Partnership Case Study

Cape Cod National Seashore
Alternative Transportation Partnership

September 2012

This document was prepared for the Federal Transit Administration by the Paul S. Sarbanes Transit in Parks Technical Assistance Center

DISCLAIMER

This document is disseminated under the sponsorship of the U.S. Department of Transportation in the interest of information exchange. The United States Government assumes no liability for its contents or use thereof. The United States Government does not endorse products or manufacturers. Trade or manufacturers' names appear herein solely because they are considered essential to the objective of this report.

AUTHORS

This document was authored by Laura Anderson, Postdoctoral Associate, and Robert Manning, Professor and Director of the Park Studies Laboratory of the Rubenstein School of Environment and Natural Resources at the University of Vermont, a partner organization of the Paul S. Sarbanes Transit in Parks Technical Assistance Center (TRIPTAC).

ACKNOWLEDGMENTS

We would like to acknowledge the contributions of the staff members and partners who made themselves available for interviews and have made this case study possible. Special thanks to Clay Schofield and Priscilla Leclerc of the Cape Cod Commission, Karst Hoogeboom of Cape Cod National Seashore, Terry Sheehan of the John A. Volpe National Transportation Systems Center, and Lisa Maragnano of the Cape Cod Regional Transit Authority for their time, insight, and willingness to provide valuable information and documentation for use in this report. We would also like to acknowledge Lisa Aultman-Hall of the University of Vermont Transportation Research Center.

FOREWORD

September 2012

We are pleased to present this Partnership Case Study for the Cape Cod National Seashore's Alternative Transportation Project. It is one of many case studies spearheaded by the Paul S. Sarbanes Transit in Parks Technical Assistance Center (TRIPTAC).

Launched in 2009, the TRIPTAC reaches out to federal land managers interested in developing or enhancing alternative transportation options, and provides them with the information, training and guidance they need to make these projects a reality. One element of this approach is to showcase innovative and successful initiatives in other federal land units.

One of the TRIPTAC team's first projects was to identify and conduct case studies to report on partnerships implemented at federal land management units. The case studies focused on federal land units that partnered with other agencies to implement, operate or integrate alternative transportation systems. TRIPTAC team members conducted site visits and developed reports (including this one) that analyze and document effective strategies and lessons learned from these partnership experiences.

We believe that these case studies will serve as instructive models for federal land managers who are new to transportation deployment and management. We also hope that the creative, collaborative strategies highlighted here will inspire other units where alternative transportation projects have been stalled by fiscal, operational, or jurisdictional challenges.

Finally, we'd like to express our appreciation to the Federal Transit Administration for their sponsorship of the TRIPTAC. We also wish to express our appreciation to staff of the National Park Service, the Bureau of Land Management, the U.S. Fish and Wildlife Service, and the USDA Forest Service. We would especially like to thank the Cape Cod National Seashore and Cape Cod Commission staff for their time and input on this case study, as well as everyone else who contributed their time and hard work to these case study reports.

Steve Albert, TRIPTAC Director

Phil Shapiro, TRIPTAC Deputy Director

TABLE OF CONTENTS

LIST OF TABLES

EXECUTIVE SUMMARY

Established in 1961, Cape Cod National Seashore (CACO) is a unit of the National Park Service that spans six towns along the outer portion of Cape Cod, Massachusetts. Nearly five million people visit CACO every year, with much of this visitation occurring during the summer season. Many visits occur over relatively short periods of time (e.g., over a weekend), and are characterized by dependency upon a personal vehicle. Such patterns of visitation have raised concerns about damage to natural habitats, traffic congestion, noise pollution, energy consumption, and air quality.

To address these issues of mobility and congestion for residents and visitors on Cape Cod, CACO formed partnerships with state, county and local governments, regional planning organizations, and private businesses. According to CACO's 2003 Long-range Planning Study, one of the goals of the CACO partnerships is to "provide visitors and residents with a safe, economical, convenient and reliable alternative to the private automobile." In particular, these efforts focused on reducing traffic congestion, providing public transit for year round residents (especially youth and the elderly), and reducing environmental impacts to sensitive CACO resources. Solutions were identified to both improve mobility in and around CACO, and ultimately, to provide visitors with the opportunity to have a "car-free" vacation on outer Cape Cod.

Shuttle service began in 2000 through a partnership between CACO and the Cape Cod Regional Transit Authority (CCRTA). The Provincetown/ North Truro Shuttle (The Shuttle) connects visitors and residents with boat tours and ferry, bus, and air service in the greater Provincetown area. Following the success of the Shuttle, Flex service began on outer Cape Cod in 2006. Flex, operated by CCRTA, offers a hybrid of fixed route and on-demand service, connecting points of interest and transit hubs along the length of outer Cape Cod. Buses for Flex were purchased with funds from the U.S. Department of Transportation Federal Transit Administration Paul S. Sarbanes Transit in Parks program. In addition to the two new transit services, the CACO partnerships have led to the publication of a "car-free" vacation guide for outer Cape Cod travelers (the outer Cape Cod Smart Guide), the construction of context sensitive bus shelters, and continuing efforts to address Intelligent Transportation System (ITS) planning, bicycle planning, planning for parking challenges, and bus maintenance needs.

Development of the Shuttle involved an initial partnership between CACO, the CCRTA, and the towns of Truro and Provincetown. In 2000, representatives from CACO, CCRTA, Cape Cod Commission (a regional planning organization), and a number of other state agencies and transportation associations were appointed to the Cape Cod Transit Task Force (CCTTF). The CCTTF created the original proposal for Flex, guided by the following goals: 1) reduce auto dependency, 2) mitigate seasonal traffic, 3) meet the needs of the year-round population, 4) develop coordination, communication, and cooperation, and 5) incorporate smart growth and land use planning. Currently, the relationship between CACO, the Cape Cod Commission, and the John A. Volpe National Transportation Systems Center (Volpe

Center) continues through ongoing study of transportation issues on and around the National Seashore. The CACO partnerships have also led to establishment of other "spinoff" transportation partnerships on the Cape.

The CACO experience offers numerous potential lessons for other federal land units. Partnership members attribute the success of their efforts to a number of factors, including:

- a history of collaboration between CACO and surrounding communities,
- leadership on the part of CACO to engage in comprehensive planning and to provide seed money funding to start the planning process, which extends far beyond borders of the park,
- a deployment approach in which implementation projects are based on design projects and planning studies,
- thorough planning studies that illustrate and demonstrate a need, and benefit the outside community (e.g., reduce congestion on community roads),
- community interest in addressing transportation problems,
- thinking big but working small in manageable components to achieve the larger objective (e.g., initially introducing Shuttle service just on outer Cape Cod as part of the larger objective to improve public transit in and around CACO),
- capital funding from outside sources, with operating costs shared between towns,
- building each project on the success of the previous one,
- effective public outreach and marketing, and
- a pro-active and effective transportation task force appointed by the Massachusetts Secretary of Transportation.

Challenges addressed during partnership activities included:

- addressing concerns about impacts to existing services,
- weathering budget shortfalls and sustaining funding for operations,
- providing adequate accommodation for bicycles, and
- expanding partnership activities to a wider region.

Stakeholders expect that the Cape Cod Transit Task Force will re-convene in conjunction with the development of updated 5-Year and Long-Range public transportation plans. Further, CACO, CCRTA, the Cape Cod Commission, the Volpe Center, and their various partners plan to continue to work together on studies and planning efforts that will further improve the quality of transportation on outer Cape Cod.

CAPE COD NATIONAL SEASHORE ALTERNATIVE TRANSPORTATION PARTNERSHIP

INTRODUCTION

Managers of public lands are implementing alternative transportation systems (ATS) in exciting and innovative ways. Learning about these systems and partnerships can help fellow land managers meet their own transportation challenges by successfully deploying ATS solutions. Partnerships with local governments, non-profit groups and commercial interests have consistently proven to be vital components in these successful ATS deployments.

To expand knowledge about outstanding ATS projects in parks and public lands, the Paul S. Sarbanes Transit in Parks Technical Assistance Center (TRIPTAC) is assembling a set of case studies. Each study will highlight the successes experienced and examine the lessons learned by the land management units. Case study reports, such as this one, describe alternative transportation projects and partnerships that can be used as models by other land agencies interested in implementing ATS in their jurisdictions.

WHAT IS A CASE STUDY?

Case studies are designed to reveal arrangements and actions taken by a land management team in developing ATS for their land unit. The studies describe the transportation challenge, the ATS solution and the steps taken to reach the successful outcome, and cover all aspects of organizing, planning, designing, funding, implementing, and sustaining ATS. They pay special attention to the characteristics of successful partnerships, such as those between a public land unit, local friends groups, and non-profit organizations.

Case studies are selected based on existing successful programs and partnering arrangements identified by the TRIPTAC, Federal Transit Administration (FTA), federal land management agencies, and a peer group. They are selected based on several criteria. Each

selection demonstrates a unique collaboration among federal land agencies, non-profit interest groups, nearby communities, private businesses, and public or private transportation service providers. Other considerations include multimodal integration, system complexity and funding, intergovernmental cooperation, geographic/topographic setting and regional diversity.

WHY WAS THIS CASE STUDY SELECTED?

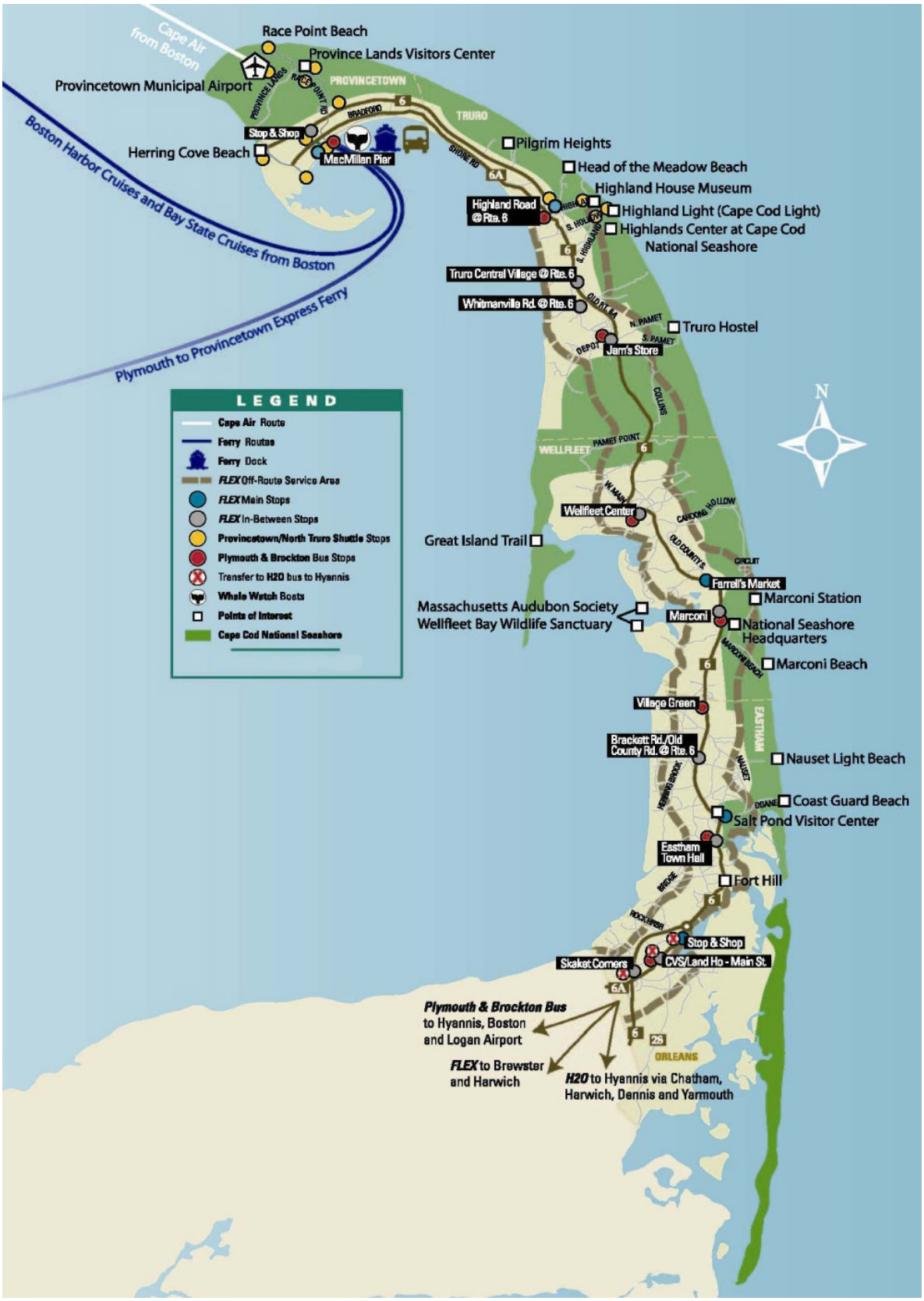
Over the past decade, CACO has formed partnerships with state, county and local governments, regional planning organizations, and private businesses to address issues of mobility and congestion for residents and visitors on outer Cape Cod. These partnerships have led to the development of new transit services and facilities, improved linkages between transportation modes, intelligent transportation system (ITS) planning and implementation, and continued study of pressing transportation issues on the Cape, including bicycle planning, parking and transit, and maintenance facility needs.

CAPE COD NATIONAL SEASHORE

Established in 1961, CACO is a unit of the National Park Service that spans six towns along the outer portion of Cape Cod, Massachusetts: Chatham, Orleans, Eastham, Wellfleet, Truro, and Provincetown. CACO encompasses 40 miles of undeveloped shoreline, with six swimming beaches, two visitor centers, scenic overlooks, hiking trails, and an extensive system of bicycle trails. The beaches, estuaries, marshes, lakes, and upland forest of CACO provide habitat to more than 800 plants and 450 animal species [1].

Cape Cod National Seashore, a unit of the National Park System, spans six towns on outer Cape Cod, Massachusetts.

Located in close proximity to large population centers in the eastern U.S., CACO is a heavily visited unit of the National Park Service. In recent years, CACO received between four and five million recreational visitors annually (e.g., 2011 visitation was 4,454,771), with much of this visitation occurring during the summer season [2]. Given that the off-season population of the Cape is less than 250,000, the peak season population plus the visitation of more than 4 million represents a substantial increase in people and vehicles traveling in and around the Cape. Many visits occur over relatively short periods of time (e.g., over a weekend), and are characterized by dependency upon a personal vehicle [3]. Such patterns of visitation have raised concerns about damage to natural habitats, traffic congestion, and noise pollution. To address these concerns, CACO led the way in developing transportation partnerships, reaching out to surrounding communities, and providing seed money for partnership activities [4].



Map of outer Cape Cod transit options

TIMELINE OF CACO TRANSPORTATION PARTNERSHIP EVENTS

1978	Tram service to Coast Guard Beach begins.
1998	CACO General Management Plan finalized.
2000	Cape Cod Transit Task Force created. Transit Summit I held in Hyannis. Provincetown/Truro Shuttle service begins.
2001	Transit Summit II held.
2002	Transit Summit III held. 5-year public transportation plan report completed.
2003	Transit Summit IV held to address transportation issues on outer Cape Cod. Bus shelter workshop held and Design Guideline Workbook developed. Long-range planning study report completed.
2006	Flex service begins.
2009	Outer Cape Cod Smart Guide published.
2010	Integrated bicycle, ITS, parking, and maintenance studies completed.
2012	Bicycle shuttle service expected to begin.
Future	Creation of new 5-year and long-range transportation plans. CCTTF expected to reconvene.

HISTORICAL CONTEXT

In the 1950s, on an average day, an estimated 16,000 personal vehicles crossed onto the Cape over two four-lane bridges. By 2001, the average daily traffic had increased to 95,000 vehicles, and winter traffic levels surpassed those experienced in summer months in the 1970s [5]. Resident concern about the number of cars on Cape Cod is reflected in a 2005 survey, in which the vast majority of respondents rated traffic congestion on the Cape as a moderate to serious problem [6, 7]. High levels of traffic congestion reflect not only tourist visitation, but also a growing resident population, and little room to add road capacity on the Cape [3]. The CACO partnerships were in part a response to growing concerns about traffic congestion, urban development and sprawl, and lack of mobility for transit dependent residents [8].

Within CACO, high levels of visitation by personal vehicle pose a threat to sensitive shoreline habitat (due to visitors who park illegally when parking areas are full), air quality, and visitor experiences. These issues are addressed in CACO's General Management Plan, which presents a number of strategies to address transportation issues on outer Cape Cod [9]. These strategies include cooperation with local communities, the use of alternative energy vehicles, the continuation of shuttle service to beaches, and tailored responses to congestion and parking issues. CACO has been able to implement a number of these strategies through partnerships.

Before the CACO partnerships, outer Cape Cod visitors and residents had multiple public transportation modes to choose from, including local and regional bus service provided by the Cape Cod Regional Transit Authority (CCRTA) and two private intercity/regional motorcoach companies, ferry service from Provincetown to Boston and Plymouth, air service to Provincetown and other Cape airports, and an extensive bicycle trail system. The problem lay in the lack of coordination between these transportation systems, and limited visitor and resident knowledge about them [8].

EVOLUTION OF THE CURRENT ALTERNATIVE TRANSPORTATION SYSTEM (ATS) PARTNERSHIPS

Alternative transportation includes services and facilities that provide an alternative to automobile travel, and may include bicycle facilities, rail, shuttle buses, and intelligent transportation systems [10]. The need for alternative transportation in national parks was addressed in 1997 when the Secretary of Interior and Secretary of Transportation signed a memorandum of understanding (MOU) calling for improved public transportation to address traffic congestion, impacts to natural resources, and visitor experiences[11]. Goals set forth in the MOU include: 1) developing and implementing innovative transportation plans, 2) establishing personnel exchange and information sharing systems, 3) establishing interagency project agreements for developing and implementing transportation improvement initiatives, 4) developing innovative transportation planning tools, and 5)

developing innovative policy, guidance, and coordination procedures for the implementation of safe and efficient transportation systems that are compatible with the protection and preservation of the National Park Service's cultural and natural resources.

The National Park Service has identified successful strategies for partnering with visitors, community organizations, area businesses, universities, planning commissions, and other groups to develop alternative transportation systems in national park units [12]. Cape Cod National Seashore is an example of what can be accomplished through successful partnerships. CACO has formed partnerships with state, county and local governments, regional planning organizations, and private businesses to address issues of mobility and congestion for residents and visitors on outer Cape Cod. In addition, planning efforts needed to account for the protection of the natural environment and the character of Cape Cod [13]. These partnerships led to the development of new transit systems, continuing study of transportation issues on outer Cape Cod, and the creation of spinoff transportation partnerships.

CAPE COD TRANSIT TASK FORCE

Shuttle service on the Cape dates back to 1978, when tram service to Truro was established. However, the broad-based effort to expand and coordinate public transportation on Cape Cod began around 2000. That year, a letter to the editor appeared in the Cape Cod Times calling for improved public transportation on the Cape. Soon thereafter, U.S. Representative William Delahunt became involved, providing political leadership for the issue[13]. The Cape Cod Commission, including transportation engineer Clay Schofield, provided local leadership, while CACO contributed to early implementation of services on outer Cape Cod.

Local leaders initiated a series of Transit Summits, inspired by the letter to the editor, to identify alternative transportation needs. The first Cape Cod Transit Summit, held in Hyannis in February 2000, was attended by over 100 people, and included state and local officials, Congressman Delahunt, Massachusetts Transportation Secretary Kevin Sullivan, members of the CCRTA Advisory Board, and the public [3, 13]. The purpose of the summit was to develop community consensus on the future of public transportation on Cape Cod [13]. Attendees agreed that public transportation services were needed to address issues of seasonal traffic congestion and limited mobility for year-round residents, but provided a range of opinions on what a transportation system should look like. As a result, it was determined that a 5-year transportation plan was needed. Three additional summits were held in 2001, 2002, and 2003. The latter was held near CACO, and specifically focused on transportation issues on outer Cape Cod. Beyond 2003, no further transportation summits have been held; however, Cape Cod has continued with public transportation planning and improvements. More information about these efforts is provided later in this report.

Following the recommendation from the first Cape Cod Transit Summit, a formal Cape Cod Transit Task Force (CCTTF) was formed as an advisory committee to oversee the creation of a 5-year transportation plan. The Massachusetts Secretary of Transportation appointed

members of the CCTTF in October 2000 [14], including representatives from the following agencies and organizations:

- U.S. Congress (local delegation)
- Office of the Massachusetts Secretary of Transportation
- Cape Cod Commission
- Cape Cod Central Railroad
- Cape Cod Chamber of Commerce
- Barnstable County Human Services
- Southeastern Massachusetts Private Motor Carriers Association
- Barnstable Assembly of Delegates
- Lower Cape Health and Services Coalition
- Massachusetts Highway Department
- Cape Cod National Seashore
- Woods Hole, Martha's Vineyard, and Nantucket Steamship Authority
- Cape Cod Regional Transit Authority
- Transit Dependent Consumer

Cape Cod Transit Task Force logo (Courtesy of Clay Schofield, Cape Cod Commission)

Goals of the CCTTF include: 1) reduce auto dependency, 2) mitigate seasonal traffic, 3) meet the needs of the year-round population, 4) develop coordination, communication, and cooperation, and 5)incorporate smart growth and land use planning [3]. The CCTTF was involved in the development of two transportation plans, including the 2002 Five-Year Public Transportation Plan [15] and the 2003 Cape Cod National Seashore Alternative Transportation Systems Long-Range Planning Study [3]. Both plans were prepared by the John A. Volpe National Transportation Systems Center (Volpe Center). The CCTTF is not currently active; however, the group met recently to reflect on their efforts and accomplishments [16]. The reunion was encouraged by the Cape Cod Economic Development Council. Stakeholders anticipate that the group will re-convene in conjunction with the development of new 5-Year and Long-Range public transportation plans. The Transit in Parks program recently awarded funding for development of the second 5-Year plan [17].

One of the goals of the CACO partnerships is to "provide visitors and residents with a safe, economical, convenient and reliable alternative to the private automobile" [3]. In particular, these efforts focused on reducing traffic congestion, providing public transit for year round residents (especially youth and the elderly), and reducing environmental impacts to sensitive CACO resources. Solutions were identified to both improve mobility in and around CACO, and ultimately, to provide visitors with the opportunity to have a "car-free" vacation on outer Cape Cod.

TRANSIT PARTNERSHIPS

Development of the Provincetown/North Truro Shuttle (The Shuttle) involved an initial partnership between CACO, the CCRTA, and the towns of Truro and Provincetown [3].The CCTTF created the original proposal for the Flex. National partners also helped create the transit services through technical assistance (e.g., the Volpe Center) and through funding (e.g., Federal Transit Administration [FTA] and the Federal Highway Administration [FHWA]).

"SPINOFF" PARTNERSHIPS

The relationship between CACO, the Cape Cod Commission (CCC), and the Volpe Center continues through ongoing study of transportation issues on and around CACO. Furthermore, CACO partnerships have led to other "spinoff" transportation partnerships on the Cape. One example is the CCRTA Multi-Modal Group, which consists of executives from Cape Cod transportation companies, including Cape Air, Plymouth & Brockton Street Railway Co., Hy-Line Cruises, the Steamship Authority, Cape Cod Railroad, Mass Bike, and Barnstable Municipal Airport. The group works to coordinate schedules and promote connections between different travel modes [16, 18]. Another example is the Cape Cod Renewable Fuels partnership [19]. Following the CACO model of using biofuels in transit buses, other transportation agencies are working to incorporate biodiesel into vehicles throughout the Cape [16]. Organized by U.S. Representative William Delahunt, the group of local, state, and federal agencies and other interested organizations aims to address education, incentives, distribution, and maintenance issues related to biofuels. The outer Cape Cod Intermunicipal Group also works on transportation issues of common interest to the six outer Cape Cod

Transportation partners meet during a Flex working group session. (Credit: Clay Schofield/Cape Cod Commission)

towns and CACO. For example, the group may be tasked with evaluating options for a mobile maintenance unit for bus services on outer Cape Cod [20].

FEATURES OF THE CURRENT ATS

A number of ATS services have been established on outer Cape Cod through CACO partnerships. These include two new bus services (the Provincetown/North Truro Shuttle [The Shuttle] and Flex), the improvement and expansion of bicycle facilities, outer Cape Cod Smart Guide, the construction of context sensitive bus shelters, and continuing efforts to address ITS planning, bicycle planning, parking challenges, and bus maintenance needs.

PROVINCETOWN/NORTH TRURO SHUTTLE

Shuttle service around the greater Provincetown and Truro areas began in 2000 through a partnership between CACO and the CCRTA. The service was part of a proposal in the CACO General Management Plan to reduce traffic congestion and improve air quality and safety through alternative transportation [9]. With funding from the National Park Service, CACO purchased five buses for the Shuttle service, which is administered by CCRTA. The Shuttle was considered a success, receiving a positive response from the Cape community and higher than expected ridership levels [8]. The Shuttle has the highest ridership levels of all CCRTA services [21]. In 2005, ridership was 90,370 during the summer operating season [6]. The Shuttle also contributed to a 275% increase in ridership on Provincetown ferries [21]. The increase was due to the introduction of a high speed ferry service from Boston as well as the addition of a multi-modal stop at the pier.

Both the Provincetown/ North Truro Shuttle and Flex are administered by the Cape Cod Regional Transit Authority (CCRTA).

Currently, Shuttle service is provided from Memorial Day through the end of September. Service is provided between points around the greater Provincetown area, including MacMillan Pier and northern portions of CACO, including the Province Lands Visitor Center and the North Truro camping area. Shuttle fares are $2.00 per ride for youth and adults, and $1.00 per ride for seniors and the disabled. Summer day passes and 20 ride transit passes can also be purchased.

The Shuttle connects with ferry service, fishing tours, and whale watching boats at MacMillan Pier, with Flex bus service (described below) and private intercity/regional motorcoach service at two locations, and with air service at

Provincetown Municipal Airport (upon request). Each Shuttle bus also provides a bicycle rack (two bike capacity) for connections to bicycle trails in CACO. Riders can flag down buses between stops along designated routes. No interpretive services are provided on the Shuttle.

As shown in Table 1, during fiscal year 2009, the Shuttle's ridership totaled more than 56,000 riders and averaged 9.2 passengers per revenue hour [22].

Table 1: Ridership and revenue hours for fiscal year 2009 (courtesy of CCRTA)

	Passengers	Revenue Hours	Passengers per Revenue Hour
PROVINCETOWN/NORTH TRURO SHUTTLE	**56,512**	**6,122**	**9.2**
FLEX BUS	**50,073**	**15,390**	**3.3**

FLEX

Following the success of the Shuttle, Flex began on outer Cape Cod in June 2006 [8]. Five of the twelve buses were purchased through the Transit in Parks program for the service, which is administered through CCRTA. The Flex bus represents a creative alternative to a more traditional fixed route service, which community leaders determined to be too costly at an estimated two million dollars per year [8]. These buses run on biodiesel and are 12 feet wide, 29 feet long, and seat 25 passengers [6]. In 2010, ridership was highest during July and August, with more than 10,000 riders each month [23].

A Flex bus waits for passengers at Salt Pond Visitor Center, one of eight main stops on the route between Harwich and Provincetown.

The new bus service on outer Cape Cod was modeled after bus systems in other regions of the country, including Kitsap County, Washington; Sussex County, New Jersey; and the Finger Lakes region of New York.

Unlike the Shuttle, Flex service is provided year round. Between mid-June and early September, Flex buses run seven days a week between 6:00am and 10:45 pm, with departures occurring every hour [24]. Winter flex service runs on a reduced schedule to reflect lower ridership [6]. Service is provided between Harwich and Provincetown, with main stops occurring at Star Market, Harwich, East Harwich Stop & Shop, Brewster Senior Housing, Cranberry Plaza Stop & Shop, Salt Pond Visitor Center, Farrell's Market, Highland Road at Route 6, and MacMillan Pier, located in Provincetown [24]. In addition, there are thirteen "in-between" stops along the route. Buses always stop at main stops; however, they only stop at in-between stops upon request or to pick up a waiting passenger. Also, buses will deviate up to ¾ of a mile from the main route with a reservation. A one way trip along the entire Flex route takes about an hour and 50 minutes [6]. Shuttle fares are $2.00 per ride for youth and adults, and $1.00 per ride for seniors and the disabled. The fare is doubled for off-route pick-ups and drop-offs. Passengers can also purchase day passes and 20 ride transit passes [24].

Travelers can connect with private motorcoach service at two locations on outer Cape Cod, including this one at MacMillan Pier in Provincetown

The Flex bus connects with ferry service, fishing tours, and whale watching boats at MacMillan Wharf, the Shuttle in Provincetown and Truro, the H20 Hyannis to Orleans bus at Harwich, and intercity/regional private motorcoach service at several locations. The Flex buses also provide bicycle racks (two bike capacity) for connections to bicycle trails in CACO. Passengers can flag down Flex buses at any point along the route, except for portions of the route along Route 6. No interpretive services are provided on Flex buses.

In 2009, the Flex's ridership totaled more than 50,000, averaging 3.3 passengers per revenue hour, as shown in Table 1.

BICYCLE PATHS

At CACO, bicycling is a popular activity, second only to beach visitation. Twelve miles of trails are available for recreational bike use. Major trails include the Nauset Trail, which runs between the Salt Pond Visitor Center and Coast Guard Beach in the town of Eastham; Head of the Meadow Trail in the town of Truro; and the Province Lands Trail, located in Provincetown. Bicyclists, runners, walkers, and horseback riders may also choose to travel along the 22 mile Cape Cod Rail Trail. The Rail Trail passes through CACO in Eastham and Wellfleet and terminates near park headquarters in Wellfleet.

Signs encourage visitor safety along CACO's many bicycle trails

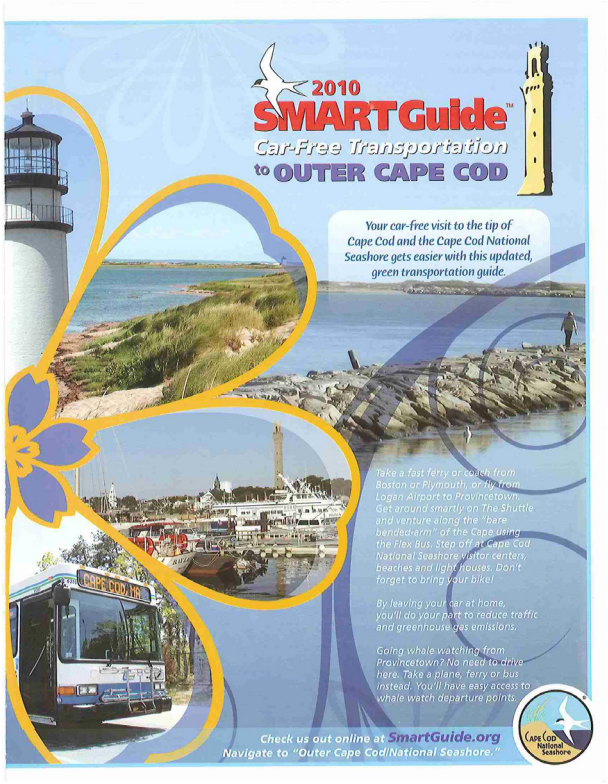
Encouraging greater use of bicycles for transportation is one way of addressing congestion and pollution issues on Cape Cod, particularly near CACO. A lack of connectivity between bicycle trails and destinations on the Cape presents a challenge for promoting bicycle transportation. The recently completed Integrated Bicycle Plan for Cape Cod, funded through CACO, may lead to the creation of future partnerships focused on expanding and improving bicycle facilities on the Cape [9]. One major recommendation of the plan is to incorporate bicycle accommodations in road repair and reconstruction projects, an enhancement that is now being integrated into CACO's 2011 reconstruction of Moors Road between Provincetown and Herring Cove Beach. The $1.5 million Moors Road project involves widening the road corridor, adding crosswalks, and rehabilitating the road structure to improve safety, and address congestion issues[25].

OTHER ATS PROGRAMS, STUDIES, AND PLANNING EFFORTS

In addition to the new transit services, the CACO partnerships have led to the publication of the outer Cape Cod Smart Guide, planning and implementation of bicycle facilities, the building of context sensitive bus shelters, and continuing efforts to address ITS planning, bicycle planning, parking challenges, and bus maintenance needs.

OUTER CAPE COD SMART GUIDE

The Smart Guide Car-Free Transportation to Cape Cod brochure and the website (including Martha's Vineyard and Nantucket) provide visitors with information about travel options in the Cape Cod region [26].These resources are produced by the Cape Cod Chamber of Commerce in collaboration with Cape Cod, Nantucket, and Martha's Vineyard county governments; transit authorities; and transportation providers. Recently, CACO collaborated with the CCRTA, Cape Cod Commission, Cape Cod Chamber of Commerce, and the Volpe Center to publish a separate Smart Guide that is specific to outer Cape Cod. The 2010 Smart Guide Car-Free Transportation to Outer Cape Cod brochure highlights schedules for the Shuttle, the Flex Bus, Plymouth & Brockton Bus intercity/regional private motorcoach service, Bay State Cruises Fast Ferry, Boston Harbor Cruises Fast Ferry, Cape Air, Dolphin Fleet Whale Watch, and Plymouth to Provincetown Express Ferry [27]. The Smart Guide website also encourages travel by bicycle and walking in CACO. Funding for the outer Cape Cod-specific Smart Guide came from a CACO grant.



The outer Cape Cod Smart Guide provides visitors with schedules and contact information for a variety of transportation providers

Bus shelters were designed to create a unique identity for the transit system and to reflect the character of Cape Cod landscapes and towns.

BUS SHELTER PROGRAM

In July 2003, CACO participated in a workshop with the Cape Cod Commission, U.S. Department of

Transportation's Volpe Center, local transportation officials, and community members to review designs for bus shelters on Cape Cod [28]. The goal was to create a unique, context sensitive identity for the transit system on the Cape that would reflect the character of local towns and villages. Initial shelters were constructed at MacMillan Pier in Provincetown, Salt Pond Visitors Center, and Marconi Station. Through American Recovery and Reinvestment Act (ARRA) funding, the CCRTA made plans to build an additional 45 similar shelters throughout Cape Cod [14].

BEACH WHEELCHAIRS and WHEELCHAIR ACCESSIBLE BEACH PATHS

CACO has taken a pro-active approach to facilitate beach access for accessibility-limited people on the Cape. For example, CACO conducts ongoing outreach with a family of regular visitors who have provided valuable input on accessibility issues. CACO has enhanced access to its beaches through the use of beach wheelchairs and wheelchair accessible beach paths. At Coast Guard Beach and Herring Cove Beach, CACO provides free beach wheelchairs to accessibility-limited visitors. The chairs have large wheels and other features that help them travel easily over sand. Based on the positive response, CACO plans to purchase more chairs in the future.

Beach wheelchairs help to make two of CACO's beaches accessible to all visitors.

CACO also purchased rollup pathway matting that provides beach access to visitors in conventional wheelchairs. The matting, currently installed at Coast Guard Beach and Herring Cove Beach, is also used by visitors with limited depth perception, those using walkers/canes, and families with strollers. CACO has also received enthusiastic reviews from visitors who use the matting, and hopes to expand its installation to additional beaches.

COAST GUARD BEACH SHUTTLE

A tram picks up visitors at Coast Guard Beach in Eastham . (Credit: Terry Sheehan/Volpe Center)

In 1978, a storm destroyed the original parking lot at Coast Guard Beach in Eastham. To protect sensitive beach habitat, CACO constructed a new parking area ½ mile from the beach. Beach shuttle service to Coast Guard Beach at CACO has existed since the early 1990s [3]. Shuttling visitors to the beach from the Little Creek Parking Area reduces the need for transportation infrastructure in shoreline habitats [29]. In 2010, these trams provided 211,042 one-way rides [41]. The shuttle vehicles have evolved over the years, from school buses to electric trams to the current van shuttles. CACO has an interest in offering tram service at other popular beaches, possibly expanding the service to town beaches and guest houses along Route 6 [29].

RECENT STUDIES

CACO, in collaboration with its partners, is involved in a number of studies and planning efforts to address transportation issues around CACO.

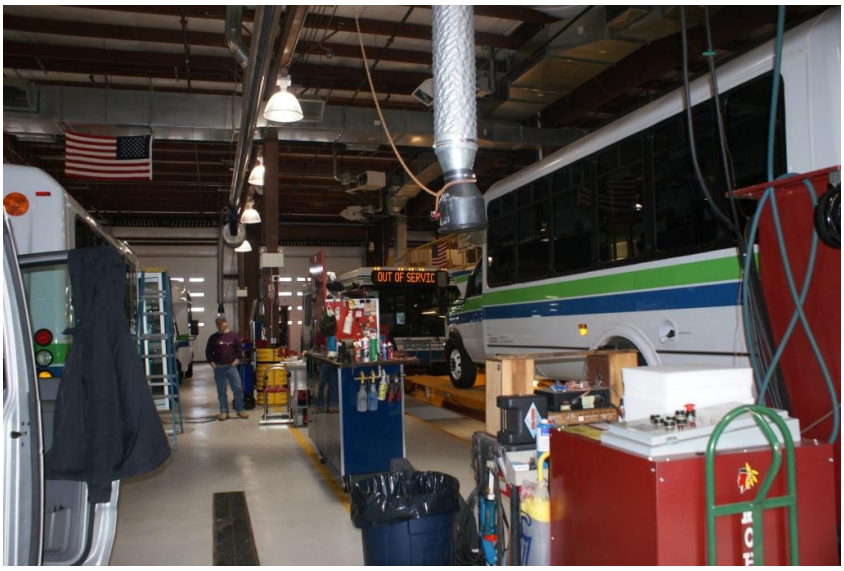
- **The Integrated Bicycle Study for Cape Cod,** completed in the summer of 2010, addresses ways to improve, expand, and integrate bicycle facilities on the Cape, particularly around CACO[29-31]. With funding from the National Park Service Park Roads and Parkways Program, 120 proposed projects and initiatives were evaluated for ease of implementation and expected benefits. Forty-seven projects were identified and assessed for future consideration. The study was conducted in collaboration with the Cape Cod Commission and was guided by a steering committee consisting of Mass Bike, town bicycling representatives, elected officials, Massachusetts Department of Conservation and Recreation, the Massachusetts Department of Transportation, and the Volpe Center. Implementation of several recommended projects is currently in progress.

- **An Intelligent Transportation Systems (ITS) Study,** completed in 2010, addresses issues such as variable message signs, highway advisory radio, and emergency preparedness [21]. At present, a low-cost ITS system has been established through the GeoGraphics Lab at Bridgewater State College [32]. The system uses mobile data terminal GPS technology to provide riders with access to real-time data about buses through their cell phones or other PDA devices.

- **A Parking and Transit Study** addresses ways to locate parking away from coastal resources, and to expand usage of alternative parking facilities (e.g., Nauset High School, which is available during the summer tourist season) [14].

- **A Climate Change Pilot Project Study** addresses issues of greenhouse gas emissions and sea-level rise. A report completed in July 2011 provides a framework for collaborative efforts between agencies to address impacts of climate change by reducing greenhouse gas emissions from transportation [33].

- **The Outer Cape Cod Maintenance Facility Study** will address the best location to maintain the increased number of transit vehicles on outer Cape Cod [21].The CCRTA Operations and Maintenance Facility opened in South Dennis in April 2007 [13]. The state-of-the-art facility is crucial to the success of bus operations in the region [4].



Buses on outer Cape Cod are maintained at the CCRTA Operations and Maintenance Facility in South Dennis. (Credit: Clay Schofield/Cape Cod Commission)

INSTITUTIONAL ARRANGEMENTS

Funding for partnership activities comes from a number of sources at the local, state, and federal level. Strong community support has been central to the successful operation of the new transit services.

FUNDING

CACO has supplied much of the funding for the partnership activities, with $5,328,479 coming from National Park Recreation Fee funds and $8,913,182 from Federal Lands Highway Park Roads and Parkways funding [4].

Specifically, CACO has provided funding for short-term and long-term transportation planning, including the 2002 Five-Year Public Transportation Plan and 2003 Long-Range Transportation Plan [3]. Additional funds for the 2002 Five-Year Public Transportation Plan (beyond those provided by CACO) were provided by local government and the private sector, including the Cape Cod Chamber of Commerce and Cape Air [34]. Other groups that have provided financial support for partnership activities include the CCRTA, Massachusetts

Aeronautics Commission, Steamship Authority, Cape Cod Chamber of Commerce, Cape Air, Barnstable County, and Executive Office of Transportation and Construction (EOTC) [21]. These groups have also contributed substantial time to the partnership efforts [13].

Additional planning and implementation funds have come from the Paul S. Sarbanes Transit in Parks (TRIP) program. Federal Land Management Areas that manage eligible lands are eligible for TRIP funds, along with state, tribal, or local governmental authorities that have jurisdiction over land in the vicinity of an eligible area and are acting with the consent of the FLMA. All three of the major partners, CACO, CCRTA, and the Cape Cod Commission (CCC) have been awarded TRIP grants to support CACO projects, totaling $6,653,280 from 2006 through 2012. The projects funded through TRIP are listed in Table 2[4] . CCRTA and CCC are key funding partners, as evidenced by their success in securing TRIP funding. As regional planning organizations, they demonstrate strong abilities to develop regional consensus and clearly identify regional needs [13]. The three main players (CACO, CCRTA, and CCC) have developed a synergistic working relationship, based on their common interests and championship of partnership projects. CCRTA and CCC's strengths (e.g., long range forecasting, land use, nonmotorized planning, and intermodal elements) and current projects have made them the appropriate recipients for some of these grants (i.e., ITS communications equipment for local transit service, purchase five buses, and update the 5-year public transportation plan). The CCC in particular has shown enthusiastic commitment to various planning issues affecting the Cape, and has a proven track record as an effective partner on many regional issues in addition to transportation.

Constraints have been faced, however, in the transfer of the funds to the non-FLMA recipients. To receive the funds, CCRTA and CCC have to use FTA's grant recipient system, which requires a certification process rather than an interagency agreement. CCC is not certified in this; therefore, the funding for the 5-year transportation plan update was actually provided to CCRTA, as they are already certified and experienced in using this system. In the future, CCC intends to complete the certification process.

Table 2: CACO Transit in Parks program awards

Year	Transportation Purchase
2006	Replace three trailers for trams to transport visitors to destinations within and near the National Seashore.
2006	Purchase ITS communication equipment to allow timed transfers and coordination of local transit service. (CCRTA)
2006	Define the needs and evaluate alternative satellite maintenance/storage sites for a transit service to be implemented.
2007	Purchase a tram to facilitate alternative transportation.
2007	Fund a study that develops an integrated parking and transit plan.
2007	Purchase five 30′ low-floor mini-buses.
2008	Study Integrated Bicycle Plan for Cape Cod
2008	Study of Cape Cod ITS
2009	Update 5-Year Cape Cod Public Transportation Plan (CCC)
2009	Purchase Passenger Vans and Bicycle Trailers
2011	Correction of Safety Hazards and Rehab of Nauset Bike Trail Phase 1
2011	Provincetown, Truro and Rt 6 Multiuse Path Master Planning and Conceptual Project Design
2012	Race Point / MacMillan Pier Bicycle Improvements
2012	Improve the Safety of Pedestrian and Bicycle Crossings on Major Roadways

OPERATIONAL FUNDS

Establishment of the Shuttle and the Flex Bus required the unanimous support of the outer Cape Cod towns. Boards of Selectmen from all seven local towns voted to pay about 25% of operating costs for the Flex Bus, a condition required of local communities for public transportation services provided through Regional Transit Authorities[13, 16]. Rider fees cover only about 10% of costs, with the remainder coming from state and federal funding. Operating expenses in 2009 were $284,213 for the Shuttle and $754,060 for the Flex [22]. In 2008, a state budget shortfall and a reduced funding allocation for the Regional Transit Authorities (including CCRTA) threatened the continuation of Flex bus service [16, 35, 36]. A supplemental budget was later passed, saving the Flex, in part because of resident testimony at public hearings about the importance of the service to outer Cape Cod communities[35]. However, service cuts were implemented (e.g., the 20 minute service was cut to hourly service).

During public hearings, residents testified about the importance of Flex bus service for 1) affordable access to grocery stores and other services, particularly for low income people and the elderly, 2) transportation to jobs for the previously unemployed and for students, and 3) daily rides for students to charter schools, many of which do not provide transportation services [13]. The 2008 case reflects the strong local support for the CACO partnership efforts. However, financial sustainability for these services is currently tied to annual state appropriations for the Regional Transit Authorities, and the continued financial support of outer Cape Cod towns.

LESSONS LEARNED

The success of the CACO partnerships can be seen in the many successfully implemented programs and services described in the *Features of the Current ATS* section. These include the establishment of two transit services (the Shuttle and the Flex); improvement of bicycle signing and other facilities; the publication of the outer Cape Cod Smart Guide; the development of "spinoff" partnerships, such as the Cape Cod Renewable Fuels Partnership and CCTRA Multi-Modal Group; and through continued study and planning efforts.

WHAT WORKED

Partnership members attribute the success of their efforts to a number of factors, including:

- ***A history of collaboration between CACO and surrounding communities.*** When established in 1961, CACO represented a new model for the National Park Service [3]. While most national parks had been established on large tracts of federal land, the CACO site was integrated into and around existing communities. Therefore, CACO itself was the result of partnerships among the federal government, the Commonwealth of Massachusetts, and local towns and businesses. This history of collaboration set the stage for the success of recent transportation partnerships.

- ***CACO planning leadership.*** Given the unique integration model, many transportation projects serve communities directly and require town funding, right-of-way permissions, and other direct involvement of surrounding communities. A large increase in the outer Cape Cod population during summer months makes effective planning and public involvement a necessity [29]. Willingness on the part of CACO to take a leading role in planning and to actively involve towns throughout the Cape (rather than simply implement projects through a top-down approach) has likely contributed to the success of recent transportation projects. CACO started the planning process using seed money from the Federal Lands Highway Program Parks Roads and Parkways program [4]. Recent studies on integrated bicycling, intelligent transportation, parking, and transit are examples of these planning efforts.

- ***A deployment approach that "ladders" implementation projects on design projects, which are laddered on planning studies.*** Using the planning process to define projects and ensure that each project builds on previous work helps to promote success for ambitious efforts, because they are implemented one step at a time. Demonstrating how a project fits into an overall objective creates compelling arguments for subsequent rounds of funding.

- ***Community and town leader interest in addressing transportation problems.*** Effective public involvement in planning efforts requires an engaged and interested community. In the case of outer Cape Cod, partnership activities occurred during a period of growing resident concern about seasonal traffic congestion and limited public transportation options [35]. Town leaders, particularly boards of selectmen, were aware of these concerns and willing to take action to address transportation problems on the Cape.

- ***Capital funding from outside sources, with operating costs shared between towns.*** Most towns can't secure resources for a large initial investment in infrastructure, but they can accommodate smaller operational costs by integrating them into their other operations. For example, the seven towns on outer Cape Cod contribute 25% of the operating costs for the Flex bus service.

- ***Effective public outreach and marketing.*** While interest in transportation issues on outer Cape Cod was high, gaining public support for the details of the partnership programs was tied to continual efforts to involve, inform, and listen to community members [37]. Outreach efforts began early in the partnership, and included many opportunities for public deliberation and discussion of issues. In particular, planning partners held 50 public meetings, hosted three transit summits, enlisted the services of a public relations specialist, and worked closely with town selectmen [35]. Press releases were prepared for each meeting, and local reporters were encouraged to attend. Funding for outreach was incorporated into the task force budget, and meetings were well attended because of high public interest in the issue [13]. These efforts resulted in universal acceptance of the new transit programs by towns, including a

commitment to pay 25% of operating costs for the new Flex bus service.

In addition, the planning process incorporated the perspectives of community members who could benefit from new transportation services. For example, two students from a local high school participated in a planning committee for the Flex bus. As a result, buses with seats facing each other were selected for the service, an arrangement that encourages social interactions between locals and visitors [8, 16]. Efforts have also been made to encourage ridership by seniors and members of the Cape's Portuguese community. For example, the Flex bus website includes videos targeted to each of these populations [24]. In addition, buses with a low floor design were selected to accommodate the large senior population on outer Cape Cod [34].

- ***A pro-active and effective transportation task force.*** Finally, the success of the partnership effort was tied to a pro-active and effective task force (CCTTF) [16]. Group members were appointed by the Massachusetts Secretary of Transportation and represented a broad spectrum of interest groups, factors that gave the group legitimacy. Task force members modeled their efforts after successful transportation programs conducted in other parts of the country. During weekly meetings, speakers were invited to inform CCTTF members about these programs. The Task Force also benefited from highly committed individual members. Clay Schofield of the Cape Cod Commission brought energy to the task force and is an example of the difference that one person can have on ATS development.

WHAT COULD BE IMPROVED?

The CACO partnerships have been largely effective. However, challenges were encountered during planning and implementation. Many of these challenges have been resolved.

Signs guide visitors to the Nauset, Head of the Meadow, and Provincelands bicycle trails at CACO. Bicyclists may also choose to travel along the 22 mile Cape Cod Rail Trail, which intersects with CACO. The recently completed Integrated Bicycle Plan may lead to the creation of future partnerships focused on expanding and improving bicycle facilities on the Cape [31]

- ***Addressing concerns about impacts to existing services.*** During the planning phases for Flex service, stakeholders had to consider how the new service would impact the revenue of other transportation service providers. For example, the town of Provincetown expressed concern about impacts to revenue from parking fees [37]. Similarly, the question of how the new service would impact an intercity/regional private motorcoach company operating in

the area had to be addressed. Once implemented, the new Flex service did not negatively impact either stakeholder. Parking revenues in Provincetown were not reduced, and the motorcoach company saw an increase in revenue after replacing local trips with longer distance, regional trips [8]. Furthermore, Provincetown ferries experienced a significant increase in ridership after the new outer Cape Cod transit services were implemented [21].

- ***Providing adequate accommodation for bicycles.*** An ongoing challenge relates to demand for bicycle space on the Shuttle and Flex buses [29]. Bicycling is one of the most popular activities at CACO. However, buses accommodate only two bicycles, a number inadequate for larger groups and families that travel to CACO to bicycle. A recent Transit in Parks program grant will allow CACO to purchase vans with bicycle trailers to accommodate up to 12 bicycles for these larger groups [38, 39]. Another approach to accommodating bicycles has been taken at Acadia National Park in Maine, where buses have racks that can hold up to six bikes.

- ***Weathering budget shortfalls and sustaining funding for operations.*** The 2008 Massachusetts state budget shortfall represented another challenge faced by the new outer Cape Cod transit services. Resident testimony and Congressional leader support led to the passage of a supplemental budget that allowed the new CCRTA services to continue. However, the situation highlighted the importance of state appropriations and continued financial support of outer Cape Cod towns.

- ***Expanding partnership activities to a wider region.*** Another challenge faced by CACO partners relates to efforts to expand their partnerships beyond Cape Cod. A proposal to extend a rail line from Boston to the Cape through the Massachusetts Bay Transportation Authority may result in seasonal service in the near future. The CCRTA is involved in a $300,000 study to implement the new service[13]. With the vision of increasing "car-free vacations" on Cape Cod, the partners would like to see their transportation efforts connected at a regional level. Possible future efforts could focus on increasing service connections with regional airports or with Amtrak. These initiatives would provide additional opportunities to reach consumers and inform them about "car-free" travel options [37].

FUTURE PARTNERSHIP ACTIVITIES

In the future, CACO, the Cape Cod Commission, the Volpe Center, and their various partners plan to continue to work together—and with other partners—on studies and planning efforts that will further improve the quality of transportation on outer Cape Cod. This includes implementation of Intelligent Transportation Systems in the region [40]. With recent funding awarded through the Transit in Parks program, stakeholders expect that the CCTTF will reconvene in conjunction with the development of new 5-Year and Long-Range

Transportation Plans. The momentum created through the CACO partnerships will likely continue to inspire new partnerships and projects. Through the efforts of these groups, a car-free vacation on outer Cape Cod has become a viable option for visitors.

REFERENCES

1. *Cape Cod National Seashore Website*. 2010 August 9, 2010]; Available from: http://www.nps.gov/caco/index.htm.

2. *National Park Service Public Use Statistics Office Website*. 2010 August 9, 2010]; Available from: http://www.nature.nps.gov/stats/.

3. *Cape Cod National Seashore Alternative Transportation Systems Long-range Planning Study Final Report*. 2003, National Park Service & John A. Volpe National Transportation Systems Center: Cambridge, MA.

4. Evans, J., *Transportation Planner, National Park Service, Review Comments*. 2011: Washington, DC.

5. Melo, F., *Driving Us Crazy*, in *Cape Cod Times*. July 4, 2003.

6. *2007 Cape Cod Regional Transportation Plan*. 2007, Cape Cod Commisssion.

7. *Cape Cod Regional Policy Plan*. 2009, Cape Cod Commission.

8. Schofield, C. and T. Sheehan, *Transit in Paradise: The Outer Cape Cod 'Flex' Transit System, Development to Implementation.* Transportation Research Board Submission Task Force Code ADA40T, 2007: p. 21.

9. *Cape Cod National Seashore General Management Plan*. 1998 August 9, 2010]; Available from: http://www.nps.gov/caco/parkmgmt/general-management-plan.htm.

10. Paul S. Sarbanes Transit in Parks Technical Assistance Center website. *What is Alternative Transportation*. 2011 [cited 2011 September 14].

11. Krechmer, D., et al., *Federal lands alternative transportation systems study: Summary of national ATS needs*. 2001.

12. USDOT Volpe National Transportation Systems Center, *Partnering for Success: Techniques for Working with Partners to Plan for Alternative Transportation in National Park Service Units*. 2003.

13. Schofield, C., *Transportation Engineer/PE, Cape Cod Commission, Personal Communication*. September 22, 2011: Barnstable, MA.

14. Schofield, C., *Cape Cod National Seashore Transit Partnership 9 Years and Going Strong!*, in *Crossing the Line: Working with Federal Lands on Transportation Projects Session*. 2010, Transportation Research Board Annual Meeting, Washington DC.

15. *Cape Cod Transit Task Force Five-Year Public Transportation Plan*. 2002, John A. Volpe National Transportation Systems Center: Cambridge, MA.

16. Schofield, C., *Transportation Engineer/PE, Cape Cod Commission, Personal Communication*. July 7, 2010: Barnstable, MA.

17. Schofield, C., *Transportation Engineer/PE, Cape Cod Commission, Personal Communication*. September 1, 2010: Barnstable, MA.

18. *MassDOT Secretary and Rail & Administrator and MBTA General Manager Visit Cape Cod RTA*. July 29, 2010 August 9, 2010]; Available from: http://www.thebreeze.info/news-release.cfm?newsReleaseID=11.

19. *Cape Cod Renewable Fuels Partnership Website*. 2010 August 10, 2010]; Available from: http://www.cirenew.info/ccrfp.php.

20. Cape Cod Commission, *Cape Cod 2012 Regional Transportation Plan 2012-2035*. 2011.

21. Hoogeboom, K. and C. Schofield, *Cape Cod Transit in the Parks Partnership*, in *Presentation to FTA Administrator Peter Rogoff*. 2010: Hyannis, MA.

22. Quintero-Schulz, J., *Cape Cod Regional Transit Authority, Personal Communication*. May 1, 2012: Cape Cod, MA.

23. Maragnano, L., *Cape Cod Regional Transit Authority, Personal Communication*. September 8, 2010: Cape Cod, MA.

24. *The Flex*. 2010 August 9, 2010]; Available from: http://www.thebreeze.info/flex-route.htm.

25. National Park Service, *Cape Cod National Seashore Rehabilitation of Moors Road with Bicycle Accommodations in the Province Lands Environmental Assessment/Assessment of Effect*. 2010. p. 1-178.

26. *SmartGuide Car-Free Travel to Cape Cod, Martha's Vineyard and Nantucket*. 2010-2011, SmartGuide.org.

27. *SmartGuide Car-Free Transportation to Outer Cape Cod*. 2010, SmartGuide.org.

28. *Alternative Transportation Facility Design Prototypes Workbook*. 2003, National Park Service & Cape Cod Commission.

29. Hoogeboom, K., *Chief of Facilities and Maintenance, Cape Cod National Seashore, Personal Communication*. July 7, 2010: Barnstable, MA.

30. T. C. Associates, "Northeast Region of the National Park Service Alternative Transportation Management System Cape Cod National Seashore - ATMS Phase 1 Inventory Report," Tom Crikelair Associates, 2011.

31. Price, G. *Cape Cod National Seashore Seeks Public Input on Integrated Bicycle Study for Cape Cod*. April 15, 2009 August 9, 2010]; Available from: http://www.nps.gov/caco/parknews/cape-cod-national-seashore-seeks-public-input-on-integrated-bicycle-study-for-cape-cod.htm.

32. *Integrated Bicycle Plan for Cape Cod Bicycle Feasibility Study.* National Park Service, 2010(CACO 133871).

33. *Bridgewater State College GeoGraphics Laboratory Website*. 2010 August 10, 2010]; Available from: http://www.geolabvirtualmaps.com/.

34. John A. Volpe National Transportation Systems Center, *A Framework for Considering Climate Change in Transportation and Land Use Scenario Planning: Final Report*. July 2011.

35. Schofield, C., *Transportation Engineer/PE, Cape Cod Commission, Personal Communication*. March 1, 2011: Barnstable, MA.

36. Sheehan, T., *Regional Emergency Transportation Representative, John A. Volpe National Transportation Systems Center, Personal Communication*. July 7, 2010: Barnstable, MA.

37. O'Leary, R., *FLEX-ing the Cape's Transit Muscle*, in *The Barnstable Patriot*. March 21, 2008: Barnstable, MA.

38. Leclerc, P., *Senior Transportation Planner, Cape Cod Commission, Personal Communication*. July 7, 2010: Barnstable, MA.

39. Cassidy, P., *Cape Collaboration Earns Federal Kudos and Cash*, in *Cape Cod Times*. 2010: Hyannis, MA.

40. Hoogeboom, K., *Chief of Facilities and Maintenance, Cape Cod National Seashore, Personal Communication*. September 22, 2011: Barnstable, MA.

41. John A. Volpe National Transportation Systems Center, *Cape Cod National Seashore Intelligent Transportation Systems Implementation Plan Final Report*. 2011.