key part of the transportation system in the park and the region. With 2.2 million visitors on an annual basis, Acadia National Park continues to be one of the most popular parks in the country. The Island Explorer helps address increasing visitor levels, while maintaining quality visitor experiences.

The Island Explorer helps address traffic congestion on park roadways and in the local communities. It also assists in managing demand for parking along park roadways, at trailheads, and in the local communities. The Island Explorer has also enhanced the mobility of area residents who use the service to travel to and from work, recreation activities, and personal business.

The Island Explorer has a positive impact on air quality and noise by keeping vehicles off the roadways. A study in 2001 estimated that the 88,000 vehicles removed from park roads through the use of Island Explorer resulted in a 33 percent reduction in carbon monoxide (CO) emissions and a 23 percent reduction in volatile organic compounds (VOCs). It was also estimated that the Island Explorer reduced noise near park roadways by 63 decibels.

As noted previously, the Island Explorer has been well received by park visitors and residents. The results from the seven on-board ridership surveys show consistently strong support for the service. Further, riders report that the Island Explorer enhanced their visit to the park.

Community and Business Reaction

The responses from the local communities and businesses to the Island Explorer have been very positive. The local communities have continued their financial support of the service, which must be approved on an annual basis. The Mount Desert Island League of Towns and the local communities were instrumental in the development of the Island Explorer and they continue to be critical to its ongoing operation and success. Given the strong partnership, issues that may arise related to bus stops or too many buses in a specific area are dealt with in an open and honest manner and resolved.

The support from local businesses continues to be strong. Businesses continue to fund store front stops, make donations to support the system, and promote and market the service. Visitors use the Island Explorer to reach local communities and businesses as well as travel in the park. The Island Explorer supports visitor access to businesses, resulting in increased sales. The Island Explorer is also used by local residents for work, recreation, and personal business trips. L.L. Bean has also continued its financial support for the Island Explorer.

Success Factors, Lessons Learned, and Best Practice

The Acadia National Park case study highlights numerous elements that contribute to successfully planning, implementing, and operating the Island Explorer bus service. As described below, these elements include involving all the appropriate groups, starting small and building on success, using diverse funding sources, engaging the private sector, and utilizing foundations.

- **Involving diverse stakeholders in an area early in the planning process and throughout the ongoing operations of the bus service.** The 22 parties signing the original MOU illustrates this support. The Mount Desert Island League of Towns, individual communities, MaineDOT, and Friends of Acadia are especially important and

active local partners. The Island Explorer is a regional service, not just a park service. The top level in all these groups continues to provide strong leadership.

- **Success of the free campground shuttle helped build support for the Island Explorer.** Focusing on the initial six routes in key areas of demand resulted in good ridership levels and allowed for expansion to additional routes, longer daily service hours, and longer operating seasons.
- **Use of diverse funding sources.** Funding from the federal level has included the CMAQ program, the ITS program, the ATPPL Transit in the Parks program, other FTA capital and operating programs, and congressionally earmarked funds. State and local sources, including annual contributions from local communities have been used to match federal programs and provide ongoing support. Park funding includes use of the fee demonstration program and the transit fee addition to park entrance fees. Private sector contributions from L.L. Bean and local businesses provide a key element of ongoing funding.
- **The participation of L.L. Bean.** The significant financial contributions by the company greatly enhance the ability to provide the free Island Explorer service. The financial support of other businesses in the areas has also been important.
- **Key support from a foundation.** Friends of Acadia is able to facilitate private donations from L.L. Bean and individuals, as well as purchase property for the Acadia Gateway Center. These are activities that the park and other government agencies do not have the legal authority to undertake.

Zion National Park Springdale, Utah

Overview

This case study describes the implementation and operation of a shuttle bus system in Zion National Park and the Town of Springdale, Utah, the gateway community adjacent to the park. The National Park Service took the lead in planning and implementing the shuttle bus system in response to traffic congestion on the main road in Zion Canyon. The Town of Springdale, the Utah Department of Transportation (UDOT), FHWA, the Zion National History Association, and local businesses actively participated in the process. These groups continue to work together in the ongoing operation of the shuttle bus system.



Zion National Park

Background

Zion National Park encompasses 229 square miles of cliff-and-canyon landscape in southwestern Utah. Zion Canyon, in the southeast corner of the park, is the main visitor destination. The canyon is accessible by a two-lane, dead-end road six miles long. Visitors access the park from the Town of Springdale and State Route 9 (SR 9).

Historically, the drive through the canyon was the main highlight of the park for most visitors. While the scenic drive and limited parking was able to accommodate the 1 million annual visitors during the early 1970s, concerns with traffic congestion arose during the 1980s and 1990s as annual visitor levels reached and exceeded 2 million. Consideration of transit options emerged during the park master planning process in the 1990s and the shuttle system was implemented in 2000.

Partners and Institutional Arrangements

Planning, funding, implementing, and operating the shuttle system in the park and the Town of Springdale are the result of the coordinated efforts of Zion National Park, the National Park System Denver Service Center, the Town of Springdale, the Utah Department of Transportation, FHWA, Zion National History Association, local businesses, and other groups. The roles of these different groups are highlighted below.

Zion Shuttle Bus System Partners

Zion National Park
National Park Service, Denver Service Center
Town of Springdale
Utah Department of Transportation
Federal Highway Administration
Zion National History Association
Local Businesses

- **Zion National Park.** Staff from Zion National Park took the lead in planning and implementing the park shuttle system. The need to address traffic congestion on the Canyon Road and parking areas was identified during the park master planning process. Different alternatives, including the shuttle system, were evaluated. The shuttle system was selected as the best option for meeting the needs of current and future visitation levels.
- **National Park Service Denver Service Center (DSC).** Representatives from the National Park Service DSC provided technical assistance during the planning process. Staff from the Center provide ongoing expertise in transportation and transit planning to the Zion National Park. For example, staff from The DSC served as project manager for the Zion Canyon Transportation System Technical Analysis study conducted in 2008.
- **Town of Springdale.** The Town of Springdale actively participated in planning and implementing the shuttle system and the Springdale Loop, including providing some of the local match for the federal Transportation Enhancement Program funding. The town continues to be actively involved in the ongoing operation of the system. Town representatives participated in the 2008 Transportation System Technical Analysis study.
- **Utah Department of Transportation (UDOT).** UDOT administers the federal Transportation Enhancement Program, which was used to fund the Springdale shuttle stops and the streetscape improvements. The Department assisted with designing, contracting, and constructing the shuttle bus stops and streetscape improvements in the SR 9 right-of-way.
- **Federal Highway Administration (FHWA).** Funding from FHWA, through the Transportation Enhancement Program was used to construct the bus stops and streetscape improvements on the Springdale Loop.
- **Zion National History Association (ZNHA).** Established in 1929, the ZNHA is a non-profit organization supporting education, research, publication, and other programs for the benefit of Zion National Park, Cedar Breaks National Monument, and Pipe Spring National Monument. The Association provides the parks with approximately \$600,000 in aid annually through membership contributions, sales from the ZNHA bookstores, and other sources. The ZNHA supported the shuttle project and contributed to the local match for the federal enhancement funds. The ZNHA provides information on the shuttle on its website, along with energy saving transportation tips.
- **Private Businesses.** Zion Canyon Theater, which is located adjacent to the park, was an early partner in the planning process. Different public/private arrangements were considered, including constructing a visitor center on the theater property. The ultimate project included using private funds to construct the town shuttle loop northern terminal, a camper store and restaurant, and tour bus parking area. These improvements directly connect to the park visitor center, providing a park and gateway community link. Other local businesses participated in the planning process and continue to be actively involved in supporting the shuttle system and the Springdale Loop.

Funding

Funding for the Zion shuttle system and related facilities came from a variety of sources. A mix of federal, state, local, private non-profit, and private funding supported the purchase of the vehicles, construction of the new parking area and transfer point, and development of the shuttle stop and streetscape improvements in Springdale.

Zion Shuttle Bus System Funding Sources

NPS Capital Funds
Park Entrance Fees
Federal Transit Programs
Federal Enhancement Program
Town of Springdale
Zion National History Association
Local Businesses

Zion National Park purchased the 30 propane-powered buses and the 21 trailers.

The park also funded the transit stops in the park, the new parking area, and the transfer point. National Park Service capital funding was used for the vehicles and the other elements. The park uses a portion of the entrance fees to support the ongoing operation of the system.

The Town of Springdale obtained federal Transportation Enhancement Program funds through the UDOT for the bus shuttle stops and related streetscape improvements. The Town of Springdale and the ZNHA provided matching funds. The town provides ongoing funds for maintenance of these elements. The town funding comes from hotel/motel taxes, resort taxes, and sales taxes.

Implementation and Operation

The free shuttle bus system has been the only means of transportation for summer visitors to Zion Canyon since 2000. The shuttle includes two routes – one in the park and one in the town of Springdale. The park shuttle route operates from the Zion Canyon Visitor Center to the Temple of Sinawava at the end of the six-mile Canyon Scenic Drive. There are nine stops along the route at major scenic locations, trail heads, and at Zion Lodge. Overnight guests at the Zion Lodge are the only visitors allowed to use private vehicles on the roadway.

The Springdale Route includes stops at hotels, businesses, and activity centers along SR 9. The two routes connect at the Zion Canyon Visitors Center, allowing passengers to transfer. The bus stops and other streetscape improvements were designed to complement the communities' road and streetscape, which were constructed as part of the Work Progress Administration in the 1930s.

Service is provided on the two routes using a fleet of 30 propane-powered buses and 21 trailers. McDonald Transit operates this service, under contract to Zion National Park. The bus-trailer combination is used on the Canyon Route, while buses operate on the Springdale Loop. Bus operators monitor passengers in the trailer via a closed-circuit television camera. The buses are not air conditioned, but open windows and ceiling air vents keep the ride comfortable.

The operating season for the shuttle system has been extended over the years. When the system debuted in 2000, the operating season was May through early September. The 2009 operating season is April 4 through October 25, with the Canyon shuttle operating on weekends

during November. Riding the shuttle is optional in November, as private automobiles are allowed to access the Scenic Canyon Drive.

The operating hours vary slightly during the operating season, with extended service provided during the peak summer months. From May to September, the first bus on the Canyon Loop leaves the Visitor Center at 5:45 a.m. In the evening, the last bus leaves the Temple of Sinawava at 11:00 p.m. Operating hours on the Springdale Loop are from 7:00 a.m. to 11:00 p.m., with one express bus serving the Scenic Canyon Drive leaving Majestic View at 5:30 a.m.

Service on the Canyon Route operates on 6-to-10 minute headways from 9:00 a.m. to 8:00 p.m., with 10-to-15 minute headways from 5:45 a.m. to 9:00 a.m. and 8:00 p.m. to 9:00 p.m. Service from 9:00 p.m. to 10:30 p.m. is operated on 30-minute headways. Service on the Springdale Loop operates on 10-to-15 minute headways, except from 10:00 p.m. to 11:00 p.m. when buses operate every 30 minutes.

Ridership on the shuttles has increased since 2000. In 2001, some 2.13 million trips were made on the shuttles. In 2008, approximately 3 million trips were taken on the shuttle buses. It is estimated that visitors on the Canyon Loop average 3-to-4 trips a day on the shuttle. Formal and informal feedback from visitors has been positive. A 2006 visitor study and a 2008 on-board ridership survey indicate positive reactions from visitors.

Zion National Park, the DSC, the Town of Springdale, local businesses, and community groups continue to work together on ongoing concerns related to transportation in the park and community. These concerns relate primarily to continuing operating funding for the shuttle bus system, replacing the existing bus fleet, providing adequate parking, traffic congestion at the park entrance station, and deteriorating roadway pavement, and other infrastructure elements.

To help address these concerns, the park applied for and received federal funding through the ATPPL program and the U.S. Department of Transportation's Volpe National Transportation System Center to conduct a study evaluating the Zion transportation system. The study also focused on identifying recommendations to improve the system and supporting facilities.

The study, which was conducted in 2008, built on the existing partnerships among the park, the town, local businesses, the ZNHA, and other groups. The DSC provided overall management for the study, with the Volpe Center and consulting firms conducting the technical analysis and public and stakeholder involvement. Workshops with stakeholders and the general public were conducted at the beginning of the study. Workshops were also held to present the draft findings and recommendations and obtain additional comments and input to the draft report.

The study recommendations focus primarily on funding the ongoing operation of the shuttle bus system, providing adequate parking facilities, and enhancing wayfinding and communications. Recommendations for addressing park road and Springdale streetscape conditions, and enhancing pedestrian and bicycle connectivity, mobility, and safety are also included in the final report. Figure 3 illustrates the Zion and Springdale shuttle routes.

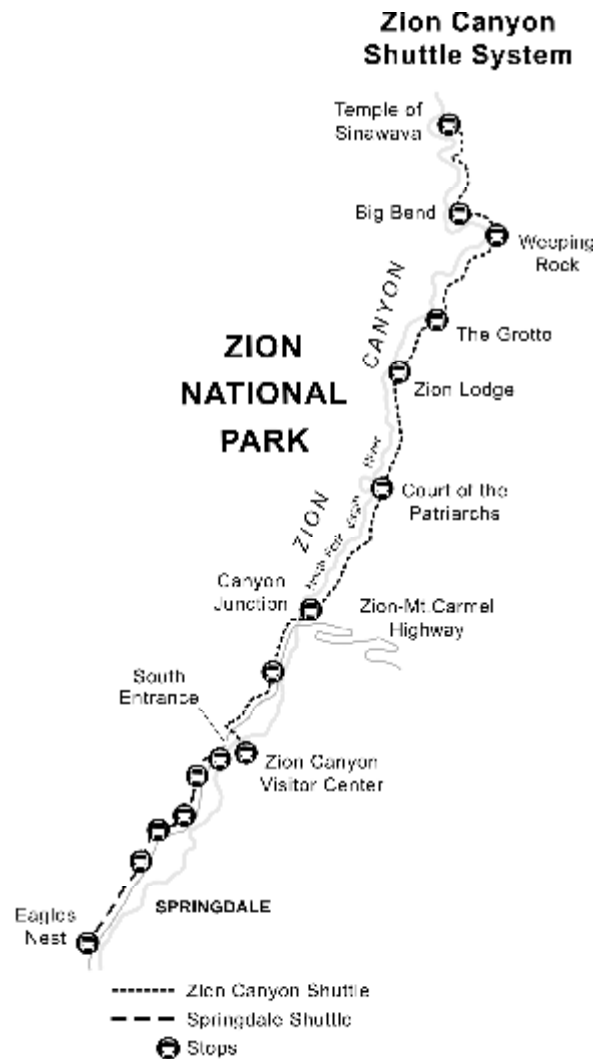


Figure 3. Zion Shuttle Bus Map

Texas Transportation Institute Graphic Based on National Park Service Information

Federal Lands Agency Reaction

The shuttle system has addressed the traffic and parking congestion along the Zion Scenic Canyon Drive during the peak summer months. Visitation levels at Zion National Park increased from approximately 2.4 million in 2000 to 2.7 million in 2008. The shuttle system has allowed the park to accommodate these increases in visitation. The shuttle system has been well received by visitors and enhances the visitor experience.

Other benefits have also been realized from the shuttle system. The park estimates that CO emissions on the Canyon Drive route have been reduced by 46 percent since the introduction of the shuttle system. Noise levels near Canyon Drive have been reduced by approximately nine decibels. Animals and birds have become more visible, and animals not readily seen for years – such as wild turkeys and cougars – have been sighted.

The use of the shuttle system does involve some challenges. From a resource management perspective, the shuttle may drop off 10 to 75 people at a time at stops in the Canyon as frequently as every three minutes. Managing this high volume of visitors during the peak season can be challenging. The buses are also heavier than automobiles, resulting in the need for repair of the Canyon Road.

As noted, funding for replacing the buses and trailers, which have been in operation for 10 years, is a priority for the park. A proposal to initiate replacement of the existing fleet was submitted in 2009 to the Transit in the Parks program administered by FTA. This proposal was selected for funding, thus helping begin the bus replacement process.

Community and Business Reaction

The response from the community and businesses to the shuttle system has generally been favorable. The shuttle system has had an impact on businesses, including a change in visitor shopping and eating patterns. It appears that visitors are spending the full day in the park, rather than returning to town for lunch. As a result, declines in lunch business and shopping over the noon-time have been noted. Visitor demands for dinner and shopping appear to have shifted to later in the evening. It does not appear that hotels have experienced any major changes with the shuttle operation.

Restaurants and other businesses have modified service hours and staffing levels to respond to these changes. Most businesses are open longer hours during the peak summer months when the shuttle system is in operation. Expectations concerning staffing levels for restaurants and other service businesses have shifted to later evening hours. The fact that hotels, restaurants, and other businesses experience repeat visitors over the years was noted as a positive impact of the shuttle system.

An ongoing concern for businesses relates to the availability of parking for visitors. The new parking lot constructed as part of the Visitors Center is often full by midmorning. An overflow parking lot constructed by Springdale outside the park is also well used. When these two lots are full, visitors look for other parking throughout the town. Some visitors leave their vehicles at the hotels where they are staying and take the Springdale Loop to the Visitors Center. As noted previously, parking was one of the issues examined in the 2009 transportation planning study.

The opportunities to participate in the various planning activities and ongoing discussion of issues appear to be well received by the business community. Representatives from the Chamber of Commerce and individual businesses noted the positive working relationship among the park, town, and other groups.

Success Factors, Lessons Learned, and Best Practice

The experience planning, implementing, and operating the Zion shuttle bus system provides a number of elements contributing to the understanding of success factors and best practice. The following highlight some of these factors.

- Zion Canyon provides an ideal setting for a shuttle bus system. The six-mile Scenic Canyon Drive is a dead end roadway – meaning visitors must return to Canyon Junction or to Springdale to continue their trip. The close proximity of Springdale to the park entrance also represents an ideal situation for the town shuttle route and linking the two routes at the Visitor Center.
- The park clearly articulated the goals and objectives for the shuttle bus system. Park management has provided strong ongoing support for the system.
- A strong working relationship was established with the park, the DSC, the Town of Springdale, UDOT, ZNHA, local businesses, and other groups. These groups continue to be involved in the discussion of issues and the identification of potential solutions. The 2008 study provides an example of the importance of this ongoing working relationship.
- A close working relationship was established with McDonald Transit, the operator of the shuttle system. This working relationship allows for a quick response to any concerns that may arise.
- All groups have been able to maximize resources by leveraging funding. The National Park Service funded the buses and infrastructure elements in the park. Federal enhancement program funds, provided through UDOT, were matched with town and ZNHA funding.
- All groups are focused on enhancing the experience of visitors, and encouraging repeat visitors. While the various groups have different missions, they do share a common goal of providing an enjoyable experience for visitors to the park and town.
- The business sector has been supportive of the system and has responded to changes in visitor patterns. Businesses have extended hours to accommodate visitors spending more time in the park.

Lewis and Clark National Historical Park Astoria, Oregon



National Park Service

Overview

This case study describes the development, implementation, and operation of a park-and-ride/education center, a shuttle bus system, new regional transit service, and other improvements at the Fort Clatsop National Memorial, which is part of the Lewis and Clark National Historical Park in the Astoria, OR area. The case study highlights the evolution of the Lewis and Clark Explorer shuttle bus system and other project elements, which were initially implemented to meet the anticipated visitor demands associated with the Lewis and Clark bicentennial anniversary in 2005 and 2006. The initial project partners included the Fort Clatsop National Memorial, the National Park Service, FHWA's Western Federal Lands Highway Division, Sunset Empire Transit District, Pacific Transit, the Oregon Department of Transportation (ODOT), Oregon State Parks, the Lewis and Clark Bicentennial Association, and local business groups. The involvement of the partners has evolved in response to changing visitor demands after the bicentennial.

Background

The Lewis and Clark National Historical Parks include 12 park sites located along 40 miles of the Pacific coast from Long Beach, WA to Cannon Beach, OR. The sites preserve the major activities of the Lewis and Clark Corps of Discovery Expedition in the region. Fort Clatsop, located along the Lewis and Clark River, served as the winter encampment for the Corps of Discovery from December 1805 to March 1806. The Fort Clatsop National Memorial includes a replica of the fort built by the Lewis and Clark Expedition, a visitor center, Netul Landing, and trailheads to the Netul River Trail and Fort-to-Sea Trail.

In the early 2000s, the park and the local communities began planning for the bicentennial anniversary of the Lewis and Clark Expedition. Providing access for the 1.5 million visitors anticipated between 2004 and 2006 represented a major concern. Most of the sites, including Fort Clatsop, are accessible by narrow two-lane roadways and highways, and parking at the fort is limited. To address these concerns, the park, the National Park Service, Western Federal Lands Highway, Sunset Empire Transportation District, Pacific Transit, ODOT, Oregon State Parks, the Lewis and Clark Bicentennial Association, local communities, and business

groups undertook an assessment of current conditions and improvements needed to meet visitor demands during the bicentennial.

These efforts resulted in a number of improvements, including the development of a combined park-and-ride lot and education center at Netul Landing, implementation and operation of the Explorer shuttle bus system, operation of new regional transit routes serving the fort, construction of a new intermodal facility in Astoria, improved information and way-finding signs, and other enhancements. These elements continue to be used, although the operation of the shuttle bus service and regional routes have evolved since the bicentennial to respond to changes in visitation levels.

Partners and Institutional Arrangements

The Explorer shuttle bus service, the regional transit routes, the new park-and-ride and education center, and other improvements represent the coordinated efforts of numerous groups. These groups include the National Park Service, the Sunset Empire Transit District, Pacific Transit, FHWA's Western Federal Lands Highway Division, ODOT, Oregon State Parks, and the Lewis and Clark Bicentennial Association. Local businesses and other organizations also assisted with different activities. In addition, the Volpe National Transportation Systems Center of the U.S. Department of Transportation conducted assessments of the operations in 2004, 2005, and 2006.

Lewis and Clark Explorer Shuttle Partners

Lewis and Clark National Historical Parks
National Park Service, Denver Service Center
Western Federal Lands Highway Division,
Federal Highway Administration
Sunset Empire Transportation District
Pacific Transit
Oregon Department of Transportation
Oregon State Parks
Lewis and Clark Bicentennial Association
Local Organizations and Businesses

- **Lewis and Clark National Historical Parks.** Staff from Fort Clatsop and the Lewis and Clark National Historical Parks actively participated in planning and development of the on-site improvements, including the Netul Landing park-and-ride and education center. Staff have continued to be involved in assessing the need for ongoing operation of the seasonal shuttle service.
- **National Park Service, Denver Service Center.** Personnel from the Alternative Transportation Program at the National Park Service DSC, along with staff from FHWA's Western Federal Lands, led the planning efforts to address transportation needs during the Lewis and Clark Bicentennial. Personnel from the agencies coordinated the multi-agency planning activities, developed and analyzed alternatives, conducted workshops and charettes, and identified funding sources and implementation actions.
- **Western Federal Lands Highway Division, FHWA.** As noted previously, staff from Western Federal Lands and the DSC led the planning process for the initial shuttle bus service and parking facility. Personnel from Western Federal Lands continue to play an instrumental role in securing funding for the seasonal shuttle, including working with

Sunset Empire Transit District and Lewis and Clark National Historical Parks staff to assess ongoing needs for the service.

- **Sunset Empire Transportation District (SETD).** The SETD provides public transit services in the Clatsop County communities of Astoria, Warrenton, Hammond, Gearhart, Seaside, and Cannon Beach. Representatives from SETD brought expertise in planning, implementing, and operating transit services, park-and-ride facilities, and marketing to the initial bicentennial effort. The SETD operated the shuttle service and implemented new routes as part of the bicentennial activities. The SETD continues to operate the seasonal shuttle service.
- **Pacific Transit.** Pacific Transit provides public transit services to communities in Pacific County, WA and Astoria, OR. Staff from Pacific Transit was involved in the initial planning activities for the bicentennial. Pacific Transit provided service linking to SETD service during the bicentennial.
- **Oregon Department of Transportation (ODOT).** Staff from ODOT were actively involved in the bicentennial planning process. In addition, ODOT provided \$500,000 in funding for new signing and traveler information for the shuttle system and other elements.
- **Lewis and Clark Bicentennial Association.** The Lewis and Clark Bicentennial Association, which included the National Park Service, received a \$35,000 grant from the Community Transportation Association (CTAA) to develop a marketing plan for the Explorer shuttle bus system. A Denver, CO firm created the marketing campaign, which was initiated in 2003. The Bicentennial Association supported other activities, including public information and outreach.
- **Local Organizations and Businesses.** A number of local organizations and businesses participated in the planning activities and assisted with the implementation and operation of different elements. These groups included the Columbia River Maritime Museum, the Astoria Visitor Center, the Astoria-Warrenton Chamber of Commerce, the Seaside Chamber of Commerce, American West Steamboat Company, and Sundial Special Vacations.

Funding

A variety of sources were used to fund the various projects and program elements. A \$2.5 million FTA grant was used to fund the purchase of additional buses, and the construction of a transit center and additional shuttle parking in Astoria. Planning, designing, and constructing the park-and-ride and education center at Netul Landing was funded through a \$2 million grant from the National Park Service ATP fund. The ODOT provided \$500,000 in funding for new signing and traveler information. The National Park Service and the Western Federal Lands Highway Division have funded the ongoing seasonal shuttle service.

Implementation and Operation

Planning for the shuttle bus system and other elements began in 2001 with concerns that visitors would overwhelm the fort's limited parking during the Lewis and Clark Bicentennial celebration. With the assistance of staff from the DSC and Western Federal Lands Highway Division, a multi-agency group examined alternatives and explored funding sources. Public workshops, charettes, and meetings with local agencies, organizations, and groups highlighted the planning process.

As a result of these planning efforts, a number of services and programs were implemented in the summer of 2004 to meet the anticipated visitor demands at Fort Clatsop. As the following highlights, these services and programs included construction and operation of the Netul Landing park-and-ride lot and Visitor Center, implementation and operation of new regional transit routes, implementation and operation of a shuttle bus system between Netul Landing and the Fort Clatsop Visitor Center, and a ticket reservation system.

- **Netul Landing Park-and-Ride Lot and Education Center.** A new park-and-ride lot and education center was constructed at Netul Landing, approximately one-mile south of the Fort Clatsop Visitor Center. The facility included 70 marked spaces, visitor waiting areas and shelters, restrooms, a shuttle bus loading area, and information panels highlighting the area's history and natural features.
- **New Regional Transit Routes and Shuttle Buses Implemented between Netul Landing and Fort Clatsop Visitor Center.** The following highlights these services.
 - Astoria to Netul Landing. Service operated on one-hour headways using one bus.
 - Astoria to Netul Landing via Astoria Column. Four trips per day, Monday through Friday only, using one bus.
 - Fort Stevens to Netul Landing. Service operated on hourly headways using one bus.
 - Fred Meyer (Warrenton) to Netul Landing. Service provide on one-hour headways, with connections to an express route.
 - Shuttle Bus – Netul Landing/Visitor Center. Service operated on 10-to-20-minute headways.
- **Ticket Reservation System.** A ticket reservation system was implemented at Fort Clatsop during the summer of 2004. It was implemented to provide a systematic method to control the number of visitors at the fort site and spread visitations more evenly throughout the day. The system was intended to enhance the visitor experience at the site by reducing the potential of overcrowding. It was designed to limit the number of people at the fort site to 50 visitors every 20 minutes, or 150 visitors every hour.

In addition, the timed ticket served as a three-day regional bus pass, allowing visitors to access bus services in the area. Tickets could be purchased on-line or over the telephone through the National Park Service Reservation Center. Tickets purchased at least two weeks in advance of a visit were mailed to individuals. Visitors purchasing tickets less

than two weeks before a visit could either print out their tickets on-line or at one of the ticket locations in the region.

The U.S. Department of Transportation Volpe National Transportation Systems Center conducted the first of three evaluations of the Fort Clatsop shuttle bus, regional service, and park-and-ride information center during the first season of operation in 2004. The evaluation included a review of available data, a site visit, and qualitative interviews. Data examined included visitor counts for the summer of 2004, transit ridership information, tour bus information, traffic counts, information from the visitor sign-in book, and sales at the visitor center bookstore.

The results of this analysis indicated that the ticket reservation system did not function as anticipated. Few visitors used the reservation system to purchase tickets in advance of their visit. It did not control the number of visitors at the fort site. A number of factors contributed to the lack of success with the ticket reservation system.

The shuttle bus between Netul Landing and the fort worked well, although some visitors complained about having to wait and ride a bus to the fort. Visitors arriving by tour bus and those who had visited the fort previously appeared to be the most likely to voice concerns. The information center at the landing was generally well received, as was the park staff welcome and narration on the short trip to the fort.

The experience with the additional shuttle buses operated by SETD and Pacific Transit was mixed. The buses all used a Lewis and Clark bus wrap, providing a distinctive look to the vehicles, which was viewed positively by the local communities, riders, and the park. Ridership on the regional shuttle buses was not as high as anticipated, however. This lower ridership appears to be the result of limited information and marketing of the system, confusion on the part of visitors about the service, and a general tendency for visitors to use their personal vehicles. Many visitors did not realize that their fort ticket included free bus rides.

Visitor reaction to the shuttle bus from Netul Landing was generally positive. Visitors reported enjoying the narration on the ride to the fort. Tour operators reported lower ratings for the fort visit from their customers, however.

Recommendations included in the Volpe report assessing operations in 2004 included discontinuing the ticket reservation system, enhancing transit services and transit marketing, improving parking access at Netul Landing for handicapped individuals, and improving visitor information. In 2005 the ticket reservation system was discontinued, the number of regional bus routes was reduced to two, tour buses were allowed to go directly to the fort during off-peak hours rather than unloading passengers at Netul Landing, and parking spaces were added at Netul Landing. The shuttle from Netul Landing to the fort was continued.

The Volpe Center conducted a second assessment after the 2005 visitor season. This assessment focused on the same elements as the 2004 study. The results indicated that the Netul Landing and the shuttle bus system continued to be well utilized and worked well. Ridership on the regional bus routes was lower than the previous year, however. The assessment also identified future changes that may influence visitation to the fort and use of the shuttle buses.

These changes included the completion of the bicentennial at the park, the regional designation of the Lewis and Clark National Historical Park, completion of the Netul River trail to the fort, and completion of the Fort-to-Sea trail.

Based on the experience in 2005, the anticipated changes and a financial analysis of bus service options, a number of recommendations were made for 2006. These recommendations included reducing the regional transit service through route consolidation or discontinuing routes and aggressively marketing the transit service. Changes in the transit service were made for the 2006 visitor season. The shuttle from Netul Landing to the fort was continued but only one regional route was operated. The assessment by the Volpe Center at the end of the 2006 season indicated that ridership on the regional service continued to be low. With the bicentennial over, visitation levels declined from those experienced in 2005.

Based on the experience during the 2006 season and the assessment conducted by Volpe, additional changes were made for the 2007 season. These changes included allowing tour buses to drop off passengers at the fort at all times and reducing bus service to one route. This route provides both the shuttle between Netul Landing and the fort and regional service. With the opening of the Fort-to-Sea trail, the route serves Sunset Beach, allowing hikers to travel one-way on the trail and ride the bus to return to their vehicle. The shuttle system has operated in the same general manner since 2007.

For the 2009 summer visitor season, the park shuttle operated on weekends from May 23 through June 14 and daily from June 20 through September 6. When the parking area at Fort Clatsop is filled, visitors are directed to the parking area at Netul Landing. Visitors can either walk the one-mile trail from Netul Landing to the Visitors Center and Fort or ride the shuttle bus, which provides hourly service.

Federal Lands Agency Reaction

The Netul Landing, the shuttle bus system, and the trail from Netul Landing to Fort Clatsop have all benefitted the Lewis and Clark National Historical Park. Park personnel and visitors view these elements positively. The park has continued to monitor use of the shuttle bus to ensure that it meets the needs of the park and is a wise use of resources.

The planning process used during the bicentennial provided the opportunity for the park to become more integrated with other organizations and activities in the area. The contacts and teamwork developed during this process have had ongoing benefits.

Community and Business Reaction

Local organizations, communities, and businesses were actively involved in planning for the Lewis and Clark bicentennial. Many of these groups supported marketing the shuttle service and other activities. All of the efforts for the bicentennial brought an extra focus to the area and enhanced the sense of community among all groups. Given the distance from the fort – Astoria is three miles away – the potential impact of the shuttle service is relatively small. Businesses, especially hotels, could have been more supportive of aggressively marketing the shuttle service.

Success Factors, Lessons Learned, and Best Practices

This case study provides an example of agencies, organizations, and businesses working together to plan and operate transit services and other improvements for a major event, the Lewis and Clark bicentennial. The case study further highlights modifications made to respond to changing conditions after the bicentennial. The following elements may be of benefit to other areas facing similar situations.

- **Partners responding to a major event.** The planning effort helped unify different agencies and communities, and brought diverse groups together, and brought a sense of community to the area. Small things, like the banners used to promote the Explorer shuttle bus, were well received and helped promote the overall area.
- **Modification of transit services to respond to changes in visitor demands.** The number of routes, route structure, and vehicle assignments were initially planned to meet the anticipated demand of 1.5 million visitors during the Lewis and Clark bicentennial. In response to lower visitation and ridership levels after the bicentennial, service was reduced. It illustrates the importance of monitoring the use of shuttle bus services, other alternative transportation systems, and visitor center levels, and making changes in response to changes in demand.
- **Marketing.** Lack of marketing was a detriment to the success of the program. This case study illustrates both the importance of marketing transit services and the difficulty of marketing transit to visitors. An aggressive marketing effort was never undertaken for the regional seasonal service. Further, it appears that support from local businesses was lacking, as evidenced by the example of Volpe Center personnel being told by a hotel clerk to drive rather than taking the bus to reach the fort.

Glacier National Park West Glacier, Montana

Overview

This case study describes the development and operation of the shuttle bus system in Glacier National Park in northwestern Montana. Implementation of the shuttle system was facilitated by a cooperative interagency agreement among Glacier National Park, the Montana Department of Transportation (MDT), and Flathead County. In 2009, Glacier National Park transferred six buses to Blackfoot Transit, further expanding the partnership. The case study also highlights the challenges of operating bus service on a narrow alpine roadway undergoing reconstruction.



Glacier National Park

Background

Established as a National Park in 1910, Glacier includes 1 million acres of glaciated landscape, lakes, forests, and alpine meadows. West Glacier, located just outside the western entrance to the park includes a few hotels, restaurants, and service stations. Larger gateway communities include Kalispell, Whitefish, and Columbia Falls on the west side of the park and Browning and St. Mary on the east side.

The Going-to-the-Sun-Road traversing the park and crossing the Continental Divide opened in 1932 after 11 years of construction. Traveling the road by automobile or the restored historic red buses is a focal point for park visitors. Planning for needed rehabilitation of the 52-mile historic alpine road began in the 1990s. The planning process involved representatives from Glacier National Park, MDT, and FHWA. A Citizens Advisory Committee was actively involved to ensure that the perspective of local communities, businesses, Tribal governments, and other groups were considered. A goal of reducing summer vehicle traffic on Going-to-the Sun Road by 10-to-12 percent during the 8-to-10 year rehabilitation period was identified during the planning process. The implementation of a shuttle bus system was recommended to help reduce traffic on the Sun Road during the reconstruction process.

Partners and Institutional Arrangements

A unique aspect of implementing the shuttle system was the signing of a cooperative interagency agreement among Glacier National Park, MDT, and Flathead County. The agreement provided for the purchase and shared use of 22 12-passenger and eight 23-passenger buses. The buses are used on the Sun Road Shuttle service in the summer and by Flathead County's Eagle Transit and other general public transit service providers in the state during the remainder of the year. Glacier National Park also purchased additional 12-passenger buses with

funding through the ATPPL program and other sources. In 2009, Glacier National Park transferred six 12-passenger buses to Blackfeet Transit. The following highlights major elements of the agreement:

- provide a transit shuttle system that will facilitate the completion of the rehabilitation of the Sun Road on schedule with minimum impact to the environment, area communities, alternative routes, and the public;
- maximize transportation services for Sun Road users by coordinating road construction, traffic management, and transit operations to minimize congestion and maximize the availability of information for travel planning;
- benefit the public by providing improved access to public transportation within Glacier National Park and elsewhere in Montana;
- maximize the efficiency of the transit shuttle system by taking advantage of transit planning, management, and operations capabilities of existing area transit providers;
- maximize the effectiveness of limited funding by combining funding from several sources; and
- maximize resource protection and environmental sustainability by using alternative fuels where practical in the operation of the shuttle vehicles.

The following section discusses the roles and responsibilities of the various agencies involved in the Glacier shuttle bus system.

- **Glacier National Park.** The park has overall responsibility for the rehabilitation of Going-to-the-Sun Road, mitigating the impact of the rehabilitation project, planning the shuttle bus system and supporting elements, constructing the transit centers and stops, coordinating planning for the service, and funding the shuttle operations. The park is also responsible for marketing the bus service, ensuring that information is available to visitors, and assessing its ongoing operation. Glacier National Park is a co-signer of the cooperative agreement and coordinated its development.
- **Montana Department of Transportation (MDT).** MDT assisted with developing the cooperative agreement and is a co-signer. The Department facilitated the purchase of 22 12-passenger and eight 23-passenger buses in 2007. Funding from an earmark provided in SAFETEA-LU covered 80 percent of the cost and Flathead County provided the 20 percent local match. Following normal procedure, MDT purchased the vehicles and Flathead County provided the matching funds to the Department. MDOT leases the vehicles to Flathead County.

Glacier Shuttle Bus Partners

Glacier National Park
Montana Department of Transportation
Flathead County/Eagle Transit
Federal Highway Administration
Federal Transit Administration
Blackfeet Transit, Blackfeet Tribe

- **Flathead County/Eagle Transit.** Flathead County is a co-signer of the cooperative agreement. The county's Eagle Transit, which provides public transportation services in the county, operates the shuttle service. As provided for in the cooperative agreement, Eagle Transit uses some of the buses during the off-season to provide service in Flathead County.
- **Blackfeet Transit.** Established in 1978, Blackfeet Transit provides services on the Blackfeet Tribal Lands and adjacent communities. In 2009, Glacier National Park transferred six 12-passenger Sprinter buses to Blackfeet Transit. The six buses double Blackfeet Transit's fleet and will allow for service expansion. In addition, Blackfeet Transit provides maintenance services to buses operating on the east side of Going-to-the-Sun Road at their new facility in Browning.
- **Federal Highway Administration and Federal Transit Administration.** Both the FHWA and FTA have assisted with planning and funding for the Going-to-the-Sun Road rehabilitation and the shuttle bus system. FHWA staff participated in planning for the Sun Road rehabilitation. FHWA provided funding for the planning activities, as well as some of the mitigation strategies. Funding through different FTA programs has been used to purchase the buses used on the shuttle system.

Funding

A mix of funding sources was used to purchase the Glacier shuttle buses, to construct the transit centers, and to operate the service. A combination of Sun Road mitigation funds, an earmark in SAFETEA-LU and the Transit in the Parks program, and Flathead County funds were used to purchase the buses. Additional funding from Federal Lands Highway Program, Glacier National Park, and the National Park Service supported the transit centers, stops, information signs, and supports ongoing operations and marketing. Glacier National Park implemented a transportation fee as part of the park entrance fee in 2007 to help fund the shuttle service. The fee was \$5.00 initially and was increased to \$7.00 in 2009. Since the buses were purchased with FTA funds, buses that are leased to other areas in the off-season must be paid for with non-federal funds.

Implementation and Operation

Traffic congestion on Going-to-the-Sun Road and other roadways within the park was identified as a concern in the 1990s. A hiker shuttle was initiated in the early 1990s to help address limited parking at many trailheads. Other transportation services provided in the park include the historic red buses operated by Glacier Park, Inc. and the Blackfeet perspective interpretive tours operated by Sun Tours. Boat tours are also operated by Glacier Park Boat Company on Many Glacier Lake, Lake McDonald, Two Medicine Lake, and St. Mary Lake.

Glacier National Park was one of the National Park Service sites included in the Federal Lands Alternative Transportation System (ATS) study. The ATS study was conducted at the same time planning efforts were being initiated as part of the Going-to-the-Sun Road rehabilitation mitigation process. Suggested approaches in the study included an internal shuttle bus system and a scheduled or demand-responsive shuttle system linking external locations including the AMTRAK station in West Glacier, Glacier Park International Airport in Kalispell, and other gateway communities.

Based on the recommendation to implement a shuttle bus system to help reduce traffic congestion during the Going-to-the-Sun Road rehabilitation project, Glacier National Park initiated a more detailed planning process. A number of different options for a shuttle bus system and the issues associated with various approaches were explored. A Ford Foundation-sponsored park scholar assigned to Glacier National Park assisted with the planning activities.

Planning for the Glacier Shuttle bus system included input from a technical working group and project stakeholders. Consultants were used to assist with different elements, including developing an implementation plan. Major steps in the planning process included reviewing existing conditions and services in the park and gateway communities, developing and evaluating alternative transit service concepts, and selecting a preferred concept. In addition, a value analysis and choosing by advantages process was used to identify the preferred concept, along with a financial analysis to determine funding requirements. A workshop was held as part of the value analysis and choosing by advantages process. This workshop examined possible routes and schedules, the operating season, vehicle types and acquisition methods, and provisions for vehicle maintenance and operating facilities.

The preferred alternative focused on two routes – one on the east side of Going-to-the-Sun Road from the St. Mary Visitor Center to Logan Pass and one on the west side. Different routes were considered for the west side of the park, including extending service to West Glacier and adjacent campgrounds outside the park boundary. Based primarily on the financial analysis, the final route structure on the west side begins at the Apgar Transit Center. Using multiple routes on the west side to address the vehicle size needs of the narrow sections of Going-to-the-Sun Road represents the final approach.

The operating season was defined to focus on the peak visitation months of mid-June to mid-September. The need for buses that could safely operate on the narrow sections of Going-to-the-Sun Road was identified. The use of two different vehicles – a smaller bus and a larger bus with more seating capacity – were selected to operate on the east side of the park and the lower sections of the west side of Going-to-the-Sun Road. All buses can operate on bio-diesel fuel.

The initial examination of operating approaches focused on the use of a service contractor. Discussions with MDT and Eagle Transit resulted in the interagency agreement for the purchase of the buses and operation of the shuttle service. This approach reduced the operating cost for shuttle service and provided for the use of the buses by Flathead County and other transit operators in the state during the winter months.

The free shuttle bus system in Glacier has evolved since its first year in operation in 2007, which included using buses from Yellowstone National Park on the east side route. Figure 4 presents the 2009 shuttle bus schedule and map. In 2009, the Glacier shuttle bus system operated from July 1 through September 7. The larger buses operate on the east side, providing service from the St. Mary Visitor Center to Logan Pass. The first bus leaves the St. Mary Visitor Center at 7:00 a.m. and the last bus leaves at 6:00 p.m. The last bus from Logan Pass to the St. Mary Visitor Center departs at 7:00 p.m.

Four routes serve the west side of the park. The Apgar Transit Center is the focal point for the shuttle bus system on the west side of the park. Located near the Apgar Visitor Center and a few miles from the western park entrance, the transit center includes a parking area, covered waiting area, interactive kiosks, restrooms, and drinking water. The transit center was designed and constructed to be environmentally friendly.

As Figure 4 illustrates, two routes operate from the Apgar Transit Center to Logan Pass with different intermediate stops, one route operates from the Apgar Transit Center, and one route operates from Avalanche Creek to Logan Pass. The smaller buses are used on the routes to Logan Pass. Operating hours on the west side routes vary with the first buses leaving the Apgar Transit Center at 7:00 a.m. and the last bus leaving Logan pass at 7:00 p.m.

Approximately 132,100 passengers rode the shuttle buses in the first summer of operation in 2007. Ridership levels declined slightly to 105,640 during the summer of 2008. Ridership in 2009 increased to 156,726. This increase appears to be partly the result of an extra week of shuttle operation and an 11 percent increase in visitation to the park. Reactions from riders and visitors to the park have been positive. Planning activities for service enhancements and ongoing funding for the shuttle continue.

The Glacier case study illustrates many of the challenges associated with operating bus services in national parks, as well as operating shuttle buses on a historic alpine roadway undergoing rehabilitation. Examples of these challenges include meeting visitor demands at peak times of the day, operating on a narrow roadway in high altitudes, and dealing with delays encountered due to the rehabilitation activities.

Meeting visitor demands at peak times is an ongoing challenge for park transit services. In Glacier, two main challenges have been encountered associated with meeting peak visitor demands. One issue concerns tour buses dropping off their passengers at the Apgar or St. Mary's Transit Centers. These large numbers of riders put a strain on a system focused more on families, individuals, and small groups. The tour bus passengers quickly fill up the Glacier shuttle buses. Tour buses and RVs also take up extra space in the Apgar parking area. During the first year of operation, the scheduling of buses was adjusted on an ongoing basis to ensure adequate coverage. While adjustments continue to be made, experience is being gained on key peak times.

A second visitor peaking issue relates to the last evening bus trip departing from Logan Pass to the Apgar Transit Center. The Sprinter buses accommodate 12 seated passengers. Frequently, more than 12 people are waiting at Logan Pass for the last bus. On more than one occasion, upwards of 100 to 120 people have been waiting. On these occasions, the Sprinter buses continue to circulate and additional buses are dispatched. Even with these extra vehicles and trips, it can take an extra 45 minutes to an hour to transport all the waiting riders.

The Going-to-the-Sun Road presents an ongoing challenge for bus operators. The narrow roadway, hairpin turns, and other features are difficult to navigate under the best of circumstances. With the addition of heavy traffic during much of the day and delays due to rehabilitation activities, operating a bus becomes even more difficult. Delays due to

reconstruction can result in buses running behind schedule. It is difficult for operators to get back on schedule under these conditions.

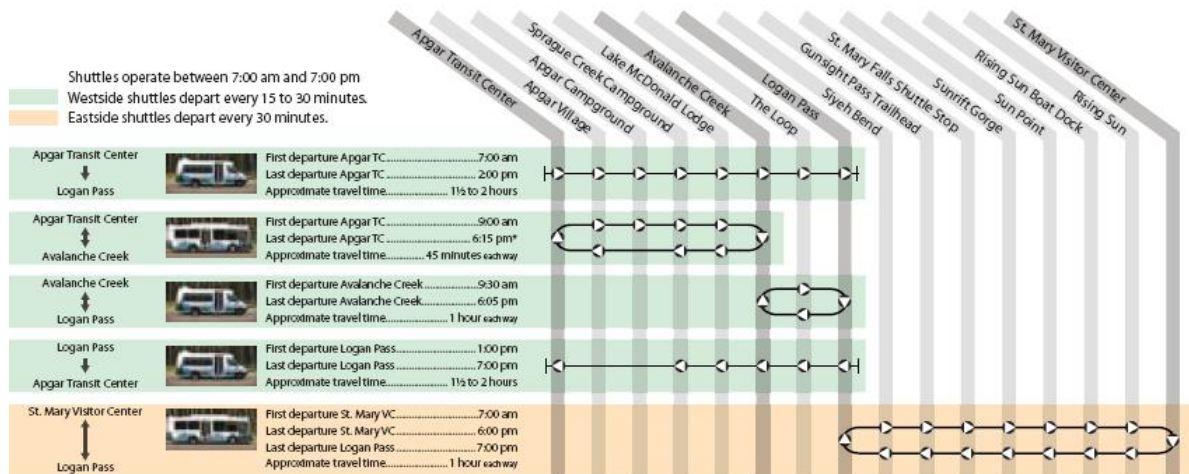


Figure 4. Glacier National Park Shuttle Bus Schedule and Map
Glacier National Park

The delays due to reconstruction also cause problems for the ITS components, including the AVL system. Some problems have been encountered with the system when buses are stopped for five minutes due to road rehabilitation activities.

Federal Lands Agency Reaction

The shuttle bus system has been positively received by visitors to Glacier National Park. Ridership on the shuttle buses has been good and use of the shuttle has reduced traffic volumes on Going-to-the-Sun Road by approximately 20 percent. This reduction surpasses the goal outlined in the Going-to-the-Sun Road rehabilitation mitigation plan.

As noted previously, operating the shuttle buses on Going-to-the-Sun Road presents some unique challenges. The park staff, Eagle Transit personnel, and visitors have responded to these challenges in a positive manner. The park has benefited by meeting its commitments to the mitigation plan and by reducing vehicle volumes and resulting emissions in the park. Visitors benefit from having an additional travel option in the park. The shuttle bus is viewed as a win-win situation for all groups.

Community and Business Reaction

For the most part, it appears the Glacier shuttle bus service is viewed positively by the gateway communities and local businesses. Given the route structure, the potential impact on the gateway communities is limited. The shuttle begins within the park at the Apgar Transit Center on the west side of Going-to-the-Sun Road. As a result, the gateway communities on the west side of the park are not directly impacted by the service. On the east side of the park, the use of the St. Mary Visitor Center for the shuttle bus appears to be well received.

The interagency agreement and the use of Flathead Transit to operate the system has received positive reaction from the gateway communities. This approach provides additional jobs in the area, allows for use of the buses in the local area during the non-park season, and brings additional resources to the area. Transferring six of the 12-passenger buses to Blackfeet Transit has also allowed for the expansion of their service, providing additional benefits to residents of the region.

Success Factors, Lessons Learned, and Best Practices

This case study provides an example of planning, implementing, and operating a shuttle bus system on a historic alpine roadway undergoing rehabilitation. It highlights the unique partnership of Glacier National Park, MDT, Eagle Transit, and Blackfeet Transit to operate the shuttle bus service and to benefit transit services in the area and throughout the state. The following elements of the case study may be especially beneficial to other areas.

- The interagency agreement provides a good example of how agencies at the federal, state, and local levels can work together to implement and operate a shuttle bus system that benefits not only the park, but also the local area and other areas in the state. The time and effort required to develop the interagency agreement pays off in the long-term and benefits numerous groups. Adjustments can be made in the agreement to reflect changing conditions and needs.
- The interagency agreement provision allowing the shuttle buses to be used by Flathead Transit and by other general public transit service providers in the state during the off-

season maximizes their use and provides additional benefits to multiple areas and groups. The transfer of six buses to Blackfeet Transit provides further benefits to local residents.

- The interagency agreement and use of Flathead Transit to operate the shuttle bus service provides an example of maximizing local resources. It also allows operation of the service at a cost that fits within the park's resources.
- The shuttle routes on the west side of the park can be somewhat confusing to visitors, due to the need to operate the smaller buses on the higher section of Going-to-the-Sun Road. The park and Eagle Transit have worked to simplify the routes and the information provided to the public. Flathead Transit has also adjusted service as needed to respond to the challenges of operating on a historic alpine highway undergoing rehabilitation.
- The free shuttle bus is optional and does not compete with the existing concessionaire-operated red buses and Blackfeet perspective tours. The shuttle bus provides another option for visitors.

Rocky Mountain National Park Estes Park, Colorado

Overview

This case study describes the development and operation of shuttle bus routes in Rocky Mountain National Park. The free seasonal service was introduced on one route in 2001, building on the experience with a shuttle bus operated since 1978. The service has been expanded to three routes since 2001. A complimentary free Shopper Shuttle is also provided in the gateway Town of Estes Park. The park and town shuttles represent the coordinated and cooperative efforts of the Rocky Mountain National Park, the Town of Estes Park, the Colorado Department of Transportation (CDOT), and the FHWA and the FTA.



Katherine F. Turnbull

Background

Established in 1915, Rocky Mountain National Park is located in north central Colorado. The park encompasses 416 square miles of the Rocky Mountains. Hiking, camping, and wildlife viewing are major visitor activities in the park. Estes Park, which has a population of approximately 6,000, is the gateway community for the park.

Rocky Mountain National Park draws visitors from the Denver metropolitan area, as well as from throughout the country and world. Considered a “backyard” park to many Colorado residents, the park receives many repeat visitors. The park has averaged approximately 3 million annual visitors since the mid-1990s.

Limited parking at many trailheads and traffic congestion on the park roadways resulted in the consideration of transit alternatives in the mid-1990s. A shuttle bus, providing limited service, had been in operation since 1978. Expanding the shuttle service was considered in the park master planning process and in the park transportation planning process. The Bear Lake shuttle bus route was implemented in 2001, with two more routes added in subsequent years. The Town of Estes Park also initiated a Shopper Shuttle, with routes serving the downtown area, in coordination with the park service.

Partners and Institutional Arrangements

Planning, implementing, and operating the park and town shuttle bus services represent the coordinated efforts of Rocky Mountain National Park, CDOT, the Town of Estes Park, and the FTA. Rocky Mountain Transit Management, a part of McDonald Transit Associates, Inc. operates the shuttle service under contract to the park. The following highlights the roles and responsibilities of these different groups.

Rocky Mountain Shuttle Partners

Rocky Mountain National Park
Colorado Department of Transportation
Town of Estes Park
Federal Transit Administration and Federal Highway Administration

- **Rocky Mountain National Park.** The park has taken the lead on planning and operating the shuttle bus service. The park implemented an initial shuttle bus in 1978. In response to concerns over limited parking at popular trailheads and traffic congestion on park roads, the park expanded and upgraded the shuttle bus service beginning in 2001. The park contracted with Rocky Mountain Transit Management, a part of McDonald Transit Associates, Inc., to purchase the buses and to operate the shuttle service. The park funds operation of the shuttle system from the additional transit fee on the park entrance fee. The park has shared buses with the Town of Estes Park for the Shopper Shuttle, which is also operated by Rocky Mountain Transit Management, during the first three-year trial period.
- **Colorado Department of Transportation (CDOT).** CDOT has assisted with planning activities associated with different transportation elements in the park and town, including the transit shuttles and ITS projects. The major roads in the park and in Estes Park are part of the state system. CDOT also supports and participates in the transportation planning activities of the Upper Front Range Regional Planning Commission and other groups.
- **Town of Estes Park.** The Town of Estes Park initiated the Shopper Shuttle in 2006. For the first three years, the park shared its bus fleet with the town. In 2009, the town leased three vehicles for the service, which is operated by Rocky Mountain Transit Management. The town funds operation of the Shopper Shuttle. The town actively participates in the local and regional planning processes, including those focusing on transportation.
- **Federal Transit Administration and Federal Highway Administration.** A variety of FTA and FHWA programs have been used to fund elements of the Rocky Mountain National Park shuttle service, the ITS projects in the park, and related surveys and research activities. These sources include the ATPPL Transit in the Parks Program and the ITS programs.

Funding

A mix of funding sources have been used to support the Rocky Mountain National Park shuttle buses and the Town of Estes Shopper Shuttle. Examples of these funding sources include the National Park Service ATP, the addition of a transit fee to the park entrance fee, FTA's

ATPPL Transit in the Parks program, FHWA's ITS program, and the Town of Estes Park. The partners work together to maximize available funding and share expertise and resources.

Implementation and Operation

A limited shuttle bus system was implemented in the park in 1978. Operated by a concessionaire, the shuttle transported approximately 160,000 annual passengers from the Park & Ride to Bear Lake. Rocky Mountain National Park was one of the National Park Service sites included in the Federal Lands ATS study. Recommendations in the study included replacing the school buses used on the shuttle with Americans with Disabilities Act (ADA)-accessible vehicles that would enhance the visitor experience, exploring additional routes, and working with the town on possible linking services. An expanded free shuttle bus service was initiated in 2001 to help address the shortage of parking spaces at trailheads and to ease traffic congestion on the park roadways.

Figures 5 and 6 illustrate the Bear Lake, Moraine Park, and Hiker Shuttle routes. The Bear Lake shuttle route was the first route implemented in 2001. Bear Lake is one of the most visited parts of the park, and parking at the site is very limited. The shuttle operates between the Park & Ride and Bear Lake. When the parking lot at Bear Lake is full, visitors are directed to the Park & Ride where they can park their vehicle and take the shuttle to Bear Lake.

The Moraine Park route and the Hiker shuttle were added in subsequent years. In 2009, the shuttle service operated from May to September. Weekend service was initiated on Memorial Day (May 23) with daily service beginning June 13 and operating through September 27. Service on the Hiker shuttle was operated June 27 through September 7, with weekend service operated through the end of September.

The Bear Lake Shuttle operates between the Park & Ride and Bear Lake every 10-15 minutes from 7:00 a.m. to 7:00 p.m. The Moraine Park Shuttle provides service between Park & Ride and Fern Lake every 30 minutes from 7:00 a.m. to 7:00 p.m. The Estes Park Hiker Shuttle provides service between the Estes Park Visitor Center and Park & Ride each hour from 6:30 a.m. to 7:30 p.m.

In addition to the free shuttle, Rocky Mountain Transit Management, in conjunction with the park, provides a five-hour interpretive tour of Trail Ridge Road on Tuesdays and Wednesdays from June 30 through August 26. During the tour, park personnel provide a narrative of the history and geology of Trail Ridge Road, the highest continuously paved road in North America. The cost for the tour is \$22 for adults and \$11 for youth under 16. Children not occupying a seat ride for free.

The Town of Estes Park initiated the free Shopper Shuttle in 2006 in cooperation with the park. A previous attempt with a trolley circulating between the YMCA Camp facility and the town had experienced mixed results. The Shopper Shuttle was implemented to help address traffic congestion and the lack of parking in the downtown area. These problems are especially acute during summer weekends. Traffic counts by CDOT suggest that demand on the downtown street network exceeds its capacity approximately 25 days per year. This situation is expected to worsen with the projected increase in visitors.

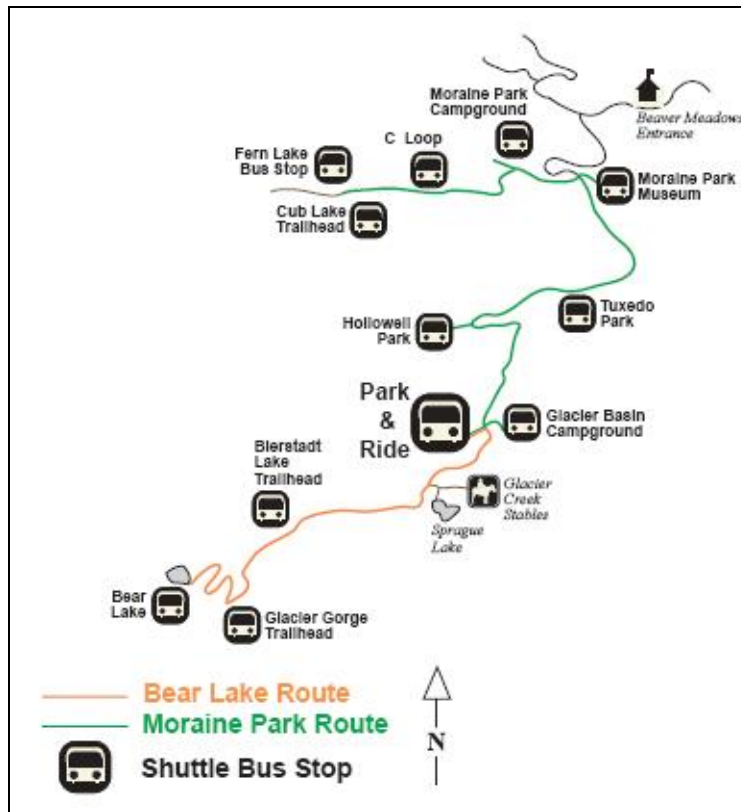


Figure 5. Bear Lake and Moraine Park Routes
Rocky Mountain National Park

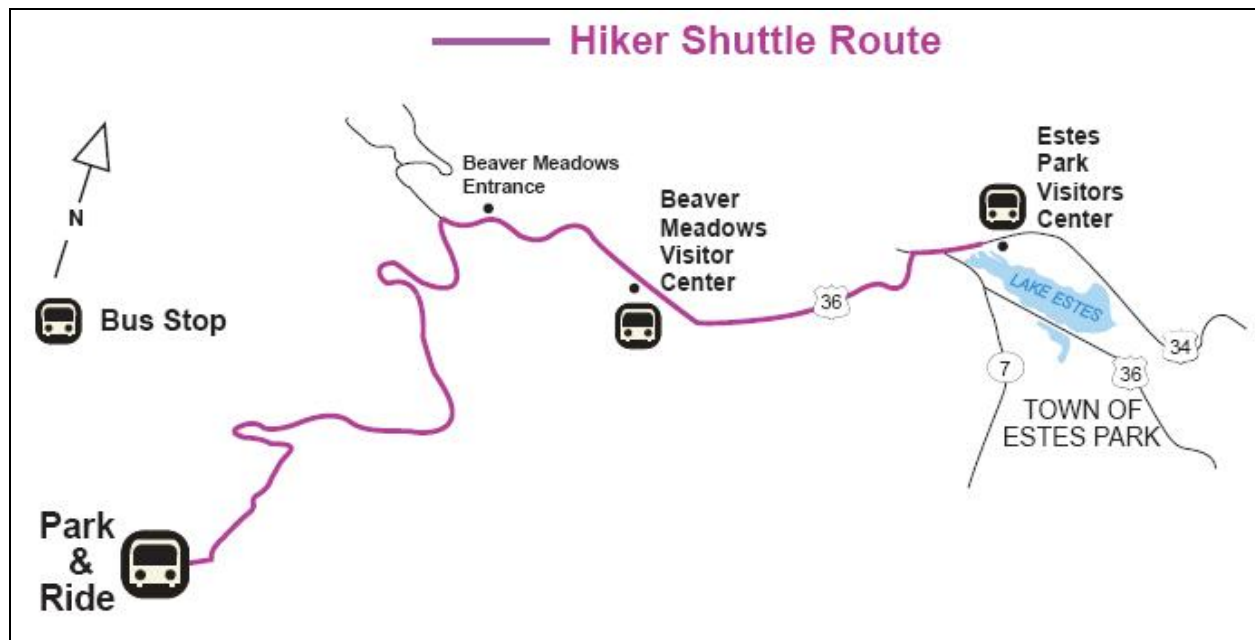


Figure 6. Rocky Mountain Hiker Shuttle Route Map
Rocky Mountain National Park

For the first three experimental years of operation, the park shared its fleet of vehicles with the town. In 2009, the park needed the three vehicles for expanded service hours and the town leased three vehicles to operate the service – two new cut-a-way buses with seating capacity for 14 riders and one new cut-a-way bus accommodating 25 passengers. In 2009, three routes were operated linking major destinations in the town. Service was operated daily from June 27 through August 30, with weekend-only service continuing on one route for the first two weekends in September. The service operated from 10:00 a.m. to 7:00 p.m. or 7:30 p.m. on the three routes.

Response to the shuttle bus system has been very positive. Total 2008 ridership for the three park routes was approximately 337,540. Ridership for June through August of 2009 was approximately 310,200, which is above 2008 ridership levels for the same time period. The Hiker Shuttle appears to have gained more riders than the other routes, which may be an indication that visitors are leaving their vehicles at designated locations outside the park.

Ridership on the Shopper Shuttle routes in 2009 was approximately 32,900. Ridership for June, July, and August of 2009 was 23,605, which is slightly lower than the corresponding months in 2008. The Red Route, which was lengthened in 2009 and serves the town hall, the Fall River Visitor Center, and the Estes Park Visitor Center, appears to have experienced the largest decline in riders. The slight decline in 2009 ridership levels on the park shuttle appears to be related to the general economic slowdown. Both the park and the town shuttles appear to be popular with visitors. Feedback from visitors on both shuttles has been positive.

Federal Lands Agency Reaction

The three park shuttle routes benefit the park and visitors. The shuttle buses allow visitors to access destinations in the park by leaving their vehicles in Estes Park and at the Park & Ride. The shuttles have helped address the parking limitations at Bear Lake and other popular trailheads. The shuttles assist in managing private vehicle volumes at key locations. Removing vehicles from the park roadway also helps address air quality concerns in the park.

The shuttle buses have been well received by visitors. Ridership levels on the park shuttles continue to increase. The Hiker Shuttle experienced the largest growth in ridership in 2009. An on-board ridership survey was conducted in 2008, and although the detailed results have not been published yet, it appears the shuttle buses received positive responses from riders.

One concern that has been raised by some relates to increases in visitation levels at popular sites as a result of the shuttle buses. Previously, parking limitations acted to regulate the number of visitors at a site. When a lot was full, no more people could access the site. The shuttles now allow additional visitors to access Bear Lake and other popular sites, raising concerns about the impact of crowding on the visitors' experiences. This question is being examined through a research study funded through FTA's Transit in the Parks program. The study includes surveys, visitor counts, and interviews.

Community and Business Reaction

Businesses and the general community in Estes park view the park shuttle buses and the Shopper Shuttle positively. The Shopper Shuttle has helped address traffic and parking congestion in the downtown area, especially on peak summer weekends. The Estes Park Visitors and Convention Bureau, which helps market the Shopper Shuttle, reports its members continue to be pleased with the service and support its ongoing operation.

Success Factors, Lessons Learned, and Best Practices

This case study highlights the development and operation of three shuttle routes in Rocky Mountain National Park, including the Hiker Shuttle, which links the Town of Estes Park with the park, and the Shopper Shuttle in Estes Park. All of the shuttles are free. Riding the shuttle buses is voluntary, with the exception that visitors must use the Park & Ride and take the shuttle bus to Bear Lake when the parking lot at Bear Lake is full. The following elements from the Rocky Mountain National Park case study may be of benefit to other areas.

- **Established acceptance of shuttles.** A shuttle bus had been operating in the park since 1978. As a result, the shuttle bus concept was not new to repeat park visitors. Park staff also had experienced coordinating the shuttle bus operations. The new service was introduced with one route, which was similar to the previous shuttle. Additional routes were implemented building on the success of the first route.
- **Seamless Operations.** Due to the frequent service between the Park & Ride and Bear Lake, the transfer or change of mode does not appear to detract from the visitor experience. Although use of the Park & Ride requires visitors on other routes to transfer to reach Bear Lake, the 10-minute headways of buses traveling to Bear Lake is not onerous. Bus operators and park staff help direct visitors and add to the visitor experience.
- **Well orchestrated planning process.** The planning activities involving representatives from the park, town, and business community helped develop a common understanding of the issues and opportunities associated with operating the park and the town shuttles. These activities also strengthened the existing good working relationship.
- **Smart partnerships.** The park and town have worked to maximize available resources, share expertise, and leverage funding. The park initially loaned vehicles to the town for the Shopper Shuttle. Using the same operator for both services further maximizes resources.

Colonial National Historical Park Williamsburg, Virginia

Overview

This case study describes the implementation and operation of a seasonal shuttle bus system in the Colonial National Historical Park linking the historic sites of Williamsburg, Jamestown, and Yorktown, VA. The Historical Triangle Shuttle represents the cooperative efforts of Colonial National Historical Park, the Colonial Williamsburg Foundation, the Association for the Preservation of Virginia Antiques Preservation Virginia, York County, the Jamestown-Yorktown Foundation, and the Williamsburg Area Transit Authority.



National Park Service

Background

The Colonial National Historical Park occupies a peninsula between the James and York Rivers. It includes a number sites and the 23-mile scenic Colonial Parkway. The three colonial settlements of Williamsburg, Jamestown, and Yorktown, which provide visitors with an understanding of the British colonial experience, represent major sites in the park. The Colonial Parkway links these three sites, known as the Historical Triangle. Other sites within the park include the Yorktown Battlefield, the Cape Henry Memorial, Jamestown Island, Green Spring Plantation, Swann's Point, and Tindal's Point.

In the 1890s, the Association for the Preservation of Virginia Antiquities (APVA) accrued approximately 23 acres in Jamestown. The Colonial Williamsburg Foundation was established in 1926 to promote the preservation of Williamsburg. Congress established the Colonial National Monument in 1930 to preserve the park's historic structures and remains. The name was changed to the Colonial National Historical Park in 1936.

In the late 1990s and early 2000s, traffic congestion during peak visitor times and limited parking at many sites focused attention on possible transit alternatives in the park. Construction of the new Jamestown Visitor Center, which removed 150 parking spaces from a 300-space lot and resulted in visitors parking in undesignated areas, increased the need for transit service in the park. The approaching 400th anniversary celebration of the settlements in 2007 and the expected high-volume of tourists further supported consideration of transit alternatives.

A pilot seasonal shuttle bus system was implemented in 2004. Called the Historic Triangle Shuttle, the service is operated by the Colonial Williamsburg Foundation. Service is provided on two routes, both originating at the Colonial Williamsburg Visitor Center and both

using the Colonial Parkway. One route provides service to Jamestown and the other route serves Yorktown. Both routes connect to local shuttle bus systems in Jamestown and Yorktown.

Partners and Institutional Arrangements

The Historic Triangle Shuttle represents a partnership among numerous agencies and organizations. As the following notes, all of these groups participated in the planning process for the Historical Triangle Shuttle service. Each continues to be involved currently, although their roles and responsibilities vary. In addition, FTA has been the key federal funding partner.

Historic Triangle Shuttle Bus Partners

Colonial National Historical Park
Colonial Williamsburg Foundation
Williamsburg Area Transit Authority
Association for the Preservation of Virginia
Antiquities (APVA) Preservation Virginia
York County
Jamestown-Yorktown Foundation
Federal Transit Administration

- **Colonial National Historical Park.** The park and the National Park Service initiated discussions on the potential for the shuttle service. The park took the lead in the planning process for the shuttle service with assistance from other partners, and in conducting a feasibility study, a plan, and an environmental assessment. It also led the effort to develop and submit the funding request for the new Jamestown Visitor Center, which included funding for the purchase of the shuttle buses and operation of the service until 2010.
- **Colonial Williamsburg Foundation.** The Colonial Williamsburg Foundation operates Colonial Williamsburg, a 300-acre historic area with restored, reconstructed, and historically furnished buildings. The Colonial Williamsburg Foundation participated in the planning process for the shuttle. It operates and maintains the Historic Triangle Shuttle through an annual cooperative agreement with the park. The Foundation also provided the 20 percent local match for the FTA funds.
- **Williamsburg Area Transit Authority (WATA).** The WATA provides transit services to James City County, the City of Williamsburg, and the Burton District of York County. It operates the Williamsburg Trolley and other bus routes within its service area. Representatives from WATA were involved in the planning process for the Historical Triangle Shuttle. The WATA purchased the Historic Triangle Shuttle buses with FTA funding. It owns the buses and leases them to the Colonial Williamsburg Foundation.
- **Association for the Preservation of Virginia Antiquities (APVA) Preservation Virginia.** Preservation Virginia is a private non-profit organization dedicated to preserving the historical and cultural heritage of Virginia. It participated in the planning process and provides ongoing support for transit in the region, but does not provide any financial support for the Historic Triangle Shuttle.
- **York County.** Representatives from York County were involved in the shuttle planning process. York County operates the Yorktown Trolley. The free trolley serves major sites in Yorktown, and its schedule coordinates with the Historic Triangle Shuttle.

- **Jamestown-Yorktown Foundation.** The Jamestown-Yorktown Foundation operates the Yorktown Victory Center and the Jamestown Settlement. The Foundation was involved in the Historical Triangle Shuttle planning process and continues to market the service.
- **Federal Transit Administration (FTA).** The FTA provided capital funding for the purchase of the Historic Triangle shuttle buses.

Funding

Funding for the purchase of the Historic Triangle Shuttle buses and operation of the service until 2010 was part of the request for the new Jamestown Visitor Center. The shuttle system was implemented to address the impact of the new visitor's center. A congressional earmark designated funding for the new visitor center, including the purchase of the shuttle buses and operation of the seasonal service until 2010. The Colonial Williamsburg Foundation provided the 20 percent local match for the approximately \$2.6 million in funding from the FTA.

WATA acted as the designated recipient of the FTA funds for purchasing the seven buses. The WATA owns the vehicles and leases them to the Colonial Williamsburg Foundation. During the off-season for the Colonial National Historical Park (November through March) the buses are leased out for other services.

Implementation and Operation

The Colonial National Historical Park was one of the National Park Service sites included in the Federal Lands ATS study. The park was identified as a very strong candidate for ATS services focusing on large-scale visitor movement. Possible alternatives identified in the study included a multi-jurisdictional regional public transportation system, a visitor shuttle linking the new Jamestown Visitor Center with Jamestown Island and providing internal circulation, and implementing the proposed bicycle/pedestrian path along the Colonial Parkway.

The Historic Triangle Shuttle was initiated as a pilot in 2004. The shuttle, operated by the Colonial Williamsburg Foundation, operates from March to November and is offered as a free service to ticket-holders of any of the historic sites. The bus service originates at the Colonial Williamsburg Visitor Center and offers two routes – one to Jamestown and one to Yorktown. Each of these routes uses the scenic Colonial Parkway. Travel times on both routes are approximately 20-to-25 minutes. The routes connect to the Yorktown Trolley and the Jamestown Trolley.

The shuttle fleet consists of seven, 40-foot, 38-passenger Orion buses. The buses operate on compressed natural gas. There are five buses in operation at a time, two travel back-and-forth to Jamestown, two traveling to Yorktown, and one is used as a shuttle around the Jamestown historic site. The buses provide an interpretive tour that compliments the transportation.

The operating schedule has varied throughout the service history. In 2004, during the pilot program, buses ran on two-hour headways. The headways were reduced in 2005 to one hour. In 2006, the headways were further reduced to 30 minutes. Shuttle service to Jamestown begins at 9:00 a.m. and operates on 30-minute headways until 3:30 p.m. Return service operates

on 30 -minute headways from 9:30 a.m. to 4:00 p.m. A final bus returns from Jamestown to the Colonial Williamsburg Visitor Center at 5:15 p.m. While at Jamestown, the shuttle travels to Historic Jamestowne and the Jamestown Settlement. There is a separate shuttle operated by the Colonial Williamsburg Foundation called the Jamestown Area Shuttle that operates solely around the Jamestown area.

Shuttle service to Yorktown begins at 9:00 a.m. and operates every 30 minutes until 3:30 p.m. Return service operates on 30-minute headways from 9:30 a.m. to 4:00 p.m. The final bus departs at 5:15 p.m. While at Yorktown, the shuttle travels to the Yorktown Battlefield and Yorktown Victory Center. The Yorktown Trolley operates in the Yorktown area from 10:00 a.m. to 6:00 p.m. The Historic Triangle Shuttle connects to the Yorktown Trolley, which is operated by York County.

Ridership on the shuttle has increased since the pilot was initiated in 2004. Approximately 67,520 passengers rode the shuttle in 2006. In 2007, which marked the 400th anniversary for the historic sites, ridership on the shuttle was approximately 172,200. The 400th anniversary celebration brought in extra visitors, resulting in the higher ridership. In 2008, ridership declined to approximately 101,520 passengers.

The Volpe National Transportation Systems Center is currently conducting an operations evaluation of the Historic Triangle Shuttle for the park. This study will be used to assess options for continued operation of the shuttle. The operating funds provided by the congressional earmark end in 2010. As a result, examining alternative funding approaches is an important part of the study.

Federal Lands Agency Reaction

The Historic Triangle Shuttle is an important element of the transportation system serving the Colonial National Historical Park. It has resulted in reduced vehicle traffic in the park and has helped address the loss of parking at the Jamestown Visitors Center. The shuttle serves the overflow parking lot at the Jamestown Settlement, which further helps reduce the number of personal vehicles accessing the site.

The Colonial Williamsburg Visitor Center provides a central location for the transit routes to Yorktown and to Jamestown. This approach encourages visitors to see more than one site. The shuttle service also provides an interpretive tour, which informs the visitors of facts they would not gain if traveling in a personal vehicle.

Community and Business Reaction

Reactions to the Historic Triangle Shuttle from the local communities and businesses in the area have been positive. The shuttle encourages tourists to visit more than one of the sites in the area and to use the trolleys in Yorktown and Jamestown. Visitors riding the shuttle frequently stay at museums and gifts shops longer while they are waiting for the next bus. In this respect, the shuttle has had a positive impact on businesses and sales. The Chamber of Commerce promotes the shuttle, believing it leads people to spend more time in the area.

Response from visitors using the Historic Triangle Shuttle has also been positive. A survey of shuttle riders was recently conducted. The results of this survey are being compiled, but indications are that the service is viewed positively.

Success Factors, Lessons Learned, and Best Practice

This case study provides an example of planning, implementing, and operating a seasonal shuttle bus system serving the Colonial National Historical Park. It highlights the benefits of a partnership among a park, private non-profit organizations, local transit agencies, and local communities. The following highlights elements of the case study that could benefit other areas.

- The Federal Lands ATS study, the need for a new visitor center in Jamestown, the approaching 400th anniversary of the settlements, and increases in traffic congestion and demands on parking all contributed to consideration of transit alternatives in the park. The park initiated discussions for the shuttle with other partners to address these needs and opportunities.
- The park was able to leverage a funding request for the new Jamestown Visitors Center, which required removing 150 parking spaces, to include funding for the purchase of the shuttle vehicles and operating the shuttle until 2010.
- The partnership maximized the resources and capabilities of the agencies and groups. The WATA purchased the shuttle buses with the federal funding. The WATA owns the buses and leases them to the Colonial Williamsburg Foundation who operates the shuttle service. The Colonial Williamsburg Foundation provided the 20 percent local match for FTA funding. The Colonial Williamsburg Foundation operates the service through an annual cooperative agreement with the park.
- The Historical Triangle Shuttle links to local transit services in Jamestown, Yorktown, and Williamsburg. These links provide visitors with additional mobility options and further encourages visitors not to drive their personal vehicles.
- The Historical Triangle Shuttle has the support of historic organizations, community groups, and businesses. These groups help promote and market the shuttle to visitors.

Reds Meadow Valley – Devils Postpile National Monument Mammoth Lakes, California

Overview

This case study describes the implementation and operation of a shuttle bus system serving the Devils Postpile National Monument in the Reds Meadow Valley of the Inyo National Forest, located in Madera County, CA. In 1979, The Forest Service and the National Park Service took the lead in planning and implementing the shuttle bus system to limit the number of vehicles entering the Valley. Options for operating the shuttle bus system have been examined over the years. In 2009, the Eastern Sierra Transit Authority began operating the service using buses leased from Mammoth Mountain Ski Area.



Virginia Smith Reeder

Background

The Reds Meadow Valley is located on the western slope of the Sierra Nevada Mountain Range in Madera County, CA. The Reds Meadow Valley is part of the Inyo National Forest. The Devils Postpile National Monument, which includes the Devils Postpile formation, is the main visitor attraction. The only means of access to the Reds Meadow Valley and Devils Postpile is by Reds Meadow Road, which is a steep and winding nine-mile road. Reds Meadow Road runs from Reds Meadow Valley through the Town of Mammoth Lakes, the area's gateway community situated along US 395 in Mono County.

The Reds Meadow Road is a single-lane road with turnouts for two-and-a-half miles until it reaches the valley floor, where it becomes a two-lane road. After the road was paved in 1978, traffic levels increased, resulting in congested conditions during the peak summer visitor season. Concerns over visitor safety and resource damage led to the implementation of a mandatory shuttle bus system in 1979, when a Forest Order limited vehicle access to the Reds Meadow Valley. The objectives of the shuttle bus system were to eliminate traffic congestion and parking capacity issues and to improve the overall quality of the visitor experience.

Partners and Institutional Arrangements

Implementing and operating the shuttle bus system in the Reds Meadow Valley represents the coordinated effort of the Inyo National Forest, Devils Postpile National Monument, the Eastern Sierra Transit Authority (ESTA), the town of Mammoth Lakes, Mammoth Mountain Ski Area, and the

FTA. The current partnership may expand into a larger multi-agency partnership if the FTA approves a \$4.8 million request from ESTA for the purchase of 12, 35-passenger, ADA-compliant buses from the 2009 Paul S. Sarbanes Transit in the Parks program. These vehicles are tailored to safely operate in the difficult environment of the Reds Meadow access road. The agencies will continue to work together regardless of the success of the grant application. The following highlights these different entities.

Devils Postpile Shuttle Bus Partners

Inyo National Park
Devils Postpile National Monument
Eastern Sierra Transit Authority
Federal Transit Administration
Town of Mammoth Lakes
Mammoth Mountain Ski Area

- **Inyo National Forest.** The Forest Service administers Reds Meadow Valley surrounding Devils Postpile National Monument. As a result, the Forest Service maintains and controls access to the road. The shuttle bus service has been the responsibility of the Inyo National Forest since its inception in 1979. The Inyo National Forest has been responsible for hiring, staffing, and supervising the Minaret Vista Entrance Station – as well as the lower station, where the shuttle passes were sold, until it was removed in the 2009 season. Inyo is also responsible for road maintenance, and special use permit administration. It is also responsible for associated management costs for the shuttle, providing interpretive service to the area, and developing and improving amenities that benefit visitors to Devils Postpile and Reds Meadow Valley. Inyo National Forest is responsible for collecting fees and is accountable for all fee revenues. Until June 2009, it was also responsible for contracting the shuttle bus service and organizing safety inspections to ensure that the buses passed the California Department of Transportation (Caltrans) standards and inspection requirements. All visitors to the Reds Meadow Valley, including those interested solely in visiting Devils Postpile, pay either a bus fare or a transportation fee for entrance in a private vehicle. The Inyo National Forest is responsible for collecting the transportation fee.
- **Devils Postpile National Monument.** The Devils Postpile National Monument has collaboratively managed visitor access and services in Reds Meadow with the Inyo National Forest for decades by providing staff support for the Minaret Vista checkpoint and providing resources to study the shuttle operation and its sustainability. This arrangement was formalized in a General Agreement (National Park Service Document No. G8590040052) in November, 2004. The agreement recognizes that it is in the public interest and resource protection for the agencies to coordinate many aspects of the management of visitor services, shuttle bus operations, visitor information, resource protection strategies, and emergency responses. Through this agreement, both the Inyo National Forest and the Devils Postpile National Monument recognize the importance of a safe and successful transportation system from the Mammoth Mountain/Minaret Summit area to the Reds Meadow Valley. Both agencies agree to work collaboratively to

achieve a successful and sustainable transportation system. As noted previously, the National Park Service does not charge any access fee for the monument itself.

- **Eastern Sierra Transit Authority (ESTA).** As of June 2009, ESTA, a federally recognized regional transit authority, operates the shuttle bus service to Reds Meadow and Devils Postpile National Monument through its Joint Powers Authority. ESTA is also responsible for collecting the transportation fare. Visitors using the shuttle service do not pay the transportation fee but do pay a fare to ESTA. Inyo National Forest and Devils Postpile National Monument receive no revenue from the shuttle operation. Since ESTA is the locally based, federally recognized authority with a local infrastructure, it is expected that ESTA will provide a more cost effective, interconnected, and sustainable shuttle bus system than the previous contract operator. It is hoped that, in the future, the current \$7 a day adult fare will either be lowered or at least maintained, due to increased efficiencies in operation, the not-for-profit philosophy, and support from granting programs such as Transit in the Parks. ESTA is currently leasing buses from Mammoth Mountain Ski Area to operate the shuttle service. Some of the buses are 13 years old and are near the end of their service life. As a result, continuing to lease from Mammoth Mountain Ski Area is not a long-term solution. The ESTA application to FTA for the purchase of 12 buses would ensure the long-term viability of the shuttle system and would leverage significant annual financial resources.
- **Federal Transit Administration (FTA).** The FTA has worked collaboratively for a decade with Inyo National Forest and Devils Postpile National Monument to explore sustainable models to operate the shuttle service in the Reds Meadow Valley. ESTA applied for a \$4.8 million grant from the FTA through the Paul S. Sarbanes Transit in the Parks program to purchase 12, 35-passenger, ADA-compliant buses.
- **Town of Mammoth Lakes.** A new route operated by ESTA was implemented in June 2009, linking the Town of Mammoth Lakes to the Mammoth Mountain Adventure Center, connecting the town's transit service to the Reds Meadow Shuttle. This new link provides a seamless regional transportation system in the Eastern Sierra between the Reds Meadow Valley and the other ESTA services to Reno or the Los Angeles area, and Yosemite Area Regional Transit System (YARTS) service to Yosemite Valley and Merced, CA. If the application for the new shuttle buses is approved, the multi-agency partnership will unify the Reds Meadow Shuttle, the Mammoth Mountain Ski Area winter shuttle service, and the Town of Mammoth Lakes transit routes under ESTA.
- **Mammoth Mountain Ski Area.** The ski area operates a shuttle bus system in the winter. It is leasing its buses to ESTA for the 2009 summer visitor season. Located on Forest Service land, Mammoth Mountain Ski Area has indicated an interest in working with ESTA to improve its transit operations and efficiency. The ski area is in the early stages of exploring transferring its winter bus operations to ESTA.

Funding

In FY 2009 and 2010, it is estimated that ESTA will break even operating the shuttle bus system due to fares collected and a subsidy from Inyo National Forest. The Inyo National Forest

will subsidize ESTA's start-up costs and bus shuttle operations for FY 2009 and FY 2010 through the transportation fees collected from the vehicles visiting Reds Meadow and an FTA FY 2008 Transit in the Parks program grant approved for the lease of buses.

After FY 2010, it is expected that the fares collected will cover ESTA's operating expenses. ESTA applied for the FY 2009 FTA Transit in the Parks program grant for \$4.8 million to purchase 12, 35-passenger, ADA-compliant buses. Currently, ESTA is leasing buses from the Mammoth Mountain Ski Area. The cost of continuing to lease buses if the FTA grant is not approved could vary from \$85,000 to \$144,000 a year.

Implementation and Operation

The Reds Meadow mandatory shuttle was implemented in 1979. The objectives of the shuttle were to reduce the number of vehicles entering the Valley, thereby eliminating traffic congestion and parking capacity issues and improving the overall quality of the visitor experience. As shown in Figure 7, there are 10 stops along the shuttle route. The shuttle route begins at the Mammoth Mountain Adventure Center, where visitors purchase tickets and board the bus. The terminus is Reds Meadow Resort, which offers visitor services including restrooms, telephones, a café, and store. The stop at Devils Postpile National Monument is the major destination for shuttle bus riders. In June 2009, a route from the Mammoth Mountain Adventure Center to the Town of Mammoth Lakes, connecting the town's transit service to the Reds Meadow Shuttle, was implemented.

The Reds Meadow shuttle operates only during the summer visitor season (the valley is closed during the winter), from mid-June to mid-September, depending on the weather. During this period, the shuttle is mandatory for all visitors except for those meeting the following exceptions:

- visitors who drive into the Valley before 7:00 a.m. or after 7:00 p.m.;
- visitors who are overnight guests at Reds Meadow Resort;
- visitors who are camping within the Reds Meadow Valley;
- visitors who are hauling stock trailers;
- visitors whose vehicles are carrying small watercraft for use in the lakes; and
- visitors who can provide proof of physical handicap.

These visitors must pay a transportation fee described later in this section. If the pending application at FTA is approved, the 12 new buses will be ADA accessible and disabled visitors will have the choice between riding the shuttle or using their personal vehicles.

Until June 2009, Inyo National Forest had both management and fiscal responsibilities for the shuttle bus system. The bus service was provided through a contract service that leased buses and operated them throughout the visitor season. The Inyo National Forest paid for the operations of the bus service through the collection of a fee from all visitors to the valley.

Collected as an expanded amenity fee, visitors entering in private vehicles or on the shuttle bus were all required to pay this fee. The fee amount varied over the years, and at times the National Park Service and Forest Service provided subsidies to maintain the fee at a level acceptable to the public.

Beginning in June 2009, the bus service is provided through a partnership with ESTA, which operates the shuttle service. Visitors riding the shuttle pay ESTA a fare for the shuttle service. The Inyo National Forest and Devils Postpile National Monument do not receive revenue from the shuttle operation. Because ESTA is not a federal land management agency, Interagency Passes are not honored for shuttle services.

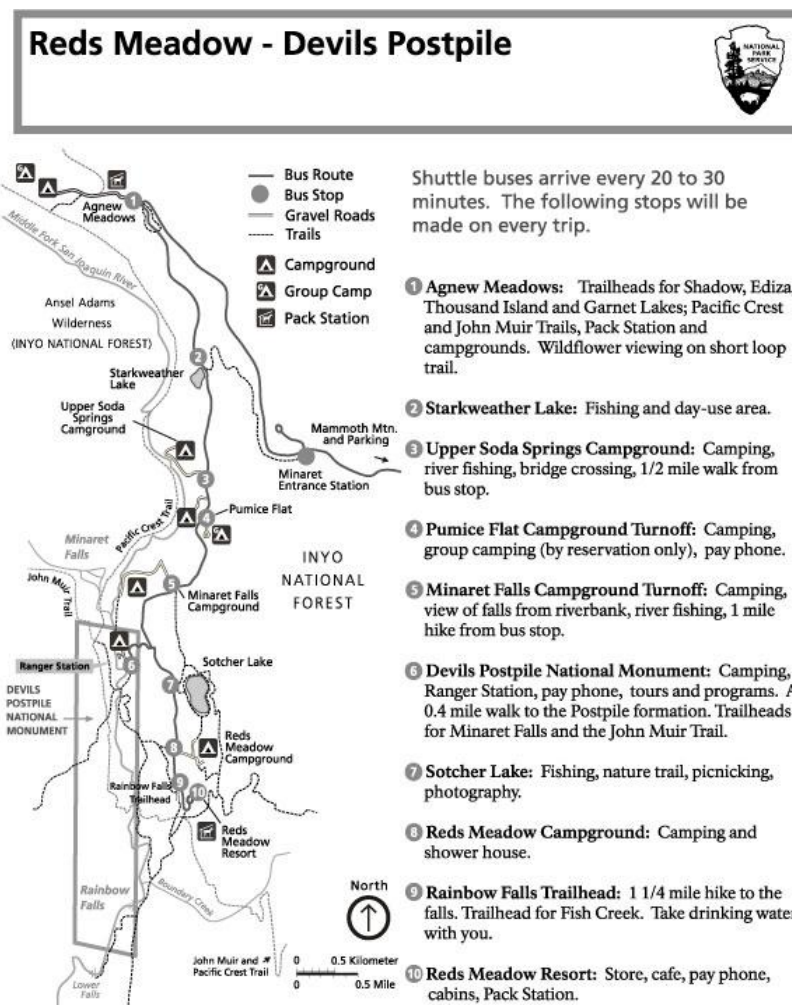


Figure 7. Reds Meadow Valley Shuttle Route and Stops
National Park Service

Since June 2009, visitors who ride the shuttle bus pay ESTA a transportation fare and visitors who meet one of the exceptions and drive into the valley pay the Forest Service a transportation fee. Visitors arriving on the shuttle are not required to pay any fees in addition to the transit fare. Both the visitor fee and the fare are \$7 for adults and \$4 for children (3- to 15-years of age). There is \$20 per vehicle fee cap for visitors staying overnight in the Reds Meadow Valley and using their own vehicle. For example, if five individuals in one vehicle are camping in Reds Meadow Valley, rather than paying \$35 for the vehicle's transportation fee, they would pay only \$20.

Inyo National Forest has proposed to increase the current recreation fee for visitors who drive into the Valley to \$10 per vehicle, instead of the current policy, which is \$7 for adults and \$4 for children. The proposal also includes a \$20/vehicle three-day pass, and a \$35 season pass. The shuttle bus provider would also be required to pay a recreation fee for every bus entering the Valley. After FY 2010 when Inyo National Forest is no longer responsible for the financial cost of operating the shuttle system, the fee revenues will be used to improve visitor amenities in the Reds Meadow Valley and Devils Postpile National Monument, and to help defray the ongoing costs of managing access and capacity issues for vehicles visiting the sites.

Currently, the shuttle buses operate every 45 minutes from 7:30 to 10:00 a.m., every 20 minutes thereafter until 4:00 p.m., and every 45 minutes thereafter until 7:00 pm. The last bus leaves Reds Meadow Resort at 7:45 pm. The operating hours for the shuttle system have been extended over the years as buses previously operated run only until 5:30 p.m. Visitors waited until 5:30 p.m. to drive into the valley, creating congestion problems, which required supervision by National Park Service staff.

Currently, service is provided using a fleet of 12 30-to-40 passenger buses. ESTA schedules 26 round trips each day, but often provides additional buses to meet demand during the peak hours. Typically, 30-to-32 round trips are operated daily.

Approximately 1,200 visitors ride the shuttle bus on a daily basis, representing 75 percent of all visitors. The shuttle bus system eliminates up to 500 daily vehicle roundtrips during the peak season. Annually, 55,000 individuals, or 70 percent of total visitors, use the shuttle operations. ESTA is currently examining the feasibility of adding weekend service in the spring and fall.

Federal Lands Agency Reaction

The following highlights the benefits and limitations of the shuttle system from the perspective of Inyo National Forest and Devils Postpile National Monument.

The shuttle system has resolved the parking congestion issue in the Reds Meadow Valley during the summer months. There are only 185 parking spaces throughout the Valley. Parking spaces cannot be substantially increased due to geographic constraints that would adversely impact natural resources and degrade recreation opportunities. There would be between 900-to-1,200 daily private vehicle roundtrips without the shuttle. This would require an average turnover of a parking spot every 90 minutes or the need for 500 parking spaces. However, the average current visit length is 3.4-to-4 hours, there are morning and afternoon peaks, and only

100 out of the 185 parking spots typically turnover every day. Consequently, with the current number of parking spaces, only one quarter of peak day visitors, or 280-to-380 vehicles per day, could be accommodated if there was no shuttle service.

For example, Memorial Day weekend in 2007 was the earliest opening of Devils Postpile National Monument in the past two decades. The shuttle bus was not yet in operation, however. During the first two days of the long weekend, 396 and 457 cars entered Devils Postpile National Monument and the Valley, respectively. Consequently, parking capacity was insufficient to meet demand. The Inyo National Forest and Devils Postpile National Monument staff were diverted to address traffic issues and manage parking, instead of helping visitors enjoy a safe stay at the monument. Vehicles were parked off-road, on hill slopes, and were blocking the only road running through the Valley. Due to vehicle safety issues and lack of parking spaces, Inyo National Forest closed the Valley early on Sunday until illegal parking was reduced and parking spaces became available. Inyo National Forest estimated that 200 cars were turned away from the Valley during the closure. Despite the closure, visitation levels that day were estimated to be between 1,200 and 1,600 people. Such scenarios would occur frequently during the summer months if there were no shuttle service.

The shuttle bus system has also addressed safety concerns by reducing the number of vehicles in the Valley and on the Reds Meadow Road. Based on service data from the 1970s, it was estimated that the road could safely accommodate only 650 cars per day under idealized conditions and if dispersed throughout the day and the Valley. However, visitation is not consistent throughout the day. Without the shuttle, the estimated level-of-service (LOS) at peak visitation would be Level F based on unrestricted traffic on a steep and curvy one-lane road without pullouts. Visitors would have to park along roadsides, increasing gridlock, car crashes, and driver anxiety and frustration, as the 2007 Memorial Day weekend demonstrated. During that weekend, congestion led drivers to behave erratically and to pass vehicles on narrow roads with blind-sight distances and sharp drop-offs. The operation of the shuttle mitigates potential safety hazards during the peak months. With the shuttle system, it is also estimated that 10 collisions with large animals are avoided annually.

The operation of the shuttle system has helped reduce air pollutants by reducing the number of private vehicles driven into the Valley. CO and carbon dioxide equivalent (CO₂e) levels are reduced with fewer vehicles accessing the Valley. It is estimated that the shuttle system eliminated about 519,000 lbs. of CO₂e emissions. However, current leased buses are 13 years old and do not meet the EPA and California emissions standards imposed on newly manufactured buses.

With past bus providers, Inyo National Forest and Devils Postpile National Monument staff were concerned that vehicles being used caused roadway damage and leaked fluids because of the demanding duty cycle of the Reds Meadow Valley route. Additionally, shuttles were stored in an open gravel parking lot where inadequate light maintenance was performed and water quality was jeopardized. This situation changed in June 2009, as ESTA has access to local maintenance facilities.

If the grant for the 12 new buses is accepted, ESTA estimates a 93 percent reduction in non-methane hydrocarbon and nitrogen oxide emissions and an 80 percent reduction in

particulate matter compared to the current levels. Additionally, the new buses will be able to handle the rigors of the Reds Meadow road without significant environmental damage.

The shuttle system reduces the number of private vehicles in the Valley and the associated noise impacts. If the grant application is accepted, it is anticipated that there would be further noise reductions because the new buses would be quieter.

The shuttle bus has improved the visitor experience by eliminating traffic congestion and parking capacity issues. It has also allowed Inyo National Forest and Devils Postpile National Monument staff to provide resource education instead of traffic and parking management. Shuttles allow visitors to see the valley in a safe and stress-free environment. Visitors can use the shuttle service to hike one way for longer distances, avoiding the need to backtrack on the same trail. Visitors who are camping also benefit from the shuttle during the day to visit sites throughout the valley. Long distance through hikers use the shuttle to access the town of Mammoth, where they are able to replenish their supplies. Visitor surveys since 2000 show that 92 percent-to-99 percent of visitors are satisfied with the service.

In FY 2009 and FY 2010, before the possible purchase of the buses in FY2011, Inyo National Forest will use fee money from the exception vehicles visiting Reds Meadow and the 2008 FTA grant to support the transit system and shuttle bus leasing. Historically, the fares that visitors pay to ride the shuttle have covered 90 percent-to-100 percent of the shuttle costs. The grant and vehicle-exception fee revenues are mainly used to help cover the start-up costs so that ESTA can recover its operating costs. In the event that the grant is awarded, the bus shuttle service would be financially sustainable through the passenger fares and elimination of shuttle bus leasing costs.

Community and Business Reaction

The response from the community and businesses to ESTA has been very favorable. As mentioned previously, since the beginning of operations in June 2009, ESTA also operates a new link between the Town of Mammoth and the Mammoth Adventure Center, linking the town's transit service to the Reds Meadow Shuttle. The operation of the shuttle now begins in a shopping area. Consequently, businesses in the town of Mammoth Lakes were very enthusiastic in their support of the system. The town of Mammoth Lakes organized a celebration for the first day of operations of ESTA.

Success Factors, Lessons Learned, and Best Practices

The Reds Meadow/Devils Postpile shuttle bus is one of the oldest shuttle operations on public lands in the country. While maintaining its financial sustainability has been a challenge, a number of factors have led to its success throughout the years. The following highlights examples of these factors.

- The Reds Meadow Valley provides an ideal setting for a shuttle bus system since it is only accessible by Reds Meadow Road, a steep and winding nine-mile road. The road is a single-lane with turnouts for the first two-and-a-half miles until it reaches the valley floor, where it becomes a two-lane road.

- Since inception of the shuttle system, the Inyo National Forest has taken full responsibility and provided strong ongoing support for the system.
- The partnership between the Inyo National Forest and Devils Postpile National Monument has been very valuable. Devils Postpile National Monument has always helped Inyo National Forest support the bus shuttle system by bringing resources to study the shuttle operation and its sustainability. In some years throughout the shuttle's history, the National Park Service has provided subsidies for the operation of the shuttle bus in order to ensure continued operation.
- The bus shuttle system has strong visitor support. Visitors understand the benefits of the bus shuttle system and are willing to pay the fee.
- The shuttle only operates during peak visitation in the summer.
- High ridership is ensured by vehicle restriction. The bus shuttle is mandatory for most visitors to the Reds Meadow Valley.

White River National Forest – Maroon Bells-Snowmass Wilderness Area Aspen, Colorado

Overview

This case study describes the implementation and operation of transit service in the Maroon Bells-Snowmass Wilderness Area, which is part of the White River National Forest in Pitkin County, CO. Partnering with the Forest Service in 1979, Pitkin County took the lead in providing transit service to visitors accessing the Maroon Bells-Snowmass Wilderness Area. Other partners include the City of Aspen, the Town of Snowmass, and the Colorado Department of Transportation (CDOT). When the Roaring Fork Transportation Authority (RFTA) was established in 2000, it assumed operation of the Maroon Bells bus service. Private businesses, including Four Mountain Sports and the Aspen Skiing Company, help promote the bus service.



Roaring Fork Transportation Authority

Background

White River National Forest encompasses 2.3 million acres of Colorado's central mountains. The area includes six peaks rising above 14,000 feet and more than 100 miles of trails leading to over nine passes that exceed 12,000 feet. The Maroon Bells-Snowmass Wilderness Area is located inside the White River National Forest. The area takes its name from the red color and distinctive bell shape of the mountains. The White River National Forest is one of the most heavily used national forests in Colorado and the Maroon Bells-Snowmass Wilderness Area is one of the most popular scenic destinations for visitors from throughout the country and around the world.

The Maroon Bells is accessible only by the Maroon Creek Road, which is a narrow eight-mile road between Aspen Highland Village and the Maroon Bells. Prior to the implementation of the Maroon Bells bus service, traffic congestion along the Maroon Creek Road was a major problem. Limited parking also resulted in visitors parking illegally along the road. The Forest Service realized that the Maroon Valley could not support continued increases in private vehicle access. The environment of the valley was being damaged and additional wilderness areas would have been required for parking.

The Maroon Bells mandatory shuttle bus system was implemented in 1979. The Maroon Bells bus service operates during the peak visitor season. A fare is charged to ride the Maroon Bells service. Because of the shuttle system, the Forest Service has been able to reduce the number and the size of parking areas in the valley. Vehicle volumes have also been reduced. The Maroon Creek Road is now safer and is popular for pedestrians and cyclists. To use the Maroon Bells shuttle, visitors park their vehicles for free in the Aspen Highland Village parking

lot and ride the shuttle bus up the Maroon Valley. The Maroon Bells shuttle is also often referred as the Maroon Bells Bus Tour because drivers provide comments on interesting geological and historical features of the valley during the eight-mile journey.

Partners and Institutional Arrangements

Implementing and operating the Bus Tour in the Maroon Creek Valley represents the coordinated effort of Pitkin County, the Maroon Bells-Snowmass Wilderness Area and the Forest Service, RFTA, the City of Aspen and the Town of Snowmass Village, and CDOT. The Aspen Skiing Company and Four Mountain Sports have also supported promotions of the Maroon Bells shuttle bus. The following highlights the roles of these different entities.

Maroon Bells Bus Tour Partners

Forest Service, White River National Forest-
Maroon Bells-Snowmass Wilderness
Area
Pitkin County
Roaring Fork Transportation Authority
The City of Aspen and the Town of
Snowmass Village
Colorado Department of Transportation
Aspen Skiing Company and Four Mountain
Sports

- U.S. Forest Service, White River National Forest–Maroon Bells-Snowmass Wilderness Area.** In the late 1970s, the Forest Service realized the need to address growing concerns over traffic congestion on Maroon Creek Road and vehicle access to the Maroon Valley. In 1979, the Forest Service partnered with Pitkin County to operate shuttle bus service to the Maroon Bells–Snowmass Wilderness Area. This cooperation continued with the creation of the RFTA in 2000. The Forest Service assists the RFTA in applying for grants, such as the 2007 ATPPL program. This application included ITS components and the purchase of two diesel-electric hybrid low-floor buses. The Forest Service staffs the welcome station at the entrance to the Maroon Bells Scenic Area. The Forest Service has been able to reduce the number and the size of parking areas within the Maroon Creek Valley due to the Maroon Bells Scenic Area Bus Tour operated by RFTA.
- Pitkin County.** In 1979, Pitkin County partnered with the Forest Service to provide shuttle bus service for visitors accessing the Maroon Bells–Snowmass Wilderness Area to reduce private vehicle traffic on Maroon Creek Road. At that time, Pitkin County operated its own transit system. The City of Aspen and Pitkin County merged their transit systems in 1983 and the RFTA was established in 2000. Pitkin County provided ongoing funding for the RFTA. In 2005, the City of Aspen, Pitkin County, and the Town of Snowmass Village provided a grant of \$1.2 million, allowing RFTA to retrofit four low-floor bus shells with diesel-electric hybrid propulsion systems.
- Roaring Fork Transportation Authority (RFTA).** RFTA was established in November 2000. RFTA is a nationally recognized rural transit authority whose mission is “to connect the region with transit and trails.” It operates over a 70-mile corridor, serving eight cities and towns, and three counties. RFTA operates the Maroon Bells Bus Tour between Aspen Highlands and Maroon Bells–Snowmass Wilderness Area on Maroon Creek Road. RFTA, and its predecessors, has been operating the Maroon Bells Scenic Area transit service for 25 years with little financial support from outside the local community. RFTA is a designated FTA grantee, works closely with CDOT to prioritize

its transportation projects, and includes them in the State Transportation Implementation Plan (STIP).

- **The City of Aspen and the Town of Snowmass Village.** The City of Aspen is one of the gateways to the White River National Forest. The City of Aspen is also the gateway for the Maroon Bells Scenic Area Bus Tour, which operates from the Aspen Highlands Village shopping center parking lot. The city and town also maintain service agreements with the RFTA to provide transit service within the area. The City of Aspen and the Town of Snowmass Village have been supporting the RFTA operation since its creation. As noted previously, the City of Aspen, Pitkin County, and the Town of Snowmass Village helped fund the retrofitting of four buses with diesel-electric hybrid propulsion systems. They also partner with the RFTA and local Chambers of Commerce to market employee transit passes to regional employers.
- **Colorado Department of Transportation (CDOT).** The RFTA works closely with CDOT's Intermountain Regional Planning Commission to prioritize transit projects and to include them in the STIP. This process ensures that projects are eligible for federal funding.
- **Local Businesses – Aspen Skiing Company and Four Mountain Sports.** Local businesses support the Maroon Bells Bus Tour. The Aspen Skiing Company and the RFTA jointly market a combination pass that entitles purchasers to discounted rides on the Maroon Bells Bus Tour and the Silver Queen Gondola located on Ajax Mountain. Four Mountain Sports, a sporting goods store located in front of the Maroon Bells transit stop in Aspen Highlands Village, sells Maroon Bells transit tickets at no charge to the RFTA. Four Mountain Sports has provided this service for 10 years because visitors buying Maroon Bells tickets also frequently purchase equipment, clothing, and other merchandise at their store.

Funding

Funding for the operations of the Maroon Bells Scenic Area Bus Tour comes from fares and the dedicated RFTA sales taxes. Fares cover approximately 85 percent of the operating cost. The fares for the Maroon Bells Bus Tour are \$6.00 for adults, \$4.00 for youth (six years of age to 16 years of age), and \$4.00 for seniors (65 years of age and older). Children under six years of age ride free. In response to a request from the Aspen Chamber Resort Association in 2009, the RFTA offered a special fare on Wednesdays, with \$3.00 tickets for adults, youth, and seniors. A \$.50 Forest Service recreation fee is part of the \$6.00 adult and the \$4.00 senior fares. The \$.50 fee goes toward repairs, maintenance, improvements, and education.

Different sources have been used over the years to fund the capital elements associated with the Maroon Bells bus service. As noted previously, the City of Aspen, Pitkin County, and the Town of Snowmass Village provided a \$1.2 million grant to the RFTA in 2005 to retrofit four low-floor bus shells with diesel-electric hybrid propulsion systems. The RFTA also partners with these jurisdictions, the Forest Service, and CDOT on capital-related applications to FTA. In 2007, the RFTA applied for funding through FTA's ATPPL program to purchase two diesel-electric hybrid low-floor buses and various ITS components.

Implementation and Operation

Implemented in 1979, the Maroon Bells Bus Tour has enabled the Forest Service to protect the Maroon Bells Valley from further degradation due to traffic congestion. The Bus Tour begins at the Aspen Highland Village shopping center and ends at the Maroon Lake day use area. Buses operating the Maroon Bells service are equipped with bicycle racks. There is one regularly scheduled stop along the route at the T Lazy 7 Ranch. Passengers can request the bus to stop at any location along Maroon Creek Road to access any of the numerous trails in the Valley. During the course of the route, brief stops are made to allow the bus operator to point out geologically and historically interesting features of the park.

The Maroon Bells Bus Tour operates daily during the summer visitor season. In 2009, service was provided from June 20 to September 7 (Labor Day) and on Fridays, Saturdays, and Sundays between September 8 and September 27. When the Maroon Bells bus service is operational, motorized vehicle use of Maroon Creek Road is restricted, except for those vehicles meeting the following exceptions:

- vehicles accessing the road from 7:00 a.m. to 9:00 a.m. and from 5:00 p.m. to 7:00 p.m. A vehicle recreation Forest Service fee is charged during these times;
- vehicles with people with disabilities or with a valid Handicap placard or license plate;
- vehicles with 11 or more people;
- vehicles with infants that require a restraining child seat (not a booster seat);
- campers at the Silver Bar, Silver Bell, and Silver Queen campgrounds;
- holders of Special Use Permits issued by the Forest Service;
- overnight backpackers; and
- vehicles pulling horse trailers.

Maroon Creek Road is open to all non-motorized forms of transportation at no charge, including walkers, bicycles, and rollerbladers.

Bus riders can park their vehicle for free in the Aspen Highlands Village parking lot, where up to 500 parking spaces are allocated for transit riders. Bus fares or tickets can be purchased at Aspen Highlands Village at Four Mountain Sports, Ruby Park Transit Center, and the Aspen Mountain Gondola Ticket Office.

The Maroon Bells bus service operates from 9:00 a.m. to 4:30 p.m. daily. Buses depart Aspen Highlands Village every 20 minutes from 9:00 a.m. to 2:00 p.m. Beginning 2:00 p.m. buses depart on the half hour and hour until 4:30 p.m. Riders may get off and on along the road for hiking and exploring. Visitors often ride the bus to the end of the route and then walk the trail descending the Maroon Creek Valley until they run across a suitable portal to flag down the bus for a return trip back down to the Valley.

At the end of May, weather permitting with snow levels, the Maroon Bells Road and Entrance Station opens for the season. A recreation use fee of \$10 is charged to each vehicle

entering the Maroon Bells Creek Road. Thus, during the shuttle season, exception vehicles or vehicles entering the Maroon Bells Creek Road when the road is opened to all vehicles between 7:00 a.m. and 9:00 a.m. and between 5:00 p.m. and 7:00 p.m., pay the recreation use fee.

America the Beautiful Passes (the National Parks and Federal Recreational Lands Pass, available through the U.S. Geological Survey) as well as Maroon Bells Season Passes allow access to the Maroon Bells Scenic Area for the season. Passes are not valid when the road is restricted to motorized vehicles during the shuttle season between 9:00 a.m. and 5:00 p.m. unless the motorized vehicle meets one of the exceptions described previously.

Currently, service is provided using a fleet of four-to-six buses, each with seating capacity for 36-to-39 passengers. The RFTA schedules 21 round trips each day. The RFTA may run additional buses, however, to meet demand during peak visitation or in case of inclement weather.

In 2008, the total Maroon Bells ridership was 69,878. This ridership level represents an increase of approximately 3 percent from 2007. The average daily ridership was 793 for July 2008 and 626 for June 2009. In 2008, it was estimated that the transit service had eliminated up to 214,000 vehicle miles traveled in the valley.

Federal Lands Agency Reaction

The Forest Service realizes numerous benefits from the Maroon Bells bus service. These benefits include reductions in parking needs along Maroon Creek Road, reductions in vehicle volumes and traffic congestion, and improvements in air quality, the environment, and energy conservation.

The Forest Service has been able to reduce the number of parking spaces and parking areas in the Maroon Creek Valley due to the bus service, allowing the ecosystem of the Valley to return to a more natural setting. Without the transit service, additional parking spaces would be required. These parking areas would have to be constructed on Forest Service lands, compromising the wilderness of the White River National Forest. The Aspen Ranger District has estimated that an additional four acres of parking would be needed to accommodate private vehicles without the bus service.

Currently, Maroon Creek Road functions at LOS B, except during the morning and evening hours when unlimited vehicle access is allowed. At these times, it functions at LOS C or D. Without the transit service, the road would be congested throughout the day.

Since 2005, the RFTA has begun using a blend of biodiesel in its diesel buses and an ethanol blend in its gasoline vehicles, which enabled RFTA to offset on average 70,000 gallons of fuel per year. Now, all buses operate on a minimum of B5 Biodiesel and have been operated successfully at B20 blends. Consequently, the operation of the transit service has helped reduce pollutant emissions.

Additionally, the transit service reduces the number of private vehicles driven into the Valley, further reducing emissions and noise pollution. It was estimated that the Maroon Bells

transit service saved a net 10,837 gallons of private-vehicle fuel in 2008, reducing CO and carbon dioxide (CO₂) levels in the Valley. It is estimated that the transit service avoided about 26 tons of CO emissions and 106 short tons of CO₂ emissions in 2008.

Community and Business Reaction

Community and business reactions to Maroon Bells Bus Tour have been positive for the most part. Some local residents would like to be able to drive to the Maroon Bells at any time and not have to use the bus service. Overall, the tour has garnered high praise as one of the best and most affordable attractions in the Aspen area. It is considered accessible and available to nearly every visitor. As noted previously, in 2009, the Aspen Chamber Resort Association approached RFTA with the proposal to offer a half-price promotion on Wednesdays. The RFTA agreed to participate, believing that the invitation signifies that the Maroon Bells tour is recognized as an attraction important to the local economy and the community.

Business reactions to the Maroon Bells bus service have also been positive. Retailers are positively impacted by the service with passengers shopping and eating in Aspen Highland Village. The 10-year participation of Four Mountain Sports in selling bus tickets at no charge to RFTA provides one example of local business support. The combination passes offered through the partnership between RFTA and the Aspen Skiing Company provides a second example of support from the local business community.

Success Factors, Lessons Learned, and Best Practice

The Maroon Bells Bus Tour is one of the oldest shuttle bus systems in operation on Forest Service lands. The following highlights the factors that have contributed to the ongoing success of the Maroon Bells Bus Tour.

- The Maroon Bells Valley provides an ideal setting for a shuttle bus system since Maroon Creek Road provides the only vehicle access.
- There is consistent and ongoing communication among all partners to avoid making decisions in a vacuum. Ongoing dialog addresses items such as changes in fares, capital needs and federal funding opportunities, and marketing and promotion activities. All messages communicated to the public, such as marketing messages, are first shared with the partners to avoid inconsistencies among all entities and entities' websites.
- The Bus Tour and its messages are user-friendly. For example, the timetable and schedule is easy to understand, with buses departing every 20 minutes until 2:00 p.m. and then on the half hour and hour.
- To keep marketing costs reasonable, the RFTA avoids listing dates and prices on printed materials. In addition, the RFTA is careful about releasing information too early in the season, because changes may occur due to weather or other factors by the time service begins.

- The Maroon Bells Bus Tour is more than just a shuttle bus service. The comments and narrative provided by bus operators on interesting geological and historical features adds extra value for passengers.
- Since customer satisfaction can, in part, be credited to consistent driver training, the RFTA takes bus operator training very seriously. The same person, for the most part, has conducted training for 20 years, providing consistency and quality control. Operators are trained to point out 10 basic landmarks. Beyond that, operators can add their own touches to the narration. Buses come to complete stops at these landmarks, which are marked on the road – only noticeable to the operators – as reminders to discuss those points.
- The ongoing participation of local businesses, including Four Mountain Sports and the Aspen Skiing Company, has been beneficial to all groups.
- The RFTA has also learned from trying different approaches over the years. For example, pre-recorded messages were tried rather than having the bus operator talk. It was found that passengers prefer having the operators narrate. Experience also indicated that closing Maroon Creek Road to Maroon Bells buses during bike events is necessary to avoid conflicts and interaction with cyclists and other athletes. Finally, bus operators previously allowed passengers to get off the bus at the stop corresponding to the first view of the Bells. The RFTA no longer allows passengers to alight at this location, however, because it creates a safety concern.

Marsh-Billings-Rockefeller National Historical Park Woodstock, Vermont

Overview

This case study describes an alternative transportation study completed through the cooperative efforts of the Marsh-Billings-Rockefeller National Historical Park, the Two Rivers-Ottawaquechee Regional Commission (TRORC), and the Town and Village of Woodstock, VT. The implementation of a two-year pilot transit shuttle system based on the results of the study is discussed.



National Parks Service

The case study provides an example of the TRORC, a regional commission, taking the lead on the public transportation planning feasibility study, in cooperation with the park and the Village. The Village is taking the lead on implementing and operating the service, in cooperation with the park and TRORC.

Background

The Marsh-Billings-Rockefeller National Historical Park is one of the more recent additions to the National Park System. Established in 1992 and opened to the public in 1998, the Marsh-Billings-Rockefeller National Historical Park provides a focus on conservation history and the evolving nature of land stewardship in the U.S. The property was the boyhood home of George Perkins Marsh, one of the country's first conservationists. Later owners included Frederick Billings and Laurence S. and Mary F. Rockefeller, who donated the home and surrounding land to the establish the park.

The mansion and gardens are open for guided tours from Memorial Day to October 31. The 14-mile network of historic, unpaved carriage roads and trails in the surrounding 555-acre forest land and pastures are used for hiking in the summer and cross-country skiing and snowshoeing in the winter. The park operates in partnership with the Woodstock Foundation, Inc., and the adjacent Billings Farm and Museum, a working dairy farm and museum of agricultural and rural life.

Traffic congestion and the lack of parking during the peak summer and fall visitor seasons are problems in the Village of Woodstock. To explore the role public transit service could play to help address these concerns, as well as enhance mobility for residents and visitors, the park and TRORC applied for, and received, a \$78,500 grant through the FTA ATPPL program. Based on the results of the planning study, a recommendation was made to implement seasonal and year-round transit service on a trial basis. A two-year pilot project is being initiated in the summer of 2010 with an implementation grant through the National Park Service.

Partners and Institutional Arrangements

The alternative transportation planning study and the implementation of a two-year pilot transit service project represent the coordinated efforts of the Marsh-Billings-Rockefeller National Historical Park, TRORC, and the Town and Village of Woodstock. In addition, Advance Transit in Wilder, VT, will operate the pilot bus service under contract to the Village, using electric buses leased from the Greater New Haven Transit District in Connecticut. The following highlights the roles and responsibilities of the partners.

Marsh-Billings-Rockefeller National Historical Park and Woodstock Village Public Transportation Service Planning Project Partners

Marsh-Billings-Rockefeller National Historical Park
Two Rivers-Ottawquechee Regional Commission
Town and Village of Woodstock
Advance Transit

- **Marsh-Billings-Rockefeller National Historical Park.** Open to the public in 1998, the Marsh-Billings-Rockefeller National Historical Park is dedicated to conservation and land stewardship in the U.S. Guided tours of the mansion and gardens are offered for a fee. The rehabilitated carriage barn serves as the visitor center and bookstore. Special tours, programs, and events are offered, including horse-drawn wagon rides. Opportunities for hiking, snowshoeing, and cross-country skiing are available throughout the year. The park and TRORC worked together to submit the application to the FTA for the alternative public transportation study. The park played a supporting role in the planning effort and took the lead on the implementation grant application to the National Park Service. The park is providing the funding from the implementation grant to the Village through established mechanisms to operate service during the two-year pilot project.
- **Two Rivers–Ottawquechee Regional Commission (TRORC).** The TRORC is a compact of 30 towns in east-central Vermont. The TRORC was established in 1970 by acts of its constituent towns. Governed by a Board of Representatives appointed from each town, TRORC acts as a resource and advocate for the needs of member towns. It also provides technical planning services, including transportation planning. The TRORC and the park applied for the ATPPL grant. Using an existing agreement, TRORC was the lead on the development of the Woodstock Public Transportation Business Plan and the Market Analysis for the Marsh-Billings-Rockefeller National Historical Park and Town and Village of Woodstock Public Transportation Service Planning project. The TRORC also led the development of the implementation grant application, which was a park, Village, and TRORC request. Staff from TRORC are providing ongoing assistance in the implementation and operation of the pilot project.
- **Town and Village of Woodstock, Vermont.** Woodstock is one of a few municipalities in Vermont organized as a town, with an incorporated village within the town boundaries. The incorporated Village of Woodstock has certain privileges as a governmental entity. The Town of Woodstock is governed by a three-member Board of Selectmen and the

Village of Woodstock is governed by a five-member Board of Trustees. Approximately 850 people reside in the Village. The population of the town is approximately 3,200, including the Village. The Town and Village share central administrative functions, but each has zoning laws that regulate land development, building construction, and property use. The Town and Village participated in the planning study. Funding to implement the pilot bus service is flowing from the park to the Village, and the Village is contracting with Advance Transit to operate the service.

- **Advance Transit.** Advance Transit is the public transportation agency serving the Upper Valley of Vermont and New Hampshire. Located in Wilder, VT, Advance Transit provides service in Norwich, Wilder, Harford Village, and White River Junction, Vermont and Hanover, Lebanon, and West Lebanon, New Hampshire, including Dartmouth College and the Dartmouth-Hitchcock Medical Center. Advance Transit is operating the Woodstock pilot transit project service under contract to the Village using electric buses leased from the Greater New Haven Transit District in Connecticut.

Funding

The public transportation feasibility study was funded by a \$78,500 grant from the FTA ATPPL program. The park and TRORC applied for the grant using an existing partnership agreement. The public transportation planning study represented another joint project between the two agencies. The application for the National Park Service implementation grant represents the coordinated efforts of the park, TRORC, and the Village of Woodstock. The funding request was approximately \$220,000 for the first year and \$227,000 the second year, including \$5,000 and \$7,500 in funding from the Village for the two years, respectively.

Implementation and Operation

Traffic congestion and the lack of parking are issues in Woodstock during the peak visitor season, which includes the summer and weekends during the fall foliage season. US 4, one of the main east-west routes in the state, runs through the center of Woodstock. On fall foliage weekends, it may take 20 minutes for vehicles to travel through the Village center, a trip that normally takes three-to-five minutes. The Town and Village of Woodstock Comprehensive Plan for 2007 and a 2003 comprehensive parking study identified potential approaches for addressing these concerns. The implementation and operation of public transit service represents one of these approaches.

The Marsh-Billings-Rockefeller National Historical Park was one of the National Park Service sites included in the Federal Lands ATS study. Potential alternative transportation systems and other improvements identified in the study included horse-drawn carriages in the park, improved signage to the park, improved traveler information services for visitors, on-demand shuttle service from the visitor center to the mansion, and improved bicycle access to the park.

Interest on the part of the park, TRORC, and the Town and Village in exploring transit alternatives in more detail resulted in the ATPPL application. The TRORC took the lead in the

study, including hiring consultants to assist with different activities. Representatives from the park and Town and Village were actively involved throughout the project.

As documented in the Woodstock Public Transportation Business Plan and the Market Analysis, a number of activities were undertaken as part of the planning process. The Market Analysis examined the transportation system and the travel market in Woodstock. Traffic data, parking occupancy data, and lodging reservation data were examined. Visitation levels at the Marsh-Billings-Rockefeller National Historical Park were examined by month, by day-of-the week, and by time-of-day. Data from the Woodstock Welcome Center, which was opened in the fall of 2006, was also analyzed.

This analysis identified the potential for public transit services focused on four key nodes in the area. These nodes are the Village center, the high school/middle school and the Thompson Senior Center in West Woodstock, the Marsh-Billings-Rockefeller National Historical Park and Billings Farm and Museum, and the Prosper Road park-trail access. Visitors were identified as the largest market for the transit service. The tourism season peaks during the summer and weekends in the fall. The tourism market was further subdivided into day trippers, weekend visitors, and week-long vacationers. Seniors and youths were also identified as an important year-round secondary market for the transit service.

The planning process examined challenges to operating public transit services in the area, identified and evaluated potential seasonal and year-round service options, and assessed operational alternatives. Key partnership for successful implementation and operation were also identified. Potential vehicle options were examined, capital investment needs were identified, ADA requirements were considered, and ridership and costs were estimated. Marketing and informational needs were also identified.

An interesting aspect of the study was the assessment of transit vehicle options. This assessment considered the National Park Service implementation grant requirements relating to the use of alternative fuel, vehicle size, public perceptions, and the unique aspects of Woodstock. Traditional 29-to-43 foot public transit buses were eliminated from consideration due to their size and big city look. Test runs with a 35-foot transit bus were conducted to obtain feedback from residents, businesses, and policy makers. Residents expressed concerns over the size and weight of the vehicles, and noted that it did not fit with the Village architecture and scale. A smaller cutaway vehicle was also deemed inappropriate, as the style was felt to be associated with senior transportation and not appropriate for a tourist market.

The recommended vehicle was the Ebus electric-hybrid manufactured in California. The electric-hybrid was selected over the Ebus electric vehicle to provide the needed mileage range. It was further recommended that the electricity used to power the vehicle overnight be purchased from the “Cow Power” program of Central Vermont Public Service. This program generates electricity from the methane of manure produced by Vermont dairy cows. The program provides a renewable and sustainable source of energy, while supporting the local economy. The ability to maintain an electric-hybrid vehicle was also an important consideration.

Possible routes for a village-park loop and a town loop were developed. The village-park loop would primarily serve the visitor market. Depending on the exact route, the village-park

loop is approximately 2.7-to-3.2 miles in length. The route for the pilot will be finalized based on further discussion among the three partners.

A grant application for implementation funding was submitted to the National Park Service. Based on the program guidelines, the application included a two-year pilot project. Two electric vehicles are being leased from the Greater New Haven Transit District to operate the initial shuttle service. The buses are being leased to Advance Transit, based in Wilder, which is approximately 15 miles from Woodstock. Advance Transit will operate the service under contract to the Village.

The pilot will be initiated during the summer 2010 visitor season. The route will be finalized based on additional discussions among the Town and Village of Woodstock, the park, and TRORC. Service will be provided using one bus on the park-Village loop during the peak visitor weekends. The service is being marketed on the park website, the Woodstock Welcome Center, the Woodstock Inn and area bed and breakfasts establishments, and other locations in the region. Given limited resources, marketing for the first fall foliage season targets major visitor locations. The fall foliage pilot bus service will be evaluated by the park, Village, and TRORC. The results will be used to determine bus service during the 2011 visitor season and year round.

Federal Lands Agency Reaction

The park hopes to realize numerous benefits from the shuttle bus service. These benefits include addressing concerns related to traffic congestion in the Village and approaching the park, reducing the demand for on-site parking, and improving mobility and ease of access to the park for visitors and residents. In addition, the electric shuttle buses support a more environmentally friendly transportation system. Implementing the shuttle bus pilot represents another element of the ongoing partnership between the park, TRORC, and the Town and Village. The park supports the shuttle bus, but would not pursue it if the Town and Village did not support implementing the service.

Community and Business Reaction

The initial proposal for the Marsh-Billings-Rockefeller National Historical Park raised some concerns among residents, policy makers, and business owners. Concerns were voiced that the park might change the small town character and might have a negative financial impact on the Town and Village. These concerns have not been realized and the park is viewed as a positive influence and partner.

Some of these same concerns were raised during the transit service planning process. As noted previously, issues related to the size and look of the shuttle buses were voiced by some residents. Concerns that the shuttle buses would degrade local streets and would not fit in with the character of the Village were raised.

Overall, the shuttle bus pilot program has support from policy makers, businesses, and most residents. The intent of the shuttle service is to reduce traffic congestion, enhance the mobility of visitors and residents, and provide a focus on a more sustainable transportation system. Using the 2010 visitor season to initially test the service is viewed as a good approach.

Success Factors, Lessons Learned, and Best Practices

This case study provides a good example of an innovative partnership among the Marsh-Billings-Rockefeller National Historical Park, the TRORC, and the Town and Village of Woodstock. It highlights how these groups worked together to plan and pilot a shuttle bus service focused on the needs of the park and gateway community. The following highlights elements of the case study of benefit to other areas.

- The planning process and the alternative transportation study built on existing relationships and agreements among the park, TRORC, and the Town and Village. Using these existing arrangements saved time and resources. Implementation of the two-year pilot shuttle bus system also utilized these existing relationships. New relationships with Advance Transit and the Greater New Haven Transit District were also established.
- The local partners were able to leverage funding from FTA and the National Parks Service for the planning study and the two-year pilot service. The \$78,500 grant for the study and the approximately \$220,000 a year cost of the pilot project represent financially viable amounts for a small area. These funding levels indicated that studies and services can be scaled to local needs.
- Conducting test runs of a bus in the Village represented a key element of the public engagement process. Ensuring that the vehicle size and design fits with the character of the area and is acceptable to residents is important.
- The examination of vehicle options, including the analysis of the range for different types of electric buses, provides useful information for other areas.
- The identification of services and routes targeted toward visitors and residents provides the opportunity to meet the needs of different markets and user groups during different times of the year.
- The two-year pilot project provides the opportunity to start small and build on success.

J.N. “Ding” Darling National Wildlife Refuge Sanibel, Florida

Overview

This case study describes an alternative transportation study being conducted for the J.N. “Ding” Darling Wildlife Refuge in Sanibel, FL. The study is examining alternative transportation techniques and scenarios for the refuge and Sanibel/Captiva Islands that balance human activities with the commitment to preserve and protect natural areas. The study, which is funded through the FTA’s ATPPL program, represents a partnership among the refuge and the U.S. Fish and Wildlife Service, the City of Sanibel, and Lee County/Lee County Transit (LeeTran). The project, which was initiated in 2008, includes stakeholder interviews, public engagement, documentation of existing conditions, the development and evaluation of alternative transportation themes, and the identification of implementation strategies.



*U.S. Fish & Wildlife Service, J.N. “Ding” Darling
National Wildlife Refuge*

Background

The J.N. “Ding” Darling National Wildlife Refuge on Sanibel Island includes approximately 6,000 acres of mangrove forest, submerged seagrass beds, cordgrass marshes, and West Indian hardwood hammocks. Established as the Sanibel National Wildlife Refuge by Executive Order in 1945, it was renamed in 1967 to honor Darling, who was instrumental in protecting the area from development and promoting the establishment of the refuge. The refuge is part of the largest undeveloped mangrove ecosystem in the U.S. The refuge provides habitat for over 238 species of birds. Congress designated 2,800 acres of the refuge as a Wilderness Area.

The J.N. “Ding” Darling National Wildlife Refuge is one of the most visited refuges in the Fish and Wildlife Service system with some 800,000 annual visitors. Traffic congestion is an issue in the refuge, primarily along Wildlife Drive. The four-mile, one-way road traverses the mangrove forest and is the main destination for visitors to the refuge. Wildlife Drive is accessible by private vehicle, guided tram, bicycle, or foot on Saturday through Thursday. Wildlife Drive is closed to all access on Fridays to allow refuge staff to conduct studies and perform maintenance.

The City of Sanibel shares Sanibel Island with the refuge. Access to the Island is provided by the Sanibel Causeway, which links the Island with the Cape Coral-Fort Myers metropolitan area. The city continues to experience pressure for increased development and

redevelopment, and traffic congestion and parking are ongoing concerns. The city's desire to remain a barrier sanctuary island and maintain its small town community environment is reflected in city plans, policies, and programs.

Tarpon Bay Explorers, the licensed concessionaire of the refuge, operates a tram tour on Wildlife Drive. The tour takes approximately one and one-half hours and costs \$13 for adults and \$8 for children. The tram operators provide narration along the drive. Tarpon Bay Explorers also offers other guided nature tours, including kayaking, canoeing, and nature and sea life cruises. The refuge encourages visitors to take the tram tour, which helps reduce vehicle volumes on Wildlife Drive. Since the tram operators are trained naturalists, the tour also provides an excellent introduction to the unique features of the refuge.

Issues related to traffic and parking congestion in the refuge and city have been examined over the years. To help identify possible approaches for addressing these concerns, LeeTran, in cooperation with the refuge and the city, submitted an application in 2006 to the FTA ATPPL program for an alternative transportation study. The application was selected for partial funding in 2007 and the alternative transportation study was initiated in 2008.

Partners and Institutional Arrangements

The J.N. "Ding" Darling National Wildlife Refuge Alternative Transportation in Parks and Public Lands Study is a cooperative effort among the refuge, the City of Sanibel, and Lee County/LeeTran. The roles and responsibilities of the partners are outlined in an interlocal agreement and are highlighted in the various study documents. The following summarizes the roles and responsibilities of the partners.

"Ding" Darling Alternative Transportation Study Partners

J. N. "Ding" Darling National Wildlife Refuge
City of Sanibel
Lee County Transit/Lee County

- **J.N. "Ding" Darling National Wildlife Refuge.** The refuge supported the ATPPL application by Lee County. Staff from the refuge are actively involved in the study and representatives serve on the Study Steering Committee. The refuge is concerned with examining options that improve the long-term transportation conditions to serve high-quality visitation at sustainable levels while also improving the ecological integrity of the refuge. Reducing the levels of peak season congestion on Wildlife Drive, in parking areas, at the Education Center, and at other key locations are key objectives.
- **City of Sanibel.** The City of Sanibel encompasses approximately 17.5 square miles, with 24.5 miles of shoreline along the Gulf of Mexico and San Carlos Bay. Incorporated in 1974, the city includes 7,200 acres of designated conservation lands. The city's population is approximately 6,000, but it also receives over 12,000 seasonal residents and another 13,000 day visitors. Beginning with the 1976 Sanibel Plan, the city has focused on sustaining, preserving, and restoring the ecological balance between its residents, visitors, and wildlife. Unique elements of the transportation system include the use of stop signs rather than traffic signals and the shared use bicycle and pedestrian paths. The

City of Sanibel supported the ATPPL application by Lee County. Staff from the city are actively involved in the study and representatives serve on the Study Steering Committee. The city's interest in the study focuses on approaches to reducing peak season congestion and pollution, reducing dependency on the automobile, and protecting the environmental carrying capacity of its beaches. There is also a desire to resist pressure to accommodate increased development and redevelopment, to protect and remain a barrier sanctuary island, and to retain the small town community environment.

- **Lee County Transit.** LeeTran is operated under the authority of Lee County and the Lee County Board of Commissioners. LeeTran operates transit service on 18 fixed routes and a park-and-ride trolley service to and from Fort Myers Beach. LeeTran is the designated recipient of FTA funds to Lee County. As a result, LeeTran prepared and submitted the application for ATPPL funds, in cooperation with the refuge and the city. LeeTran is administering the study, including receiving the FTA funds, selecting and managing the study consultant, and facilitating various aspects of the study. LeeTran has stated that it is not seeking to forcefully recommend buses within the city or the refuge.

Funding

The initial ATPPL grant application included four phases and requested \$1.5 million in funding. The four study phases were a feasibility analysis, a public involvement process, an analysis of the alternatives, and the development of an implementation plan. A grant for \$750,000 was provided. As a result of this reduced funding, the initial study work scope was revised. A second application for a \$900,000 ATPPL grant has been submitted to complete the study. LeeTran is acting as administrator for the FTA funds.

Study Elements

The J.N. "Ding" Darling National Wildlife Refuge ATPPL study includes a number of elements. These elements are public engagement, stakeholder interviews, examination of existing conditions, development and evaluation of transportation themes, and identification of implementation strategies. The following highlights the key activities associated with these study elements.

- **Public Engagement.** A number of methods are being used to engage the public in the study. Examples include a study website, newsletters, workshops, and on-line, mail-back, and seasonal surveys.
- **Stakeholder Interviews.** Stakeholder interviews were conducted with representatives from 26 organizations. Individuals from public agencies, businesses, civic groups, and commercial operators were included in the stakeholder interviews. Approximately 450 comments were recorded through the interviews. Some of the common themes identified from the interviews included a good understanding and support for the study, concerns related to congestion during the peak visitor season, the need to protect the environment, and the identification of possible transportation alternatives.

- **Public Workshops.** As of August 2009, three public workshops had been held on the project. The workshops were conducted to promote interaction and feedback on various topics. The first workshop, held in January 2009, included workstations on general concerns, a waterborne focus, a non-motorized focus, a motorized focused, and a congestion management focus. A total of 45 individuals, including agency and project staff, participate in the first workshop and 134 comments were recorded.

The second workshop, held April 2, 2009, summarized the results of the stakeholder interviews, the surveys, the current conditions, and examples of transportation systems in national parks and public lands. Workshop participants were presented with the transportation themes, which included a level one geographic focus and level two theme elements. The level one geographic focuses were no action plan, a refuge focus, an island focus, a refuge and islands focus, and an on/off island focus. The level two theme elements were non-motorized, motorized, waterborne, and congestion management. Participants were divided into small groups for the workshop exercise, which included independently recording three pros and three cons for each theme, group discussion of the pros and cons for each theme, and independently ranking each theme and element within each theme. The study team stressed that the themes were not alternatives and were intentionally open ended. It was also noted that the themes provided a basis for developing more detailed alternatives. Input from the workshops was used to guide development of alternatives for further study.

“Ding” Darling Alternative Transportation Study Stakeholder Interviews

Agencies

Sanibel School
CHR
Sanibel Historic Village and Museum
Captiva Fire Control District
Sanibel Police Department
Sanibel Fire and Rescue District

Environmental Organizations

Clinic for Rehabilitation of Wildlife
Sanibel-Captiva Conservation Foundation

Business Organizations

Sanibel and Captiva Islands Chamber of
Commerce
Bailey-Matthews Shell Museum
Sanibel Bicycle Club
Billy’s Bikes
Sanibel Taxi
Island Water Association

Civil Organizations

Captiva Civic Association
Sanibel Community Association
Zonta Club of Sanibel and Captiva
Barrier Island Group for the Arts
Committee of the Islands
Friends in Service Here of Sanibel
Condominium Association of Sanibel

Commercial Operators

RLR Investments
Adventures in Paradise
West Wind Inn
Tarpon Bay Explorers
Stillwell Enterprises

The third workshop was held on April 6, 2009. The workshop format was modified to provide additional opportunities to discuss challenges associated with the transportation themes based on feedback from participants in the second workshop. The project purposes and needs for the refuge, city, and LeeTran were also reviewed. The results of the ranking of the themes at the second workshop were presented and discussed. Due to a general lack of interest in the on/off island theme expressed by participants in the second workshop, this theme was removed from further consideration.

- **Seasonal Public Surveys.** Three different methods were used to survey seasonal residents and visitors in January through March 2009. These methods included an on-line survey, in-person surveys, and mail-back surveys. The surveys included questions on visitor activities and frequency of visits to the refuge. A total of 2,109 surveys were completed – 787 on-line surveys, 1,115 in-person surveys, and 206 mail-back surveys. Visitors accounted for 63 percent of the respondents, island residents accounted for 34 percent, island employees represented 2 percent, and business owners accounted for 1 percent. The survey results were used to identify major visitor activities, frequency of visits, and related topics.
- **Existing Conditions.** The Existing Conditions Report provided a detailed assessment of the current situation in the refuge and the city. The report included a review of previous and current plans and studies, a description of the study area, and information on the natural environment, the human environment, and the transportation environment. The natural environment assessment included a review of environmental conditions, wildlife habitat and management areas, exotic species, and the natural environment carrying capacity. Information on existing and future land uses, the socio-demographic characteristics of residents and visitors, and the human environment carrying capacity was presented. The transportation environment analysis examined the operation of transportation facilities in the area including the Sanibel Causeway, city roadways, refuge roadways, and the shared use bicycle and pedestrian paths. On-island and off-island motorized transportation modes, taxis, and parking facilities were also analyzed. Information on travel patterns and congestion levels on different facilities was examined.

The initial study will conclude prior to the detailed assessment of alternatives due to the scaled back scope required to match the lower funding provided in the ATPPL grant. It is anticipated that the conclusion of the initial study will define the combinations of geographic themes – refuge focus, on-island focus, and refuge and island focus – and the theme elements to be carried forward into the final analysis. Based on receiving the requested \$900,000 ATPPL grant, these alternatives will be analyzed, a preferred alternative will be identified, and an implementation plan will be developed. The schedule for these activities is dependent on receiving the ATPPL grant and the timing of the grant process.

Federal Lands Agency Reaction

The refuge interest in the study focuses on examining alternatives that reduce peak season congestion and pollution in the refuge, especially at key locations. These key locations include Wildlife Drive, parking areas, the Education Center, Tarpon Bay, Bailey Tract, and Shell Mound Trail. Further, refuge management is interested in alternatives that improve the long-

term transportation conditions to serve high-quality visitation at sustainable levels while also improving the ecological integrity of the refuge.

The refuge and the city have worked cooperatively over the years on many projects. Both share common interests and concerns, while having different missions and objectives. While open to examining all alternatives, the refuge has preferences on some elements. For example, smaller buses are preferred over larger buses to better fit with the character of the refuge and to better manage visitor access. Providing adequate parking for visitors, both with and without some type of bus service, is an ongoing concern.

Community and Business Reaction

As noted previously, the study purpose and need for the city was outlined in the interlocal agreement and presented at the third workshop. The city's interest in the study is also outlined in the application and other reports. The key elements stressed by the city include reducing peak season congestion and pollution, reducing dependency on automobile travel, and resisting pressure to accommodate increased development and redevelopment. Other purposes include protecting the environmental carrying capacity for Sanibel's beaches, protecting and remaining a barrier island, and retaining the small town community environment through diversity, beauty, uniqueness, character, and stewardship.

The perspectives of many residents and local business owners are reflected in the stakeholder interviews, the surveys, and comments at the workshops. Removing the on/off-island theme from further consideration illustrates the concerns expressed by many groups and individuals relating to maintaining the small town environment and protecting the barrier island environment. Ensuring that any recommendations are consistent with the Sanibel Plan and the Sanibel Vision Statement is important to the city. The city has also made it clear that any recommendations must not harm the on-island business community and must support environmental stewardship.

Success Factors, Lessons Learned, and Best Practices

This case study provides an example of an alternative transportation planning study involving the J.N. "Ding" Darling National Wildlife Refuge, the City of Sanibel, and LeeTrans. It highlights how these groups are working together in a cooperative and coordinated manner on an innovative planning study. The following highlights elements of the study that could benefit other areas.

- The application for the ATPPL grant and the subsequent inter-local agreement established the study purpose and need for the three partners. It clearly indicates the missions and responsibilities of the partners, allowing each to participate recognizing the different perspectives of each partner.
- Conducting the stakeholder interviews at the beginning of the study provided the opportunity to gain input from diverse groups and individuals immediately. The interviews helped frame the issues and concerns of different groups, as well as identify possible alternatives.

- The public surveys provide a good example of an approach for obtaining input from seasonal visitors, residents, and other individuals. The use of multiple methods – on-line surveys, in-person surveys, and mail-back surveys – further highlights methods to reach multiple groups.
- The public workshops provide further good examples of techniques to engage the public in the transportation planning process. The workshops also highlight the need to make changes to clarify information and ensure understanding by all groups.
- The study also reinforces that it takes time to obtain public and stakeholder input, identify possible approaches, evaluate these approaches, and reach a consensus on preferred alternatives. A consensus has not yet been reached, and may not be reached, but the partners view the process of working together positively. Maintaining open and honest communication throughout the process was also noted as important.

CHAPTER THREE – COMMON THEMES AND ADDITIONAL RESEARCH

A number of common themes emerge from the 10 case studies. As this section highlights, these themes focus on matching issues and opportunities to appropriate approaches, building on existing relationships and developing new partnerships, recognizing and respecting the missions of different organizations, maximizing resources and expertise, communicating and listening, and building on success. Other key themes are engaging the private sector, utilizing foundations, and documenting experiences, including successes and failures.

- **Matching Issues and Opportunities with Appropriate Approaches.** The case studies illustrate that there is no “one best” approach to planning, implementing, operating, and funding transit services and other transportation programs on federal lands and gateway communities. The case studies point out the need to match the issues, opportunities, geography, proximity of gateway communities, and unique characteristics of each area with appropriate transit service, ITS technology, and other techniques. The mandatory free shuttle operation on the six-mile dead-end Zion Canyon Scenic Drive matches the needs of the area. This approach would not be appropriate for other parks where visitors are driving through to other destinations. Elements to consider in assessing potential alternatives include the nature of the roadways and parking in a park, visitor patterns, the proximity of the gateway community, and other factors. Parks and federal lands oriented toward “drive through” visitation will have much different needs than those focusing on a major site or destination. Dealing with historic alpine roadways, carriage roadways, and other unique characteristics of the federal land unit all need to be considered.
- **Build on Existing Relationships and Develop New Partnerships.** The case studies highlight the importance of existing relationships among the federal land unit, gateway communities, state departments of transportation, regional organizations, foundations, local businesses, and other groups. In all of the case studies, a good working relationship existed among many of the parties. Strong working relationships do not happen overnight. Rather, they take time to develop, and they take commitment to maintain. The Marsh-Billings-Rockefeller case study illustrates that having a national park as a new neighbor takes time to build working relationships with local communities, regional organizations, and businesses. When interest in considering shuttle bus services emerged, the park, TRORC, and Town and Village of Woodstock had already developed good working relationships and were able to use existing agreements among the various groups. The cooperative interagency agreement among Glacier National park, MDT, and Flathead County provides another example of agencies building on an existing relationship, but establishing a new mechanism to facilitate the development and operation of shuttle bus service in Glacier National Park and using the buses in the local area and other parts of the state in the fall, winter, and spring.
- **Recognizing and Respecting the Missions of Different Agencies and Organizations.** The various agencies and organizations involved in the transit and transportation projects highlighted in the case studies have very different missions, goals, and objectives. Federal land agencies have mandates to protect the natural features of an area for future

generations, while providing access to visitors today. Local communities and transit agencies are accountable to residents and to taxpayers on fiscal matters. Businesses have profit motivations, along with being good corporate citizens. Recognizing and respecting these differences is important in planning and operating transit services and transportation improvements serving federal lands and gateway communities.

- **Maximizing Resources and Expertise.** The case studies highlight the importance of maximizing staff and financial resources, as well as expertise among the various groups. In many cases, the national parks and federal lands were able to draw on the resources of other local agencies and groups. The involvement of SETD and Pacific Transit in the early stages of examining of transit options at Fort Clatsop for the Lewis and Clark Bicentennial represents one example. The participation of Downeast Transportation in development of the Island Explorer in Acadia National Park, the involvement of WATA in planning the Historic Triangle Shuttle, and the involvement of LeeTran in the Sanibel transportation study provide other examples of drawing on local expertise. The involvement of the National Park Service Denver Service Center and the Volpe National Transportation System Center provide additional examples of using available expertise. The case studies also illustrate the use of a wide range of federal, state, local, and private sector funding. Leveraging funds from these different sources maximizes opportunities and spreads financial commitments among the partners.
- **Communicating and Listening.** The case studies highlight the importance of communicating among the partners, and just as important, communicating and listening to the public and stakeholders. Advisory committees and other methods were used in most of the case studies to help bring the partners together and to support ongoing communication and coordination. The Marsh-Billings-Rockefeller National Historical Park and the J.N. “Ding” Darling National Wildlife Refuge case studies also highlight recent examples of communicating with, and listening to, the public and stakeholders. The public involvement methods – including workshops and test runs of buses through the community – provide just two examples of approaches that have been used. The case studies point out the importance of obtaining input from the public and stakeholders on possible service concepts, vehicle size and design, routes, and other elements.
- **Build on Success, But Don’t Be Afraid to Change.** Many of the case studies developed service in an incremental manner, building on the success of an initial route or routes. In some cases, the parks borrowed or leased vehicles from other parks or transit agencies to initiate service. Some areas have used pilots or demonstration projects to test service concepts. The case studies, including the Lewis and Clark National Historical Park, also illustrates the importance of changing and modifying service to respond to changes in visitor demands and other conditions.
- **Engage the Private Sector.** While not every park has an L.L. Bean in their backyard, opportunities exist to engage businesses, corporations, and other private sector groups in supporting park and community transit services and other transportation projects. These groups represent key stakeholders, who can assist financially and by supporting marketing and promoting the transit services. The financial support of L.L. Bean and

businesses in the Acadia area, the selling of Maroon Bells Bus Tour tickets by Four Mountain Sports in Aspen at no cost to RFTA, and the marketing support from the Estes Park Visitors and Convention Bureau for the Shopper Shuttle represent examples of private sector participation.

- **Utilize Foundation.** Foundations play a key role in many of the case studies. Friends of Acadia, the Zion National History Association, and the Colonial Williamsburg Foundation all play important roles in the transit services in these areas. As 501(c) (3) corporations, these organizations can undertake and facilitate many activities that parks, federal lands, and government agencies cannot. The role of Friends of Acadia in facilitating the contributions from L.L. Bean and securing the property for the Acadia Gateway Center provides one example of the key role foundations play in supporting park transit and transportation projects.
- **Document Success.** Documenting success, as well as elements that do not work well, is important. Providing information on ridership, costs, and benefits is important for continued support from policy makers, funding agencies, and the public. This information is also critical for making any needed adjustments in services and operations. As noted in the next section, providing a more comprehensive approach to documenting the experience with the various services and projects is suggested as an ongoing research need.

Additional Research

Development of the case studies highlights a number of areas where further research is needed. As outlined in this section, these topics include documenting the experience for all transit and transportation projects on federal lands and in gateway communities, a comprehensive program of park on-board ridership surveys, workshops sharing lessons learned and best practice examples, and additional analysis of supporting components. All groups would benefit from these additional research projects and technology transfer activities.

- **Document All Projects.** The research conducted for this study highlights the difficulty in obtaining current information on transit and transportation projects on federal lands and in gateway communities. The availability of reports, documents, and information varies widely among the case study sites and the various federal, state, and local agencies and organizations. In some cases, information is easily accessible, while in other cases, little or no information is available. Providing a common clearinghouse or central repository for all studies, projects, and current information on projects would benefit all groups interested in transit and transportation projects on federal lands and in gateway communities. On-line links to this information would also be of use.
- **Comprehensive Program of On-Board Ridership Surveys.** The on-board surveys conducted on the Island Explorer from 2000 through 2006 provide a wealth of information for use in planning service improvements, changes in routes, and other modifications. The information on visitor and resident use and other elements is also valuable for maintaining local support. The results are also of value to other parks and public lands interested in developing transit services. A few other areas are conducting

on-board ridership surveys, but the results are not readily available. Developing and implementing a comprehensive program of on-board ridership surveys would benefit the individual parks, and local communities, federal agencies, and researchers.

- **Workshops on Best Practices.** Conducting regional workshops on lessons learned and best practices would benefit areas with existing transit services, and areas interested in developing new or expanded transit services and other transportation projects. This report and other documents could serve as the basis for these workshops, which could be sponsored by multiple groups, including TRB, federal land and transportation agencies, and local and regional organizations. The workshops would facilitate the sharing of experiences and ideas among key groups.
- **Additional Analysis of Supporting Components.** Many of the case studies illustrate the importance of supporting components, including marketing and visitor outreach, intermodal connections, and fixed facilities. Further research examining these elements and documenting additional examples of best practice approaches would be of benefit to all groups.

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