

Santa Ana National Wildlife Refuge Alternative Transportation Project

December 2010



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FOREWORD

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We are pleased to present this Partnership Case Study for the Santa Ana National Wildlife Refuge Alternative Transportation Project. It is one of many case studies spearheaded by the Paul S. Sarbanes Transit in Parks Technical Assistance Center (TAC).

Launched in 2009, the TAC 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 TAC 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. TAC 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 TAC. 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 Santa Ana National Wildlife Refuge 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.



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EXECUTIVE SUMMARY

The Santa Ana National Wildlife Refuge is located in southeastern Texas just north of the Rio Grande and the U.S.-Mexican border, seven miles south of the town of Alamo in Hidalgo County. The Refuge protects hundreds of plant and animal species that attract visitors from around the world. Therefore, much of its recreational activity is focused on viewing birds and wildlife while walking trails and touring Wildlife Drive, which circles the Refuge perimeter and provides primary access to it.

The Refuge tram service is a partnership between the U.S. Fish & Wildlife Service (USFWS) and the Valley Nature Center (VNC), a local, non-profit organization, and, to a lesser extent, the Friends of Santa Ana National Wildlife Refuge (NWR). The Refuge's tram system is successful in large part due to their partnerships with these local non-profit organizations. Operating since 1982, the tram takes visitors on an interpretive tour through the Refuge along the Wildlife Drive loop, which is the Refuge's only road and is closed to private vehicles except bicycles during the peak visitor season to protect resources.

The current tram travels Wildlife Drive from November 15 through April 30, seven days per week (excluding major holidays), three times per day. The 90-minute tours stop at various points of interest along the way. The tram can hold up to 92 passengers, but typically only reaches capacity during spring months.

The operation of the tram service is defined through a memorandum of understanding (MOU) between the Refuge and the VNC. Both partners handle certain components of the tram program. The Refuge provides the tram vehicles, as well as gasoline, oil, and tires. The Refuge also provides all parts and labor, or funding of such, for maintenance. Both partners assist with training the volunteers as defined in the MOU.

Lessons Learned

- Provide financial sustainability through partnerships.
- Identify partners with similar missions.
- Communicate with partners.
- Compromise.
- Volunteers provide important financial assistance.
- Communicate with off-site USFWS staff.
- Conduct pre-purchase tram evaluations.
- Invest time in researching the type of vehicle and energy used.
- Communicate the need for change to visitors.

- Be honest when visitors ask about the reasons for a change.
- Conduct performance reviews of tram operations and interpretation
- Expand scope of reviews.
- Increase annual meetings between partners.
- Partner on marketing efforts.
- Celebrate tram program successes.
- Identify tram purchase assistant.

Successful Strategies to Apply

- Select compatible partners.
- Use volunteer outreach tools.
- It is very important to identify short-, mid- and long-term plans that consider potential future growth.
- Long-term plans also need to identify each partner's responsibilities.
- Remember the agency message.

What's Next

Overall, all partners are very satisfied with the arrangement and plan to continue working cooperatively together in the future.

SANTA ANA CASE STUDY



INTRODUCTION

Managers of public lands are implementing alternative transportation systems (ATS) in exciting and innovative ways. Learning about those programs 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 (TAC) 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 systems 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, and implementing 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.

WHY WAS THIS CASE STUDY SELECTED?

Case studies are selected based on existing successful programs and partnering arrangements identified by the TAC, 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.

The Santa Ana National Wildlife Refuge visitor tram service is a partnership between the U.S. Fish & Wildlife Service (USFWS) and the Valley Nature Center (VNC), a local, non-profit organization formed in 1984¹. The Refuge's tram system is successful in large part due to its partnership with a local non-profit organization. Operating since 1982, the tram takes visitors on an interpretive tour through the Refuge along the Wildlife Drive loop, which is the only road and is open to cyclists but closed to private vehicles during peak visitor season to protect resources. Various funding mechanisms and partnering arrangements over the years have contributed to the development of this ATS, as described below.

WHAT IS THE PAUL S. SARBANES "TRANSIT IN PARKS" PROGRAM?

The Paul S. Sarbanes Transit in Parks Program (Transit in Parks), formerly the Alternative Transportation in Parks and Public Lands (ATPPL) Program, is a federal financial assistance program that annually awards grants to carry out projects that provide alternative transportation planning, facilities and services that enhance existing transportation systems in national parks and public lands. Alternative transportation means transportation by bus, rail, or other conveyance including facilities for pedestrians, bicycles, and watercraft.

WHAT IS THE PAUL S. SARBANES "TRANSIT IN PARKS" TECHNICAL ASSISTANCE CENTER (TAC)?

Under the auspices of the Transit in Parks program, the Federal Transit Administration created the Paul S. Sarbanes Transit in Parks Technical Assistance Center (TAC). It provides federal land managers with an expanded set of readily-available tools to meet the goals of Transit in Parks, which are to conserve natural, historical, and cultural resources, reduce congestion and pollution, and improve visitor access and experience.

The TAC provides information, training, and technical support on alternative transportation systems (ATS) for federal land managers, offering them a single point of contact/one-stop shop for desired services. Specific services include person-to-person technical liaisons, a Help Desk (helpdesk@triptac.org or 877-704-5292) and website (www.triptac.org), training workshops, a peer mentoring program, and an online system to help public land managers find documents, technical manuals and other resources. This case study represents one of the resources developed for TAC clients.

SANTA ANA NATIONAL WILDLIFE REFUGE

The Refuge is located in southeastern Texas just north of the Rio Grande and the U.S.-Mexican border. At an ecological crossroad, the larger unit, the USFWS South Texas Refuge Complex, includes the Santa Ana, the Laguna Atascosa, and the Lower Rio Grande Valley National Wildlife Refuges. These three refuges comprise approximately 182,000 acres, all of which are located in deep South Texas². Eleven distinct habitats exist where the Rio Grande meets the Gulf of Mexico, making the area one of the most biologically diverse in North America. Four climates (coastal, temperate, sub-tropic, desert) converge, as do two migratory bird flyways — the Central and the Mississippi. More than half (521) of the bird species in the United States come to nest, rest, and feed within



The Refuge is home to over 400 species of birds, including this tri-colored heron. (Credit: Thomas G. Barnes/University of Kentucky)



The Refuge is located at an ecological crossroad.

the four most southern counties of Texas.

The Refuge is seven miles south of the town of Alamo, and almost 50 miles west of Brownsville in Hidalgo County¹. At 2,088 acres, the Refuge is one of the smaller national wildlife refuges in the country³. Established over 50 years ago as a migratory bird sanctuary, the Refuge protects hundreds of plant and animal species that attract visitors from around the world, despite the Refuge's small size². Rare subtropical birds, butterflies, and dragonflies seldom sighted elsewhere in the United States have been seen at the Refuge. A number of species first observed in the United States have been initially recorded here as well. Although the Refuge's land surface elevation varies only a few feet, five different micro habitats correspond to the slight elevation differences, soil types, and proximity to water⁴.

The Refuge's management program addresses the historical flooding of the Rio Grande, maintaining the bottom land hardwood forest and providing crucial nesting and feeding habitat for birds, watering holes for animals, and homes for countless amphibians, reptiles, crustaceans, and insects⁵. This small patch of mid-valley riparian woodland is also habitat for about half of all butterfly species found in North America, over 400 species of birds, and

such rarities as the indigo snake and the Altamira oriole². The approximately 245-250 species of butterflies found here depend on many of the 1,200 types of plants that thrive in this delta floodplain^{3, 6}. As a result, much of the Refuge's recreational activity is focused on viewing birds and wildlife while hiking and walking trails, and touring Wildlife Drive, which basically loops around the Refuge's perimeter. The spring and fall migration of butterflies to the Refuge is expected to attract more visitors over time^{1, 6}.

Although the Refuge limits recreational opportunities due to impacts on wildlife and habitats, visitors can engage in a variety of approved activities. The Refuge includes a Visitor Center near its north entrance, 12 miles of hiking and walking trails, and the 6.7-mile, one-way Wildlife Drive. Visitors pay an entrance fee of \$3.00 per private vehicle, \$25.00 for a tour group, or \$3.00 per family group for bicycle/foot entry. The Refuge also sells a Santa Ana NWR Annual Pass for \$10.00. Entrance to the Refuge is free on the first Sunday of each month.

The Refuge allows four of the six compatible wildlife-dependent recreational uses deemed appropriate for most national wildlife refuges, including wildlife observation, wildlife photography, interpretation, and environmental education⁶. The following activities specific to the Refuge are allowed^{1, 2}:

- Observing and photographing wildlife
- Participating in ranger-led programs
- Riding the interpretive tram
- Walking Refuge trails
- Bicycling Wildlife Drive
- Driving Wildlife Drive during weekends when the tram is not operating
- Visiting the historical cemetery



Visitors may engage in a variety of approved activities at the Refuge.

To reduce human impacts on the Refuge's wildlife, no camping, hunting, fishing, or picnicking is permitted, and bicyclists are restricted to Wildlife Drive¹. During the winter season, roving naturalists and guides are available to assist visitors⁵. During the winter and spring months, the Friends of Santa Ana NWR provides canoe trips along the Rio Grande, which forms the southern boundary of the Refuge, so visitors can view the wildlife along its banks^{2, 6}. A variety of paths traverse the Refuge, most of which are



*The majority of visitors come to the Refuge for wildlife and nature observation.
(Credit: Steve Hillebrand/USFWS)*

primitive; one is completely universally accessible¹. As shown on the map on the following page most of the Refuge's 11 hiking trails are short, ranging from 0.3 to 2.0 miles. Some trails start from the Visitor Center, others from parking lots along the drive. The Refuge is open every day from sunrise to sunset.

SANTA ANA NATIONAL WILDLIFE REFUGE AND BIKE ROUTE MAP



SANTA ANA NATIONAL WILDLIFE REFUGE TIMELINE

1943	The Santa Ana National Wildlife Refuge is established for the protection of migratory birds.
1967	The Refuge is designated as a Registered National Natural Landmark.
1970's	Birding becomes popular as a leisure activity, and visitation to the Refuge drastically increases during this time period. Refuge staff acknowledges the need to address the impacts to resources from increased visitation, and develops a plan to implement a tram system.
1977	\$63,000 is added to the Refuge's total funding for the fiscal year to purchase its first tram vehicle. The final cost is in excess of \$70,000. This funding is likely provided through the 1977 Bicentennial Land Heritage Program.
1982	Refuge tram service begins operation under a cooperative agreement between Frontera Audubon Society and the USFWS. The tram holds 60 passengers, and the source of funding for the purchase of the tram is unknown.
1992	The Frontera Audubon Society receives funding for a grant proposal submitted to the USFWS, which allows them to improve the interpretive tram operation and develop an educational outreach program for local schools.
1993	Tours are forced to be cancelled due to frequent repairs of the tram. A new tram vehicle is acquired but the funding source is unknown.
1995 - 1996	The partnership with the Frontera Audubon Society is discontinued and the VNC assumes the Frontera Audubon Society role in 1996.
1997	The Friends of Santa Ana NWR, a local non-profit organization, is established. They provide support for the Refuge and its tram program. The organization conducts fundraising and has contributed to the purchase of upgraded vehicles.
? - 2001	The Refuge begins operating a night tram that operated into 2001; this service is discontinued after the 9/11 terrorist attacks.
2006	The FTA awards the Refuge \$510,000 in federal funding to acquire newer, more reliable trams with improved fuel economy, improved safety features, and accessibility for visitors in wheelchairs. Tram vehicles are replaced for the 2007/2008 season using grant funds and \$14,000 provided by Friends of Santa Ana NWR. These trams are still in operation.
2007	The tram season is extended by two months.
2008 - 2009	The VNC receives a grant for \$840 per year from the Texas Education Agency.

HISTORICAL CONTEXT AND TRENDS

During the early 1970s, when birding became popular as a leisure activity, the American Birding Association was formed, and information spread about the locations of good birding sites. As a result, visitation to the Refuge drastically increased during this time period, and USFWS managers noticed how popular the Refuge had become. People began moving to the area as well, which increased visitation from local residents. Visitation jumped from about 14,000 in 1968 to about 81,800 a decade later, with some years showing remarkable change. For example, the one-year increase in visitation from 1975 to 1976 was over 100%. Reasons may have included increased visitation from “winter Texans” (people seeking to escape the cold weather of the Midwest and other northern states who generally stay in the area up to six months each year and tend to be senior citizens), increased interest in birding as a leisure activity, decreased native habitat in the area, and adjustment to high gasoline prices⁷. By 1981, visitation density had reached over 42 visitors per acre per year⁸.



Visitation has demonstrated an increasing trend since 1998.

increases in visitation may continue. No official visitation forecasts for the Refuge are available. However, according to a 2007 report by the USFWS Division of Economics, 209,200 non-residents (defined as such if their state of residence differed from the state where the activity occurred) and 48,300 residents visited the Refuge in 2006, totaling 257,500 visitors — more than double the total 2004 visitation of 122,860^{11, 12}. Although the report does not address the Refuge visitation forecasts, the significant differences between 2004 and 2006 could foretell increased future visitation. The previous page illustrates the Refuge timeline as it relates to the tram system.

Visitation has continued to demonstrate an increasing trend since 1998. Visitors usually arrive in groups of two or three per vehicle, but many full vans and buses with birders visit as well. About 40% of visitors are considered winter Texans; 40% are birders from other regions, and 20% are local residents, including school groups. Length of a typical visit is about 2.5 hours^{1, 6, 9}. The peak visitor season is mid-November through April¹. Spring and fall are the best times to watch birds, as thousands of songbirds, raptors, and shorebirds travel through the Refuge on their migration routes⁴. The Refuge receives very little visitation during the summer due to the extremely hot and humid weather¹.

The city of Alamo, “the gateway to the Refuge,” along with the nearby city of McAllen, promotes the Refuge as a tourist attraction. Of the non-local tourists that comprise approximately 80% of the Refuge’s visitors, over 90% of them stay three to seven nights at local hotels and bed and breakfasts. These visitors inject an estimated \$34 million per year into Alamo and surrounding communities^{1, 10}. As the city of Alamo continues to promote the Refuge as a tourist attraction,

EVOLUTION OF THE CURRENT ALTERNATIVE TRANSPORTATION SYSTEM (ATS)

CHALLENGES

Prior to implementing the tram in 1982, personal vehicles were permitted within the Refuge year-round on Wildlife Drive. The volume of vehicular traffic during the winter and spring resulted in significant congestion from high traffic volumes and continual stop-and-go driving as visitors observed wildlife and scenery from their cars. The constant engine idling and disregard for speed limits adversely affected wildlife. The presence of cars also meant increased litter and impacts to the road surface, increased road management, and impacts from leaking oil^{6,9}.

By the late 1970s, the Refuge staff acknowledged a need to address impacts to resources from increased visitation. “For many years it has been realized that the Refuge had exceeded its carrying capacity for public use, especially during the peak winter visitation season. . . . The challenge at the Refuge has become to reconcile intensive public use on a small area with the management and protection of rare and fragile natural resources¹³.” Such use “prompted a re-thinking and re-vamping of the public use program¹³.”

The Refuge noted in its 1979 Annual Narrative Excerpt on the tram program that motor vehicles were the cause of the “greatest human impact on the Refuge, especially during the winter season.” All of the 55,695 people who visited from November to April of that year drove their private vehicles on the 6.7-mile Wildlife Drive, which was open to the public at that time¹³. As congestion increased, it was “not unusual” to average one vehicle through the gate every two minutes¹⁴.

Heavy traffic and idling vehicles also negatively affected the quality of the experience for visitors who drove through the Refuge. Visitors often had to wait for traffic to restart when cars stopped in the middle of the road as other visitors paused for scenic or wildlife viewing. There were not enough places along the drive for visitors to park and leave their cars to view the Refuge’s resources. The self-guided drive was monotonous, surrounded by woods through which visitors did not see much. As noted by the Refuge staff, “Almost every visitor sees the Refuge by way of the tour road and may never leave their vehicle. When private vehicles drive the route,



The Refuge’s natural resources were being impacted by increased visitation.

interpretation is presently limited to a stop at an old cemetery and a Texas ebony tree exhibit”⁸. Staff felt that driving private vehicles through the Refuge “deprived [visitors] of many wildlife observation opportunities because many never take the time to stop”⁸. The drive did not lend itself to an enjoyable experience, and there were few opportunities for the Refuge to provide interpretation and messages about refuge management⁶. Visitors often left disappointed unless they had a guide with them, making such comments as, “we drove all the way through and didn’t see anything.” For all of these reasons, a “major management thrust” became redirecting the Refuge’s intensive vehicular use toward alternative transportation modes¹⁵.

SOLUTIONS

The Refuge staff identified four objectives to address these problems and challenges⁸:

1. Reduce the volume of private vehicles driving through the Refuge, thereby reducing the amount of intrusion and disturbance for wildlife species.
2. Increase the quality of experience for visitors by providing interpretive personnel on the tram to explain various aspects of the Refuge and to answer questions.
3. Conserve energy by reducing gas consumption from the many private vehicles that would otherwise be driving through the Refuge.
4. Reduce road maintenance, litter, and vandalism by eliminating private vehicles on the drive during peak public use periods.

The Refuge decided to implement an internal tram system to meet these objectives. The tram system was intended to provide visitors four options for accessing the Refuge: 1) ride



Most afternoon tram tours were full on mild days during the winter. 1982

*Full tram tour in 1982, its first year of operation
(Credit: USFWS 1982).*

the tram as the Refuge staff members conduct a natural resource interpretive program, 2) use the tram to access trails in the Refuge interior, 3) walk, and 4) use a combination of the options above. Cyclists were also permitted to access the Refuge¹³. Initially, personal vehicles were still permitted to tour Wildlife Drive after the tram service was established.

After its first year in operation, the Refuge staff noted, “from the standpoint of a management tool, the tram definitely has reduced the amount of vehicular traffic through the Refuge” and enhanced visitor experience by providing qualified interpreters. Road maintenance costs were reduced and litter was greatly reduced as a result of a reduction in traffic. Law enforcement problems decreased due to fewer motor vehicle-related incidents. Energy

conservation was also noted as another positive outcome¹⁴.

Public acceptance and support of the tram was positive from the start. The Refuge staff received many comments from visitors noting how much “quieter and natural” the Refuge was without private motor vehicle traffic¹⁴. The tram service was also noted to be “an excellent educational tool” for visiting school groups¹⁵. However, despite implementing the tram in 1982, which “contributed greatly to reducing vehicular traffic with its related impacts,” the Refuge staff noted in 1983 that driving Wildlife Drive still remained the most popular means for visitors to access the Refuge. The Refuge staff was concerned about the loss of endangered species habitat and the pressures imposed by the visiting population¹. The heavy vehicular traffic continued to have a major impact on wildlife, which the Refuge is obligated to protect as demonstrated by its designation in 1967 as a Registered National Natural Landmark due to “its exceptional value in illustrating the natural history of the United States of America².” The Refuge must also adhere to the agency’s mission, which is to conserve, protect, and enhance fish, wildlife, plants, and their habitats for the continuing benefit of the American people². Furthermore, recreation on national wildlife refuges is primarily wildlife-dependent. Because the Refuge is managed specifically for the protection of wildlife and plants, staff must carefully consider how to safely transport visitors into the Refuge without disturbing wildlife^{a, 6, 16}. To address these concerns, driving Wildlife Drive is no longer permitted during the peak visitor season. Since 1999, all private vehicles, except bicycles, have been prohibited from Wildlife Drive when the tram is in service.



The interpretive tram leaves headquarters with another educational tour. (Ja89AKJ) 1989

Tram tours remained popular throughout the 1980s (Credit: USFWS 1989).

After years of providing tram service and observing its effects, the Refuge staff members believe that the tram has minimal environmental impact, and people learn more information than they would if they visited on their own. A substantial number of school groups and people with special needs visit the Refuge who would not be able to see it without the tram and the services provided by the VNC. The service is very special to people who do not have the ability to tour the site without a vehicle¹⁷.

^aAccording to the National Wildlife Refuge System Administration Act, as amended by the Refuge System Improvement Act, compatible wildlife-dependent recreation is a legitimate and appropriate general public use of the System, directly related to the mission of the System and the purposes of many refuges, and which generally fosters refuge management and through which the American public can develop an appreciation for fish and wildlife. Compatible wildlife-dependent recreational uses are the priority general public uses of the System and shall receive priority consideration in refuge planning and management⁶.

FEATURES OF THE CURRENT ATS

ATS SERVICES

TRAM SERVICES

The Refuge's current tram consists of an "engine," or power unit, which is a single vehicle comprised of the engine itself and passenger seating, and additional trailer units consisting



The current tram engine unit includes passenger seating and can operate alone or with trailers.

solely of extra seating that can be attached to the engines when needed. The Refuge owns two engines. One engine has no trailers attached; the other always has two trailers attached. The Refuge uses the configuration that is best suited for current demand⁹. Each of the two engine units seats up to 18 people and the two trailer units seat 28 passengers per unit, for a total maximum capacity of 92

passengers⁶.

Prior to the purchase of new trams for the 2007/2008 season, the tram season was December 15 to the end of March⁶; however, this season has been extended by two months. Therefore, the interpretative tram travels Wildlife Drive during the peak season, from November 15 through April 30, seven days per week, three times per day — 9:00 a.m., 12:00 noon, and 2:00 p.m. One tram is deployed for each tour. The Refuge is closed Thanksgiving, Christmas Day, New Year's Day, and Easter. Inclement weather can cancel any tour. Arrangements can be made to drop off visitors in different parts of the Refuge who can return on the next scheduled tram^{2, 18}. The tram tour is 1.5 hours, for a total of 31.5 hours per week. The operating season consists of approximately 26 weeks, for a total of 819 operating hours per season. Vehicle miles traveled totals 157.5 per week. Assuming 26 weeks per operating season, the total number of seasonal vehicle miles is 4,095.

There are two stops where visitors and the tram interpreter disembark to take a short walk while the interpreter discusses the site. One is a nature hike to the Rio Grande; the other is a tour of the historic family cemetery within the Refuge. The tram also makes occasional stops at various points of interest along the route, which the interpreter describes while visitors remain on board. Tram interpreters discuss the Refuge's history and the Lower Rio Grande Valley's natural resources. They circulate photographs and specimens of some of the resources to visitors on the tram for educational purposes. Interpreters point out native

flora and fauna along the tour and particularly interesting or novel characteristics of the Refuge's species.

The Refuge began offering a very popular night tram that operated into 2001. Several nocturnal species, such as owls, nightjars, moths, reptiles and amphibians, and insects are best seen at night. The night tour offered an opportunity to educate visitors while the species were present and functioning in a nocturnal setting, different from the typical visitor experience. Visitors also enjoyed the “mystical” qualities of touring at night. However, the tours were cancelled after the 9/11 terrorist attacks in 2001⁹.

BICYCLING SERVICES

Bicycles are permitted on Wildlife Drive; off-road bicycling is prohibited. “Because of its environmental concerns as a national wildlife refuge and its limited size, recreational biking is not encouraged, but viewing the site via bike is¹.” The majority of the bike route is paved and follows Wildlife Drive. The bike route is a one-way road except for the first one-third mile. Bike racks are located at several parking areas along the drive. Cyclists must obey all posted traffic signs and regulations, including direction of travel and speed limits. The tram and other Refuge vehicles have right of way. Cyclists are required to pull off the road to let the tram pass¹⁶.

Although cycling is permitted at the Refuge, the increased visitation by cyclists is starting to disrupt the experience of other visitors participating in wildlife-dependent recreation.

The Refuge staff members are currently evaluating how to provide a quality experience for everyone while making sure wildlife is protected¹⁶. There are environmental concerns about widening the roads to better accommodate bicyclists and pedestrians, because doing so will remove habitat. Bicycles are restricted from trails, and recreational cyclists whose primary interest is not wildlife viewing are discouraged¹. At the Refuge, bicycles are intended to serve as a low-speed transportation option to enhance wildlife observation¹⁶.



Bicycles are intended to serve as a low-speed transportation option to enhance wildlife observation.

ATS OPERATIONS AND PARTNERSHIPS

The Refuge's tram system is successful in large part due to the Refuge's partnerships with local non-profit organizations. The partners' biggest contribution over the years has been the provision of volunteers who operate the tram by driving it, providing educational and

interpretive services to visitors riding the tram, and performing light maintenance duties. Through these operational efforts, the tram service not only meets the Refuge's objectives, but is financially sustainable while providing a valuable education service to visitors.

Frontera Audubon Society, a private, non-profit organization "dedicated to the conservation of the environment of the Lower Rio Grande Valley^{19, 20}" located in Weslaco, TX, was initially involved in operating the tram service program. Starting in 1982, the tram was operated under a cooperative agreement between Frontera and the USFWS¹⁴. As with the VNC in later years, the Refuge supplied the interpretive tram, tram maintenance, and fuel. Frontera supplied the interpreters to drive and narrate the tour. Frontera also provided tram



The Valley Nature Center is located in Weslaco, Texas, not far from the Refuge.

environmental educational tours free to local school students^{21, 22}. However, due to financial and other reasons, the partnership with Frontera was discontinued after 1995^{9, 23}.

The VNC assumed Frontera's role in 1996. Formed in 1984, the VNC, also located in Weslaco, is the oldest nature center in the Rio Grande Valley, and the only non-profit center fully dedicated to environmental education in the area. The Refuge again agreed to provide the tram vehicles and associated parts, labor, and maintenance. Like Frontera, the VNC agreed to provide personnel to operate the tram and narrate the tour. These general terms have remained essentially in place over the years, and the VNC continues to provide tram service under an agreement that is renewed annually.

The Friends of Santa Ana NWR, a local non-profit organization established in 1997, is an "unofficial partner" supporting the Refuge and its tram program. The organization was formed by a group of citizens concerned about the loss of habitat in the Rio Grande Valley³. Regarding the tram, the Friends of Santa Ana NWR conducts fundraising through marketing efforts and has contributed to the purchase of upgraded vehicles. The tram vehicles were replaced again in 2006 for the 2007/2008 season using a Paul S. Sarbanes Transit in Parks grant, and are still in operation²⁴.

UTILIZATION

Table 1: *Tram Passengers by Month Fiscal Year 1998, 2008* shows that during the first 10 years of operation, tram use increased from about 2,300 visitors in 1982 to about 14,600 in 1989. Tram use decreased slightly after that, with about 13,000 visitors using the tram in 1992²⁵.

Tram use continued to decrease in the 1990s. A total of 6,520 passengers used the tram in 1998¹. Ten years later when Wildlife Drive closed to public vehicles during the peak season, tram use increased, as over

7,416 passengers used the tram that season. Using the official 2006 visitation figure of 257,500 and assuming no measurable change for the 2008/2009 season, approximately 3% of the Refuge visitors use the tram (however, the Refuge and VNC staff members believe that annual visitation is substantially less — closer to approximately 150,000 — which would mean about 5% of visitors use the tram^{6,9}). Tram capacity has increased from a total capacity of 60 passengers initially to 92 passengers currently, reflecting changes in visitation. [In this section, it is important to understand the distinction between “visitation” and “visits.” “Visitation” is the number of visitors that come to the Refuge over a certain time period (i.e. per year). “Visits” are the number of different activities a visitor engages in while at the Refuge. A single visitor who rides the tram *and* hikes the trails participates in two (2) activities or “visits.” For this reason, the number of visits is usually higher than the visitation count.]

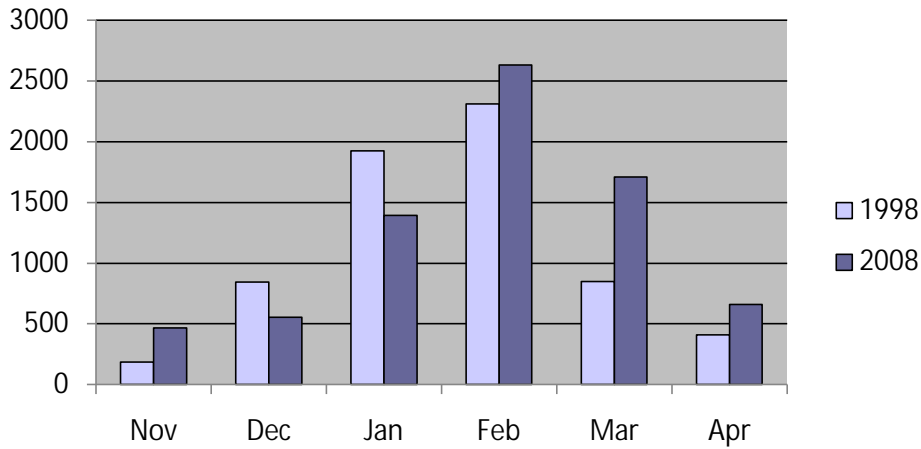
Visitation is highest during the month of February. February receipts accounted for 37% of total income in 1998 and 35% in 2008¹. Compared to 1998, 2008 visitation decreased in January but increased in March. Ticket sales for fiscal year (FY) 2008/2009 were fairly consistent throughout the week, showing no preference for weekends. Table 2: *Cumulative Tram Ticket Sales by Day of Week Fiscal Year 2008* shows that the two highest use days were Tuesday and Thursday. Table 3: *Tram Passengers by Age Group Fiscal Year 2008* shows that senior citizens comprised the vast majority of tram users — nearly five times the number of non-senior adults. During FY 2008/2009, approximately 13.8% of tram users were non-senior adults (12 years and older), 68.1% were seniors (55 and older), 6.2% were children (2 to 12 years old), and 11.8% school students. The tram is free for children under the age of two⁹.



1982
Visitors boarding tram on a busy day at Santa Ana NWR.

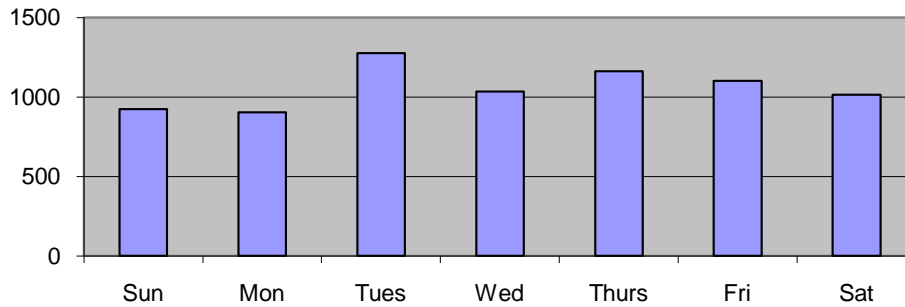
After its first year in operation, the tram reduced vehicular traffic in the Refuge (Credit: USFWS 1982).

Table 1: Tram Passengers by Month Fiscal Year 1998, 2008



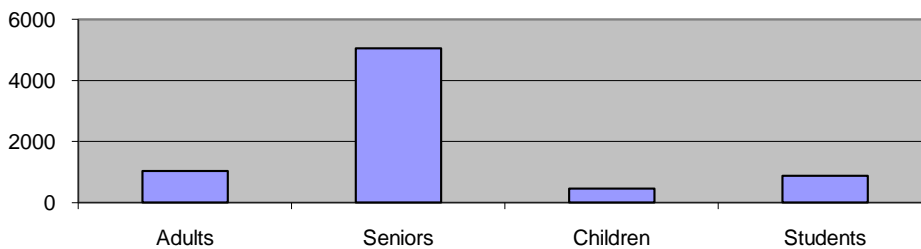
Credit: FHWA and FTA n.d., pers. comm. Hagne 2010

Table 2: Cumulative Tram Ticket Sales by Day of Week Fiscal Year 2008



Credit: Pers. comm. Hagne 2010

Table 3: Tram Passengers by Age Group Fiscal Year 2008



Credit: Pers. comm. Hagne 2010

INSTITUTIONAL ARRANGEMENTS

MANAGEMENT



Two volunteers operate the tram tour, including one driver and one person to narrate (the interpreter).

Tram service delivery is defined through a memorandum of understanding (MOU), a cooperative agreement between the Refuge and VNC only. Both partners handle certain components of the tram program¹⁸. Although not a signatory to the MOU, the Friends of Santa Ana NWR also contribute to the tram. The group has donated funds for the latest tram upgrade, and provides annual funding for supplies, brochures and printing costs, and other advertising contributions in support of the

tram project^{6, 26}. These contributions are described in more detail below.

The MOU is effective for a period of one season, from November 15 to April 30 (with operating exceptions on major holidays), and is renewed yearly. Expanded service or special tours can occur through mutual agreement on the part of the partners²⁷.

As defined in the MOU, the VNC recruits and trains 12 volunteers (six for each half of the season) to serve as tram drivers and interpreters. Tram interpreters and drivers are typically recruited as volunteer couples hired and supervised by the VNC. The volunteers provided by the VNC operate the tram in pairs: one drives while the other narrates by providing interpretive information. Therefore, two volunteers (one couple) work three tram tours each day.

Interpretive guide training and vehicle operation and safety training is provided jointly by the Refuge staff and the VNC as defined in the MOU. The Refuge assists with interpretive training and trains the volunteer drivers in vehicle operation and routine maintenance. The one-week intensive training program also focuses on how to reach specific types of visitor groups, such as children, school groups, disabled, and Spanish speakers^{6, 9}.

Each group of three volunteer couples works for three months and 1.5 weeks, including the training period. Training responsibilities between the partners are identified in the MOU as follows:

Training provided by VNC staff²⁸:

- VNC orientation
- Review of tram manual
- All wildlife and plant training
- Contracts and responsibilities
- Interpretation
- Local conservation efforts

Training provided by the Refuge staff:

- USFWS and Refuge orientation
- Visitor center training
- Refuge law enforcement
- Basic tram skills (loading, trailer hitch, handicapped access)
- Fueling and driving
- Driving practice
- Driving test



One volunteer drives the tram and the other acts as interpreter.

All drivers must pass an in-house USFWS driving test. The agency also monitors tram drivers. If a volunteer driver/interpreter is absent, the Refuge occasionally assists with these duties²⁷. The Friends of Santa Ana NWR also provide back-up drivers and interpreters when needed²⁶. The Refuge staffs the Visitor Center and collects payments from visitors to ride the tram²⁷.

The Refuge provides the volunteers \$10 per day per person for living expenses. Although camping is not allowed at the Refuge, tram interpreters (each couple) are provided one RV pad for free for the duration of their stay. The pads are furnished with water, sewer hook-up, electricity, land phone line, free propane re-fills, ice machine on premises, and free laundry facility. The tram volunteer's RV pad area is located in a new section of the Refuge

about 2 miles from the Refuge headquarters on the Marinoff Tract. This tract is part of the Refuge system and is a native brushland tract that has recently been revegetated. The Refuge offers volunteer gatherings and a meeting once a week at the headquarters. The VNC also strives to involve the volunteers in its own staff functions and gatherings, even though the volunteers are located at the Refuge²⁹. The Refuge has been using the volunteer.gov Web site for the last two to three years to recruit for all volunteer opportunities, which has been very successful, as was advertising in the quarterly publication “Work Camper News.”

In addition to providing the trams, fuel, maintenance, and staffing support, the Refuge also provides a USFWS vehicle to tram volunteers to conduct pre-tour safety inspections of the tram route and to deliver the weekly tram funds and reports to the VNC. As defined in the MOU, the Refuge is responsible for keeping the tram loop in safe condition, including trimming branches and removing downed trees on a timely basis²⁷.

The VNC and volunteers collect and maintain records of public comments, problems encountered during operation, maintenance or repair problems, use trends, and fee receipts, and they share this information with the Refuge. The content of interpretive material is coordinated between the partners, and the VNC reviews and updates the volunteer training manual annually. Although the Refuge collects fees, the VNC volunteers open, set up, and close the Visitor Center cash register each day, and supply a set amount of change for the register each week.

With assistance from the Friends of Santa Ana NWR, the VNC Marketing Director and Fundraising Committee actively market the tram using methods approved by the Refuge, including brochures distributed to chambers of commerce, RV park presentations



The Refuge and the VNC both assume specific responsibilities for training tram interpreters, as defined in the MOU. The Friends of Santa Ana NWR provides assistance when needed. (Credit: Steve Hillebrand/USFWS)

conducted by tram drivers, and public service announcements^{26, 27}. Also with assistance from the Friends of Santa Ana NWR, the VNC typically prints the brochure every two years and primarily targets businesses that would benefit from the ads; i.e., businesses that cater

to the winter clientele. During the last effort, the VNC printed approximately 20,000 copies. Costs are typically about \$2,000 for printing, \$400 for sales, and \$250 for distribution. Money from the paid ads usually covers design and printing of the brochures^{9, 27} The Refuge staff also regularly promotes the tram tours through various public presentations, videos, flyers, signs, and newspaper articles⁶.

FUNDING

CAPITAL COSTS

In 1977, \$63,700 was added to the Refuge's total funding for the fiscal year to purchase its first tram vehicle. The final cost for the 126-passenger tram system (all vehicles) was in excess of \$70,000³⁰. This funding was likely provided through the 1977 Bicentennial Land Heritage Program (BLHP), a 1.5 billion dollar program funded by Congress for the acquisition, improvement, rehabilitation, and maintenance of the National Park System and National Wildlife Refuges²³. The Refuge's 1979 Annual Narrative Excerpt about the tram program notes that, "with BLHP funding, major natural resource and public use management work has become possible³¹." However, the initial 126-passenger tram was not implemented in 1980 as had been expected "due to unforeseen problems." It is not known what became of the original 126-passenger tram. In 1981, the Refuge acquired a 30-passenger tram with a 30-passenger trailing unit, with a total capacity of 60 visitors — less than half the capacity of the initial tram purchase. The funding source is unknown, as are reasons for the significant change in capacity⁸. The 60-passenger tram began operating in 1982. By 1991, there was a 39.4% decrease in the number of private vehicles driving Wildlife Drive, indicating increased use of the tram system and associated wear and tear. A new tram was needed, as constant repairs of the old tram had forced cancellation of 15

tours. The new tram vehicle arrived in 1993^{25, 32, 33}. The funding source is not known³².

The Frontera Audubon Society received funding for a challenge grant proposal submitted to the USFWS regional office in 1992. The funds allowed Frontera to improve the interpretive tram operation and develop an education outreach program for local schools²⁵.



The Refuge provides the trams, fuel, maintenance, and staffing support. (Credit: Steve Hillebrand/USFWS)

In August 2006, the FTA awarded the Refuge \$510,000 in federal funding to acquire newer, more reliable trams with improved fuel economy, improved safety features, and accessibility for visitors in wheelchairs. The funds also provided for an expansion to a planned wildfire vehicle garage to house the tram. Funding was awarded through the Paul S. Sarbanes Transit in Parks program, formerly the Alternative Transportation in Parks and Public Lands (ATPPL) Program, established under the Safe, Accountable, Flexible, Efficient Transportation Equity Act – a Legacy for Users of 2005^{24, 34}. As a matching organization, the Friends of Santa Ana NWR provided approximately \$14,000 toward the Refuge’s application and purchase of this updated tram in 2006. No additional vehicle purchases have been made since. In addition, the Friends of Santa Ana NWR has provided annual funding for supplies, brochures and printing costs, and other advertising contributions in support of the tram project for several years, as described above⁶.

The VNC received grants in 2008 and 2009 of \$840 each year from the Texas Education Agency (TEA), a state agency that is the administrative unit for primary and secondary public education in Texas. VNC wrote a grant request to the agency for other purposes and included a stipend for the Refuge tram, which was granted^{9, 35}.

OPERATIONS AND MAINTENANCE COSTS

The cost to the Refuge of running the tram is significantly reduced because of the use of volunteer drivers and interpreters. The cost of the service provided by these volunteers is \$10 per day plus an RV pad. If it was necessary to pay traditional transit industry salaries for these services, the tram service would probably not be financially feasible.

The Refuge’s maintenance budget for the tram is \$5,000 per year. Maintenance costs, excluding repairs (e.g., fuel, cleaning), are about \$3,000 per year. The VNC assists the Refuge

in identifying a labor source²⁷.

However, the volunteer drivers perform some routine light maintenance and minor repairs^{6, 9}.

Major tram repairs are not done by the Refuge staff. Instead, the Refuge provides funding for all parts and labor related to maintenance of the tram¹.

Most maintenance is provided through an outside labor source, contracted by the VNC and agreed to by the Refuge. The Refuge maintenance costs are currently unknown.



*Trams have been updated over the years through use of grants.
(Credit: Mike Carlo/ USFWS)*

REVENUE

Revenue and ongoing funding is generated by the visitors who pay to take the tram tours. The tram provides an incentive for visitors to come to the Refuge, thereby indirectly generating revenue through ticket sales. The VNC maintains records of fare amounts collected²⁷ and keeps a bank account with funds generated by the tram service¹⁷. For FY 2008/2009, cumulative tram ticket sales were \$23,555.50 per season⁹.

FINANCIAL SUSTAINABILITY

Income from the total amount of money collected through tram ticket sales is evenly split into two categories, after expenses incurred by the VNC are deducted. The \$5,000 that the VNC receives for expenses (which is not the same as the \$5,000 maintenance budget mentioned above) pays for tram drivers' stipends, educational supplies used on the tram,



Program success is possible through use of volunteers, the division of partnership duties, and sources for capital expenditures and ongoing maintenance. (Credit: Steve Hillebrand/ USFWS)

tram cleaning supplies, uniforms, training, advertising, and similar expenses. The VNC retains 50% of the remaining income, which goes into the organization's general fund. The other 50% is set aside in a special account to provide financial assistance with maintenance or future replacement of the tram. Funds are available to the Refuge upon request. However, the Refuge has seldom requested funds from the set-aside, and only for small amounts. The VNC

believes that the funds that are set aside would closely match the tram maintenance costs the Refuge incurs, which might otherwise come from a general operations budget. Interest earned on the account is retained by the VNC²⁷. Expenses paid by the Refuge are currently unknown.

As the program bookkeeper, the VNC believes that the tram service is profitable and financially self-sustaining, and is not costing the Refuge any money to operate⁹. This is possible through use of volunteers, the division of partnership duties, and sources for capital expenditures and ongoing maintenance. Table 4: *Transit Cost Allocations* below is a sample chart used to present transit cost allocation based on a course developed by the University of Wisconsin-Milwaukee³⁶. This table shows how typical transit costs are absorbed by volunteers, grants, and the federal agency's overhead.

Table 4: Transit Cost Allocations

TRANSIT EXPENSE	
Driver Wages and Salaries per Season	\$3,710
Driver Fringe Benefits	Free RV pad on-site with access to facilities
Fuel and Oil	Included in materials expenses, below
Tires and Tubes	Included in materials expenses, below
Vehicle Insurance	N/A for federal agencies
Vehicle Lease	N/A; vehicles purchased through grants
Purchased Transportation	N/A; vehicles purchased through grants
Other (Training, Uniforms)	\$639*
MAINTENANCE EXPENSE	
Mechanic Wages and Salaries	Light maintenance done by volunteers
Mechanic Fringe Benefits	Same for drivers, above
Materials and Supplies	Paid by Refuge
Contracted Maintenance	Up to \$3,000 per year ^b
Contracted Repairs	Up to \$2,000 per year ²
Facility Rental	On-site facility
Utilities	Covered in overhead
Contracted Services	Unknown
Other (Supplies, Equipment)	\$606*
TICKET SALES EXPENSE	
Wages and Salaries	Visitor center volunteers
Fringe Benefits	N/A
Telephone Expenses	Covered in overhead
Computer Expenses	Covered in overhead
Rent	N/A
Other	Unknown
ADMINISTRATIVE EXPENSE	
Administrative Salaries	Covered in overhead
Administrative Fringe Benefits	Covered in overhead
Materials and Supplies	expenses incurred by VNC (e.g., advertising)
Non-vehicle Insurance	None for volunteers; paid staff covered in overhead
Professional Services	N/A
Travel	N/A
Office Rental	N/A
Utilities	Covered in overhead
Equipment Rental/Service	N/A
Other	Unknown

* Deducted from the \$5,000 expenses incurred by the VNC minus drivers' salaries

Providing tram service would cost the Refuge a considerable amount of money if the agency used a more traditional transit contracting arrangement. For example, cost per service hour can range from \$50-\$130, depending on who supplies the vehicles and maintenance facility, and other provisions typically provided by the contractor. Based on annual operating hours at the low end of the cost range, this service could equate to over \$42,000 in annual operating and maintenance costs. (These unit costs were determined through a visitor

^b Based on 1999 data.

transportation system inventory of the National Park Service Intermountain Region, which included staffing costs³⁷.)

A significant component of implementing transit service is driver wages. If the Refuge contracted drivers rather than using volunteers, driver costs would be subject to the Federal Service Contract Act of 1965, as amended, which provides labor wage standards for persons employed by federal contractors that furnish services to federal agencies. Under this act, federal contractors are required to pay labor wages set by the federal government by state. If federal contractors do not provide benefits to employees, as is the case with most seasonal staff employed in recreational land use settings, the contractor is required to pay an additional “health and welfare” wage³⁷. The federal wage determination for a bus driver, in Hidalgo County, Texas, is \$13.68 per hour plus \$3.50 per hour for “health and welfare” benefits, totaling \$17.18 per hour. A shuttle bus driver^d would earn \$11.20 per hour plus benefits, totaling \$14.70 per hour. Assuming a full 8-hour day of work, bus drivers in Hidalgo County would be paid \$137.44 per day. Shuttle drivers would be paid \$117.60 per day³⁸. Applying the same formula in the table above, driver wages and salaries for two bus drivers per day for 177 days would be \$24,327; for shuttle bus drivers, the total pay would be \$20,815.

Table 5: *Tram Revenue 2008/2009 Season* and Table 6: *Tram Expenditures 2008/2009 Season* compare operating costs to revenue generated by tram ticket sales based on the 2008/2009 operating season.

Table 5: Tram Revenue 2008/2009 Season

Total Income	
Gross Ticket Sales	\$23,555.50
Donations	\$840*
Subsidies	0
Total Revenue	\$23,555.50

^c Drives bus to transport passengers over specified routes to local or distant points according to time schedule. Assists passengers with baggage and collects tickets or cash fares. Regulates heating, lighting, and ventilating systems for passenger comfort. Complies with local traffic regulations. Reports delays or accidents. Records cash receipts and ticket fares. May make repairs and change tires. May inspect bus and check gas, oil, and water before departure. May load or unload baggage or express checked by passengers in baggage compartment. May transport pupils between pickup points and school. May drive diesel or electric powered transit bus to transport passengers over established city route.

^d Drives minibus or van to transport clients, trainees, or company personnel. Drives vehicle from individual or central loading area to social services or rehabilitation center, training location, job site, or other destination according to assigned schedule. May assist disabled passengers into and out of vehicle. May secure passengers' wheelchairs to restraining devices to stabilize wheelchairs during trip. May operate radio or similar device to communicate with base station or other vehicles to report disruption of service. May clean and/or service vehicle with fuel, lubricants, and accessories. May keep records of trips and/or behavior of passengers. May perform other duties when not driving, such as custodial and building maintenance tasks.

Table 6: Tram Expenditures 2008/2009 Season

Expenditures	
VNC Operations Costs: Drivers' Stipends	\$3,710
VNC Operational Costs:	
Supplies	\$256
Training	\$287
Uniforms	\$352
Equipment (microphone, roof washing brush, etc.)	\$350
VNC's 50% set-aside for maintenance/repairs after \$5,000 deducted	9,278
Refuge Maintenance Budget	\$5,000
Refuge Major Repair Costs	Unknown**
Total Expenses	Unknown

* The VNC occasionally receives grants to pay for stipends, as was the case in 2008 and 2009 with receipt of the TEA grant. However, this income is unpredictable.

** Tram vehicles are new and have not incurred major overhaul costs to date.

LESSONS LEARNED

The partners involved in this ATS believe that partnerships in general are a good idea. Through this specific partnership, an honest and accurate message is delivered to the public, which enables the Refuge to reach more people. The partnership also opens many doors for the VNC. Because of this partnership, it is easier for the VNC to acquire special use permits to take visitors to other nearby USFWS property for educational programs. A mutual trust exists between the partners; the Refuge trusts the VNC to deliver the right message. The Refuge gets more exposure and outreach by using a provider it trusts. The result is cross-advertising for both parties^{6, 17}. Lessons learned from this partnership that may be helpful to other land managers seeking to develop ATS partnerships include:

- ***Provide financial sustainability through partnerships:*** The Refuge's tram system is successful in large part due to the Refuge's partnerships with local non-profit organizations. The partners' biggest contribution over the years has been the provision of volunteers who operate the tram by driving it, providing educational and interpretive services to visitors riding the tram, and performing light maintenance duties. Through these operational efforts, the tram service not only meets the Refuge's objectives, but is financially sustainable while providing a valuable education service to visitors.
- ***Identify partners with similar missions:*** All partners are happy with the partnership arrangements. The VNC will continue the partnership as long as the tram services are needed. The VNC brings added depth and substance to the Refuge because VNC staff members are local and have full knowledge of the area⁹. A very close relationship exists between all three partners, even though the Friends of Santa Ana NWR is an unofficial partner. They all do whatever it takes to make the programs work²².

- Communicate with partners:** Regarding the overall partnership arrangement, the partners — USFWS, VNC, and Friends of Santa Ana NWR — communicated effectively, which resulted in a successful program and partnership. All parties tried to communicate any challenges or problems with one another as they occurred. This kept relatively minor issues from growing into larger problems⁶.
- Compromise:** Perhaps the element most critical to the success of the tram program partnership to date has been the willingness of the VNC and USFWS to listen to suggestions and make compromises for the good of the program. Partnerships between nonprofit organizations and federal agencies can be challenging, but when the parties share a clear, articulated vision, establish achievable goals and objectives, and are willing to consider changes when unanticipated difficulties arise, the results can be quite successful. For the most part, even through changes in top management and economic conditions, the partners have remained committed to the overall program and product, and have compromised many times throughout the years⁶.
- Volunteers provide important financial assistance:** With limited staff and high annual visitation levels, working with partners and volunteers greatly enhances the Refuge’s ability to provide quality interpretive and educational programs to the public.
- Communication with off-site USFWS staff:** The USFWS National alternative transportation coordinator, Mr. Nathan Caldwell, was instrumental in explaining how the Paul S. Sarbanes Transit in Parks application and tram acquisition process worked. Maintaining clear communication lines with the regional or national USFWS Paul S. Sarbanes Transit in Parks project coordinators is very important. Mr. Caldwell answered many questions during the application period, and provided advice about upcoming deadlines⁶.
- Conduct pre-purchase tram evaluations:** Both partners should thoroughly research the transportation mode to be used, particularly when both share responsibility for it. Once the Paul S. Sarbanes Transit in Parks (formerly ATPPL) funding was awarded for the 2006 tram update, the Refuge felt it was very



Each partner shares a common mission to protect and preserve the area's natural resources, like this green jay. (Credit: Mike Carlo/USFWS)

important to make site visits either to tram plants or other locations to ride the different tram models under consideration in various locations, terrain, and configurations. The site visits, though not inexpensive, were worth the cost and effort⁶.

- ***Invest time in researching the type of vehicle and energy used*** — gas, diesel, electric — which can impact noise. Test drive the vehicle and consider how it will hold up to humidity, rain, vegetation, and insects. Call references. Make sure facilities exist for maintenance; e.g., the tram needs to be washed constantly. Consider the height of steps and how it will affect visitors. Work together to identify needs and potential issues¹⁷.
- ***Communicate the need for change to visitors:*** Visitors were frustrated about not being able to drive Wildlife Drive when it became fully closed during winter and spring. The earlier a change can be implemented, the better, and do so in phases. Cushion the effect of the change by informing visitors in advance and deliver the message quickly so the change transitions from no restrictions to partial restrictions to full closure. Clearly communicate the changes, especially if the site is a destination like the Refuge. Extending the tram season provided more service, and thus more opportunities for visitor use. The Refuge received very few complaints about not being able to drive after the tram season was extended. Lengthening the tram season also helped recruit volunteers⁶.
- ***Be honest when visitors ask about the reasons for a change:*** Do not ask volunteers to “wing it” with an answer. Provide a “stock” response that everyone uses. Volunteers can become defensive about a place they love. Questions from the public can usually be easily diffused and answered if the staff is well versed in the stock response⁶.
- ***Conduct performance reviews of tram operations and interpretation:*** The Refuge may have been too lax in evaluating the tram operation and interpretation throughout the tram season. Although all partners agree that regular performance reviews of tram drivers and interpretation are critical to the program’s success, in practice the reviews were sporadic and largely ineffective. Most reviews were not conducted until very late in the season, and any changes made as a result were generally too late to impact many tours. The Refuge staff could take a more active role in setting up regular tour reviews throughout the season, so that every tram team is evaluated at least twice, and preferably three times, during their tenure⁶.
- ***Expand scope of reviews:*** Tours and tram drivers should be reviewed and rated on their interpretive elements (e.g., theme, message, accuracy, delivery, professionalism, enthusiasm, diplomacy, etc.), outreach efforts (can they travel off-site to make presentations or otherwise promote the Refuge and the tram program), tram operations (do they adhere to all safety rules, are they skilled drivers), basic tram maintenance and upkeep, and fulfillment of prearranged responsibilities

during times and/or days when the tram tours are not operating due to inclement weather, unanticipated vehicle maintenance, or lack of tram riders⁶.

- **Increase annual meetings between partners from one to two per year:** Although communication has been effective in resolving small issues before they become larger, scheduling another mid-season meeting would be of value. Meetings are currently conducted in May or June when the tram season ends. Partners could consider adding an additional meeting in early February every year. Such a meeting would evaluate the first part of the tram season and enable partners to collaborate and make appropriate changes for the second half of the season⁶.

- **Partner on marketing efforts:** The VNC and the Friends of Santa Ana NWR has usually taken responsibility for marketing the tram program through brochures and sending tram drivers/narrators to local RV parks to do Refuge presentations. Although the USFWS is limited by law in terms of advertising its national wildlife refuges and refuge programs to the public, staff should develop a plan and become more active to promote the tram tours through approved and appropriate methods⁶.



- **Celebrate tram program successes:** While the lead staff from all partner groups communicated well and understood most issues with the tram program, sharing the end-of-year results with local, regional, and national office USFWS staff through a written report would be beneficial. The tram program leader usually communicated tram issues and reports to the Refuge staff at monthly all-staff meetings and weekly supervisor and program lead meetings. However, future Refuge tram program leaders could also prepare a short, informative summary of the most recent tram season for internal and external audiences, including FWS Washington Office staff and FTA Sarbanes staff⁶.
The partners believe that partnerships in general are a good idea; partners can help with marketing efforts.
- **Identify tram purchase assistant:** Despite trying to clearly communicate with the tram supplier about needs for final deliverables, some significant issues were discovered when USFWS staff visited the tram factory for final progress inspections about one month prior to delivery. Designating an assistant Refuge manager who attends meetings and is updated on the entire project would have been beneficial, because another person familiar with the project details could have caught contract discrepancies earlier in the process⁶.

SUCCESSFUL STRATEGIES TO APPLY

- **Select compatible partners:** Federal agencies should look for partners like the VNC who understand the agency's mission, can address its needs, communicate the right message, represent the agency in a professional manner, and meet the public's needs. However, it is a challenge to find such a partner. The VNC knows the Refuge's mission and does an excellent job of coordinating and training the interpreters. The VNC is an ambassador, and the result is a win/win situation for both partners. Funding is limited, so each partner helps the other when problems arise. Other agencies should consider this type of arrangement more often¹⁷.
- **Use volunteer outreach tools:** As mentioned earlier, the Refuge has been using the volunteer.gov Web site for the last two to three years for all volunteer opportunities, which has been very successful, as was advertising in the quarterly publication "Work Camper News." The Refuge sends prospective volunteers a video of the tram tour, which helps answer questions they have about committing, especially if they live far away. The video helps with recruiting, marketing, and training strategies.



The volunteer.gov Web site has been very useful for recruiting volunteer tram drivers and interpreters.

Some prospective volunteers are not always a good fit, because the work is very repetitive. Some people get burned out. It can be a challenge to get volunteers to come back. Once they are trained, volunteers have good experience, and the Refuge wants them to return. Fortunately, the Refuge is a very popular site with volunteers because the area has no hard

freezes⁶. The Refuge gets a good set of volunteers because of the "Winter Texans" phenomenon.

- **It is very important to identify short-, mid- and long-term plans that consider potential future growth:** Thoroughly research expected growth, because it can have a substantial impact on the program. Compare income from projected growth versus the expenses of handling that growth. Determine the amount of extra work that would be required and plan accordingly. For example, expected growth will

affect tram capacity. Once a tram is purchased, it could be very difficult to increase capacity because models change. If a small tram was purchased initially and additional seating is eventually needed, it might be easier to simply purchase additional small trams rather than trailers. However, doing so would increase the number of drivers and tours, with associated impacts. Adding more tours may affect wildlife or other resources, so consider the maximum number of daily tours desirable. Consider what would happen if the tours were successful and consistently sold out. How would that be handled? Options may include scheduling more tours (and thus more drivers and interpreters) or turning visitors away. Additional tours also require additional staff and funds for maintenance and fuel. If future visitation is expected to grow, consider the ability to recruit enough drivers or other volunteers to handle the additional demand. Also consider whether there is sufficient housing for more volunteers⁹. It is also suggested that a Complex-wide Long Range Transportation Plan for the Lower Rio Grande Valley NWR Complex be completed and incorporated into the Comprehensive Conservation Plans (CCP).

- ***Long-term plans also need to identify each partner's responsibilities, which is exceptionally important:*** This information needs to be defined in detail before the partnership begins. Partners should create a thorough MOU and never make assumptions. Partners get to know each other very well, including how each operates, during the MOU development process. The MOU protects all partners and defines the role of each, making the working arrangement more efficient. The MOU should be very specific. Open communication makes the program succeed. Identify only one contact person for each partner in order to eliminate confusion, especially when using volunteers, who need accurate direction when working on-site¹⁷.
- ***Remember the agency message:*** All programs should start from the agency's message, and all program activities should follow the guidelines in the 1997 Refuge System Improvement Act³⁹ addressing compatible wildlife-dependent recreation on National Wildlife Refuges. Do not develop the program and then the message. With the help of agency staff, first determine if the intended program and specific activities are appropriate and compatible uses. Next, create a detailed set of goals and objectives in cooperation with local agency field staff. The plan should include interpretive, educational, and behavioral objectives, including available resources, budgets, and timelines. Decide which people should learn and create the program from there^{6, 17}.

FUTURE PARTNERSHIP ACTIVITIES

- The Refuge would like to reinstate a night tram, although this idea was dismissed after the 9/11 terrorist attacks. The agency would also like to implement trams at other nearby refuge areas. The Refuge is considering partnering again with the VNC to provide van trips at La Sal del Ray NWR, one of several natural salt lakes on the coastal plain north of the Rio Grande. In addition, the VNC provides environmental

and outreach opportunities at the Refuge through two other MOUs for revegetation and burned area recovery¹⁷.

- Like the VNC, the Friends of Santa Ana NWR will continue to conduct its unofficial partnership activities with the Refuge and the VNC.

REFERENCES

¹ Federal Highway Administration (FHWA) and Federal Transit Administration (FTA), Field Report – Santa Ana National Wildlife Refuge (No Date).

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