

CONNECTIONS

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Transportation Enhancements and Wildlife

By Nathan Caldwell, U.S. Fish and Wildlife Service

The National Wildlife Refuge System is a network of restored, protected and managed wildlife habitats in the United States. It is the only network of lands in the world set aside specifically for the conservation and management of fish, wildlife, plants, and their habitats along with compatible wildlife-dependent recreational uses. While protecting wildlife and the environment, nearly 85 percent of these refuges are also available for some form of public use.

Visitors travel to National Wildlife Refuges (NWRs) to hunt and fish; hike, bike, and canoe; observe and photograph wildlife; for interpretation of resources; or for environmental education. Considering the value of visiting a wildlife refuge, it is important that transportation facilities coexist healthfully with the diverse habitats in the National Wildlife System. Furthermore, with improvements, transportation facilities may actually benefit wildlife. Congress recognized this when they enacted the Transportation Equity Act of the 21st Century (TEA-21) in June 1998. The Act contained provisions that spurred the participation of the U. S. Fish and Wildlife Service (FWS) in Transportation Enhancements nationwide. These provisions were continued in 2005 when Congress enacted the Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU).

TEA-21 created a new Federal Lands Highway Program called the Refuge Roads Program, which emphasized the connection between transportation and wildlife. This \$20 million a year program gave the FWS its first entry into the world of federal and state transportation programs. In addition, TEA-21 loosened the matching requirements for FHWA-funded state programs such as Scenic Byways, Recreational Trails, and Transportation Enhancements. This allowed Federal Land Management Agencies to use federally appropriated funds like the Refuge Roads Program, as well as in-kind services or materials, as match for TE awards in states that allow it. These small elements nestled within the \$218 billion transportation reauthorization act opened up a new range of funding and partnership opportunities for the National Wildlife Refuge System. The Refuge Roads Program was reauthorized in SAFETEA-LU, and increased to \$29 million a year, as well as the ability to spend up to five percent of its Refuge Roads Program funding on trails.

Wildlife Benefits

The Monte Vista National Wildlife Refuge (NWR) in the scenic San Luis Valley of southern Colorado was one of the first refuges to take advantage of TE.



CONSIDERING THE VALUE OF VISITING A WILDLIFE REFUGE, IT IS IMPORTANT THAT TRANSPORTATION FACILITIES COEXIST HEALTHFULLY WITH THE DIVERSE HABITATS IN THE NATIONAL WILDLIFE SYSTEM.



Monte Vista National Wildlife Refuge

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Monte Vista National Wildlife Refuge

Working in partnership with Rio Grande County, the Defenders of Wildlife, and the Monte Vista National Wildlife Refuge Friends group, \$180,480 in TE funds was awarded to the refuge in 1999.

The TE award helped

fund interpretive pullouts. The Colorado Division of Wildlife added signs and a spotting scope at the trailhead of the refuge's Nature Trail along Colorado State Route 15 and at other wildlife viewing spots. Those pullouts and signs are featured in the trail's recent National Recreation Trail nomination.

Other refuges followed suit. The Oregon Islands NWR includes over 1,853 coastal islands, rocks, and reefs, and spans the entire 320 mile coastline of Oregon. This refuge partnered with Oregon Department of Parks and Recreation, the Western Federal Lands Highway Division of the Federal Highway Administration, and the Friends of Shore Acres State Park to completely rehabilitate an overlook at Cape Arago State Park. A \$210,000 Transportation Enhancement award helped to fund the viewing area where four species of seals and sea lions can be observed.

Washington State's Department of Transportation awarded the McNary NWR \$180,000 TE dollars in 2001. The McNary refuge is located along the Columbia River. The award helped construct an interpretive kiosk in a refuge brimming with ecological and historical resources. The refuge includes a documented Lewis and Clark campsite, spectacular views of the bluffs along the Columbia River, and an excellent migrating shorebird habitat. The kiosk was the first wildlife viewing facility on the unit, providing a safe place along the busy US 12 for birders and other refuge visitors.

In 2005, \$500,000 in TE funds was incorporated into a Refuge Roads Project in California's Don Edwards NWR in the San Francisco Bay. The project was initiated to improve access and safety of the refuge's entry road and parking lot.



Above: Don Edwards National Wildlife Refuge

TE funds paved a bike trail that connects to a trail system at the adjacent Coyote Hill Regional Park. The new trail starts at the southern end of a bicycle-pedestrian overpass constructed over a toll plaza for the Dumbarton Bridge that connects Fremont and Palo Alto.

In addition to using TE awards to build projects, National Wildlife Refuges can also provide matching funds, in-kind services, labor, and materials for projects that have benefited their neighboring communities.

The many victories achieved within the National Wildlife Refuge System through Transportation Enhancements were the result of hard work, communication and outreach. The staff of the decentralized Fish and Wildlife Service is not necessarily aware of the existence and opportunities of TE. Additionally, many states do not realize that National Wildlife Refuges can receive TE funds, or that NWRs can use their own funds or in-kind donations to match a TE award where state rules allow it. Online factsheets regarding TE from the Federal Highway Administration (www.fhwa.dot.gov/environment/te) and NTEC (www.enhancements.org) are helpful in conveying these provisions to FHWA Division Offices when necessary.

Partnerships and collaborations have been fruitful for transportation and for wildlife. The US Fish and Wildlife Service developed outstanding projects and enduring partnerships that would not have come about without Transportation Enhancements. For more information on TE and the FWS, visit www.fws.gov/refuges/roads/transEnhancements.html or contact Nathan Caldwell, FWS Transportation Enhancements Coordinator, at (703) 358-2205 or Nathan_caldwell@fws.gov.



Oregon Islands National Wildlife Refuge



Bellevue, Kentucky

A crowd gathered in downtown Bellevue in August to celebrate a block party under the new streetlights of Fairfield Avenue. The new gas-style lights contribute to the old-fashioned elegance of the historic street. The location of the lights identifies the historic downtown and business and shopping district of the area. A \$250,000 Transportation Enhancement award helped fund the ornamental street lighting that now adorns downtown Bellevue. [*Community Press & Recorder*, August 31, 2006]

Dundalk, Maryland

The site of the Battle of North Point, which took place during the War of 1812, was recently purchased by the state of Maryland using Transportation Enhancement funds. On September 12, 1812, three thousand Maryland troops successfully defended Baltimore against the British Army on this important parcel of land. The thwarted British troops were attempting a land-based flanking maneuver during the naval bombardment at Fort McHenry. The purchase allows the 9-acre site to be preserved as a historic landmark. The battlefield site lies at the intersection of Trappe Road and North Point Road. The site will be managed by the Maryland Department of Natural Resources. [*The Capital*, September 23, 2006]

Manheim, Pennsylvania

The stationmaster's desk at the Manheim railroad station appears today much like it did when the station first opened in 1881. In fact, the telegrapher's area, the freight storage area, and the two waiting rooms—one for men and one for women—have all been redone to mirror what it was like in the past at this station. Many of the items that currently grace the station's rooms, including desks and lamps, were actually in the original structure. The station's renovation was largely funded by a

Transportation Enhancements award, along with donations from area businesses and residents. It now serves as a museum, that displays the transportation history of Manheim, railroad memorabilia, and glassworks from Colonial America. In addition, the Manheim Historical Society's trolley car, which once operated on the Conestoga Traction Co. line, is on display. [*Intelligencer Journal*, October 28, 2006]

Hartford, Illinois

The restoration of the Lewis and Clark Tower recently took place thanks to the help of Transportation Enhancement funds. The 180-foot observation tower is located at the confluence of the Mississippi and Missouri Rivers. It complements the nearby Camp Dubois, a replica of the camp where Lewis and Clark prepared for their historic and epic journey. The tower serves as a memorial to the Lewis and Clark expedition. This investment into the preservation of historic transportation resources provides the area with a beautiful scenic viewing area and a significant tourist attraction. [*Illinois Department of Commerce and Economic Opportunity press release*, September 25, 2006]

State of California

California State Parks are now the official owner of the scenic Freeman property, bordering the Borrego Desert State Park and Ocotillo Wells State Vehicle Recreational Area. The 4,000 acre land parcel offers ecological, archaeological, historical and cultural resources, which will now be protected by the state while at the same time offering the public recreational opportunities. The purchase was made using \$680,000 in Transportation Enhancement funds, along with \$670,000 from the Trust for Public Land. The purchase prevents the property from being sold for housing and commercial development. [*California State Parks press release*, October 13, 2006]

SAVE THE DATE

CONFERENCE SCHEDULE

JANUARY

TRANSPORTATION RESEARCH BOARD ANNUAL MEETING
January 21–25, 2007 • Washington, D.C.
www.trb.org/meeting

FEBRUARY

NEW PARTNERS FOR SMART GROWTH
February 8–10, 2007 • Los Angeles, California
www.newpartners.org

4TH ANNUAL ACTIVE LIVING RESEARCH CONFERENCE
February 22–24, 2007 • Coronado, California
www.activelivingresearch.org

MARCH

NATIONAL TRUST MAIN STREETS CONFERENCE
March 25–29, 2007 • Seattle, Washington
www.mainstreet.org

APRIL

AMERICAN PLANNING ASSOCIATION NATIONAL CONFERENCE
April 14–18, 2007 • Philadelphia, Pennsylvania
www.planning.org/2007conference

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Environmental Mitigation of Transportation Facilities: TE and Beyond

Wildlife and environmental health affected by transportation facilities can benefit significantly from Transportation Enhancements using the environmental mitigation provision. The Federal Highway Administration defines this eligible activity as *environmental mitigation to address water pollution due to highway runoff; or to reduce vehicle-caused wildlife mortality while maintaining habitat connectivity*. The provision allows communities to decrease the negative impacts of roads on the natural environment such as water pollution and wildlife habitat fragmentation. Projects that communities can undertake with TE funds to address water pollution include runoff pollution studies, soil erosion controls, detention and sediment basins, and river clean-ups. Additionally, a TE award can also fund wildlife under or overpasses, bridge extensions to provide or improve wildlife passage and habitat connectivity, and monitoring and data collection on habitat fragmentation and vehicle-caused wildlife mortality.

Resources

A wealth of information exists regarding environmental mitigation activities that TE can help fund. Explore the following resources for more information.

Critter Crossings Web Site

Federal Highway Administration
www.fhwa.dot.gov/environment/wildlifecrossings/index.htm
This FHWA administered Web site describes transportation's impacts on wildlife and highlights exemplary projects and processes that are helping to reduce these impacts.

Keeping It Simple: Easy Ways to Help Wildlife Along Roads

Federal Highway Administration
www.fhwa.dot.gov/environment/wildlifeprotection
KEEPING IT SIMPLE: Easy Ways to Help Wildlife Along Roads was created to highlight ways of reducing highway impacts on wildlife for the benefit of the transportation community and the traveling public as well as wildlife. This resource has a new link called "Add a Project!" It offers customers an easy, direct way to submit a project idea. TE Category #11 is likely to provide some good examples for this Web site.

Wildlife Crossings Toolkit

US Department of Agriculture Forest Service
www.wildlifecrossings.info/beta2.htm
The Wildlife Crossings Toolkit is a searchable database of case histories of mitigation measures, and articles on decreasing wildlife mortality and increasing animals' ability to cross highways.

The Center for Transportation and the Environment

North Carolina State University
(919-515-8893) www.itre.ncsu.edu/cte
The Center for Transportation and the Environment seeks to mitigate the impacts of surface transportation on the environment by focusing on research, education, and technology transfer.

Habitat and Highways Campaign

Defenders of Wildlife
(202-682-9400) www.defenders.org/habitat/highways
The Habitat and Highways campaign was developed to support efforts that make existing and future roads less dangerous to wildlife. The two main objectives of the campaign are "(1) Reduce the impact of roads and highways on wildlife and habitat. Existing roads should be modified where necessary to allow wildlife to cross, and minimize impact on the surrounding environment; and (2) Reduce future impacts by incorporating wildlife conservation into transportation planning. Future road development should avoid wildlife habitats and environmentally sensitive places." More information including reports, legislation and tools can be found on their website.

Funding Sources

Since the inception of Transportation Enhancements in 1992 approximately \$72 million has been programmed for environmental mitigation projects. This represents about one percent of all programmed TE dollars. Inquiries on how to apply for a TE award for your project should be directed to the TE manger at your state DOT. Visit www.enhancements.org/contacts.asp for contact information.

In addition to TE, other funding sources exist that can help pay for activities that mitigate the effects of transportation facilities on the environment:

National Coastal Wetlands Conservation Grant Program

US Fish and Wildlife Service
www.fws.gov/coastal/CoastalGrants
In 1990, the Coastal Wetlands Planning, Protection, and Restoration Act established the National Coastal Wetlands Conservation Grant Program to acquire, restore, and enhance wetlands of coastal states and Trust territories. The Act also establishes a role for the Fish and Wildlife Service in interagency wetlands restoration and conservation planning in Louisiana.

Five-Star Restoration Program

Environmental Protection Agency
www.epa.gov/owow/wetlands/restore/5star
The Five Star Restoration Program provides grants for wetlands restoration projects that involve five or more partners, including local government agencies, elected officials, community groups, businesses, schools, and environmental organizations. The program provides challenge grants, technical support and opportunities for information exchange to enable community-based restoration projects.

Water Protection and Conservation Grants

Turner Foundation
www.turnerfoundation.org
The Turner Foundation provides grants to protect rivers, lakes, wetlands, aquifers, oceans, and other water systems from contamination, degradation, and other abuses.



CALIFORNIA

In June 2006, a wildlife underpass in Los Angeles County, California was completed, funded in part by a \$337,000 Transportation Enhancements award. The underpass runs underneath Harbor Boulevard, a high volume roadway serving as the major thoroughfare between Orange and Los Angeles Counties. According to a 2001 study, over 28,000 vehicles use the road each day. This stream of traffic divides the Puente-Chino Hills Wildlife Corridor and the Cleveland National Forest at Coal Canyon. Native wildlife such as coyotes and bobcats abound in these publicly protected habitats.

Before the construction of the underpass, animals were often killed and drivers put at risk along Harbor Boulevard. Biological and planning studies conducted by the University of San Diego and Cal Poly Pomona indicated that a wildlife underpass at this particular location—deemed a



“habitat chokepoint”—would greatly improve wildlife connectivity and decrease animal mortality. Construction on the underpass began in September 2005 and was completed less than one year later. The result is an 18 foot high by 20 foot wide tunnel, approximately 160 feet long, that links the 4,600 acres of habitat on the west with 14,000 acres of habitat on the east. The connectivity between these areas of habitat is important not only in terms of keeping both motorists and wildlife out of harm’s way, but also to safeguard genetic diversity within species by allowing movement between populations. The connectivity provides a positive outcome for the surrounding community and the health of the ecosystem.

PENNSYLVANIA

In 2000, the Pennsylvania Department of Transportation (PennDOT) administered a wildlife underpass study using a \$120,000 Transportation Enhancement award. The study revealed important aspects of transportation facility design in order to keep it in harmony with the surrounding environment.

PennDOT studied the effectiveness of wildlife passages built during the construction of the U.S. 15, located in Lycoming, Tioga and Union Counties. PennDOT was interested in “opportunities to provide safe passageway for wildlife across transportation corridors, provide habitat linkages, increase motorists’ safety and reduce wildlife/vehicle collisions.” Many species use riparian valleys as travel corridors, and consequently encounter bridges and culverts of intersecting highway routes. This research examines the existing culverts and bridges to determine wildlife usage of these structures. Features of highly used underpasses can then be implemented into plans for future construction of culverts and bridges.

To evaluate the use of culverts and bridges by wildlife, researchers went into the field and noted length, height and width of existing structures. They also studied the adjacent habitat cover, nearby land uses, and signs of wildlife (tracks, trails, scat, etc). Infrared cameras detected a variety of animals in the culverts including black bear, white-tailed deer, raccoons, ducks, muskrats, and opossums.

The study concluded that size, surrounding habitat, fencing, approaches, topography, noise levels, and average daily traffic should be considered in the creation of drainage culverts in order for them to be useful to wildlife. Planning and design of culverts should incorporate the precise habitat requirements of specific species. “Connectivity zones” should be revealed based upon landscape analysis, and used to concentrate mitigation efforts. Small amphibian and reptile underpasses should be constructed where roads pass along a boundary between wetlands and uplands. The study’s findings are central to the surrounding area’s environmental health, as well as motorist safety.

Bats Find a Unique Use of Transportation Facilities

Many states use Transportation Enhancement funds to create wildlife connections using existing bridges and culverts to accomplish their goals. While deer, bear, and raccoons frequently use transportation facilities as part of their habitat, bats are getting in on the action as well. According to Bat Conservation International, “As the quality and quantity of natural roosts such as caves and snags have diminished, the importance of artificial habitats such as bridges and culverts has increased. At this time, more than half of the 47 species of bats in the United States have been documented to use highway structures as roosts.” One excellent example is in Austin, Texas, where about 1.5 million Mexican free-tailed bats use the Congress Avenue Bridge. (This bridge was rehabilitated in 1980 and predates TE.)

Although TE category #11 authorizes projects to reduce *vehicle-caused* wildlife mortality, bat-friendly habitats may be considered while planning and constructing other TE projects. Visit Bat Conservation International’s Web site at www.batcon.org for more information about bat habitat and transportation facilities.



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NATIONAL TRANSPORTATION ENHANCEMENTS CLEARINGHOUSE

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RESOURCES



The US Environmental Protection Agency created **Smart Growth Illustrated** to graphically communicate concepts of smart growth, such as density, design, walkability, housing and transportation. These descriptive pictures are organized according to the specific smart

growth principle they illustrate. Several communities are highlighted including Mountain View, California for providing a variety of transportation choices, and Bethesda, Maryland for creating a walkable neighborhood. The examples offered demonstrate ten smart growth principles as they were used in twenty communities throughout the United States. Explore the images at www.epa.gov/smartgrowth/case.htm.

The Transit Cooperative Research Program and the National Cooperative Highway Research Program recently released **Improving Pedestrian Safety at Unsignalized Crossings**. The report recommends "selected engineering treatments to improve safety for pedestrians crossing high-volume, high-speed roadways at unsignalized intersections, in particular on roads served by public transportation." The segment *Appendix A: Guidelines for Pedestrian Crossing Treatments* offers tools and a worksheet to determine the most effective pedestrian crossing treatment by looking at crossing width, traffic volumes,

traffic speed and other site variables. Read the report at http://onlinepubs.trb.org/onlinepubs/nchrp/nchrp_rpt_562.pdf.

A recently updated and enhanced **Tool Kit for Integrating Land Use and Transportation Decision-Making** is now available on Federal Highway Administration website. The toolkit offers methods, strategies and procedures for integrating land use and transportation planning, decision-making and project implementation with tools, case studies and references and links for further information. Find the toolkit at www.fhwa.dot.gov/planning/landuse/index.htm.

The American Recreation Coalition's **Toolbox for the Great Outdoors** offers a collection of resources and partners intended for federal recreation and visitor service programs to provide quality services. The tool box is meant to connect Americans to public lands and enhance their visiting experiences. Transportation plays a key role in recreation. Various programs exist that can help improve roads, trails, communications, parking, and other related transportation infrastructure. Many resources, including TE, are offered in the transportation "drawer" of the toolbox. Search through the toolbox at www.tools4outdoors.us.

