

# Federal Lands

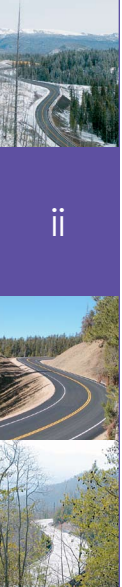
*Highway Program*

*2005 and 2006 Biennial Report*

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*Straight Fork Bridge Profile, Great Smoky Mountains National Park, Swain County, North Carolina (National Park Service)*



# Message From the Associate Administrator of Federal Lands Highway

The *Federal Lands Highway Program Fiscal Year 2005 and Fiscal Year 2006 Biennial Report* serves as a snapshot of many, but not all, of our accomplishments. The accomplishments cited here fully support our mission to improve transportation access to and within Federal and Indian lands. The success stories stem from the dedication and professionalism from the Federal Lands Highway family in addition to our valued colleagues within our partner agencies. The dialog between transportation and resource agencies began in 1916 beginning with the U.S. Forest Service. Today, our discussions continue and the program has evolved to include multiple partner agencies. Working collaboratively and respecting one another's mission(s) has enabled all of us to provide safe and effective transportation solutions that are in balance with, and maintain the integrity of, the environment in which they lay.

To begin, we are very excited that the surface transportation act—the Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU)—continued to authorize the Federal Lands Highway Program (FLHP) as a viable and critical piece of legislation. In SAFETEA-LU, the core FLHP increased by approximately 28 percent; i.e., the program increased on average from about \$700 million per year under the Transportation Equity Act for the 21<sup>st</sup> Century to more than \$900 million per year under SAFETEA-LU. When we include other non-FLHP funds (e.g., High Priority Projects) to the total sum of funds entrusted to us, the Office of Federal Lands Highway (FLH) is responsible for delivering about a \$1.4 billion program annually through fiscal year (FY) 2009. The growth in the FLHP provides us with a fantastic opportunity to build on our numerous accomplishments, as outlined in this report, and to successfully advance our program even further in collaboration with our partners. In summary, this report addresses four primary areas.

First and foremost, our charge in law is to administer and deliver a coordinated FLHP. In doing so, we provide both financial resources and valued technical assistance in support of our partners. Working together with our partners, we need to ensure we are all being good stewards of taxpayers' dollars. This report provides information on the administration of FLHP funds and provides countless examples of where we responded to our customers' needs by providing state-of-the-art transportation services and assistance. In FY 2005 and FY 2006, we obligated approximately 74 percent of the FLHP. This metric provides us an opportunity to do better and improve business processes within our purview. Some factors are simply outside our sphere of influence; e.g., in FY 2005, we experienced some "stops and starts" as the transportation community awaited a new surface transportation act. After 10 continuing resolutions through FY 2004 and FY 2005, SAFETEA-LU was signed into law on August 10, 2005. Our obligation rate was about 70 percent in FY 2005 but improved to 78 percent in FY 2006 due, in large part, to the availability of funds. In FY 2007 and beyond, we will be working closely with our partners to address unobligated balances and other critical stewardship issues; we anticipate this metric will continue to increase toward our goal of 100 percent.

A second major focus of FLH is project delivery. FLH, in collaboration with our partners, successfully completed more than 119 construction projects with a value of more than \$407 million, improved more than 385 miles of roads, and improved 67 bridges. When we consider how visitation to our Federal lands has dramatically increased over the past 10 to 15 years and how escalating construction costs have offset much of the SAFETEA-LU funding increases, we are proud that we have maintained and, in many areas, improved the condition of our partners' transportation system(s); we deem these road condition improvements to be significant accomplishments.

This report addresses additional critical FLH business areas that include, but are not limited to, providing technical assistance and training, developing and/or deploying new technologies to improve program and project delivery, and initiating internal improvements resulting in greater organizational efficiencies.

We—FLH and our partners—can be very proud of these accomplishments. Equally, if not more importantly, we can celebrate the positive experiences that Americans and foreign visitors enjoy when they visit our Federal lands. With every visitor's smile and/or photo opportunity of a national treasure, we are constantly reminded that the access we provide to tourists and local residents to these wondrous Federal and Indian lands is our greatest accomplishment.

**Arthur E. Hamilton, P.E.**

*Associate Administrator, Office of Federal Lands Highway*





*Grand Loop Road, Yellowstone National Park, Montana (National Park Service)*

# Introduction: What Is the Federal Lands Highway Program?

In the 1982 Surface Transportation Assistance Act, Congress recognized the need for all Federal public roads to be treated under uniform policies similar to the policies that apply to Federal-aid highways. Therefore, beginning on January 6, 1983, the establishment of a coordinated Federal Lands Highway Program (FLHP) was launched. The FLHP applied to public lands highways, park roads and parkways, and Indian reservation roads and bridges. Later, in the Transportation Equity Act for the 21<sup>st</sup> Century (TEA-21), the U.S. Fish and Wildlife Service's refuge roads were added to the FLHP. Today, these four groups of roads serve as our core program. The primary purpose of the FLHP is to provide resources for a coordinated program of public roads that serve

the transportation needs of Federal and Indian lands. In providing these resources, we are inherently responsible for ensuring taxpayers' dollars are spent appropriately and for complying with United States Code (U.S.C.) Title 23 policies that govern the use of transportation appropriations.

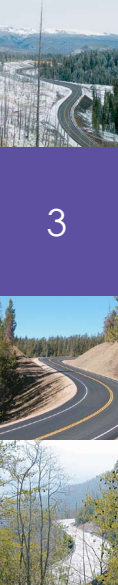
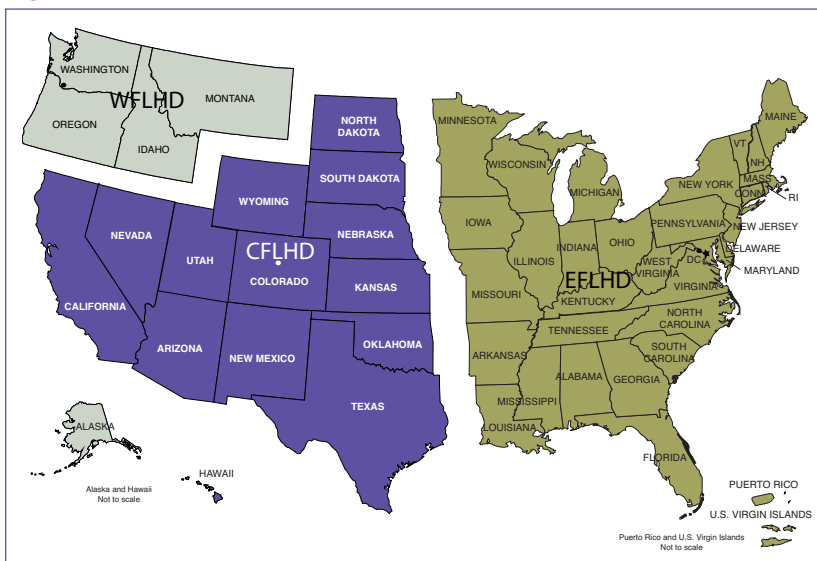
FLHP funds may be used for many purposes that include, but are not limited to, the planning, design, construction, and rehabilitation of public roads and bridges that provide access to federally owned lands. The Office of Federal Lands Highway (FLH) provides these important transportation engineering services as well as critical technical assistance in the areas of program administration, training, and technology deployment—to name a few.

The FLH headquarters (HQ) office is in Washington, DC, and three field division offices are in Sterling, VA (Eastern), Lakewood, CO (Central), and Vancouver, WA (Western). The service areas of each division are shown in Figure 1.

## Scope and Breadth

Approximately 30 percent of the land in the United States is under the jurisdiction of the Federal Government. More than 490,000 miles of roads are critical to the administration of Federal lands and Indian lands. These roads also support the economic vitality of adjacent communities and regions. Within the 490,000 miles of roads, approximately 160,000 miles are *public roads* that provide access to and within Federal and Indian lands. The public roads connect to the remaining 330,000 miles of administrative roads, which are under the jurisdiction of Federal Land Management Agencies (FLMAs)—FLH's primary customers—that manage or maintain portions of lands under the direct jurisdiction of the Federal Government. The FLHP does not fund transportation services for administrative roads because these roads are not open to the public. Of the 160,000 miles of public roads, approximately 50 percent are under the jurisdiction

Figure 1. FLH Divisions





## 2006 Design Excellence Awards Merit Award Winner

For Project Management

Pennsylvania Avenue, District Department of Transportation and EFLHD.

Effective project management, partnering, and innovative contracting all played important roles in reconstructing Pennsylvania Avenue in front of the White House as an attractive landscaped space closed to traffic.

of the FLMAs; the remainder are under the jurisdiction of State and local governments.

## Partnerships and Collaboration

FLH works closely with its FLMA and Indian partners to improve the transportation system serving Federal and Indian lands. In doing so, FLH seeks to achieve a balance that reflects each partner's concerns while promoting the highest standards of road safety, contextual sensitivity (i.e., ensuring the "look and feel" of the roads and bridges complement their native environmental surroundings), and economic growth for local residents. The roads under FLHP support recreational travel and tourism, maintain resource extraction, protect and enhance natural resources, provide sustained economic development in rural areas, and provide needed transportation access for Native Americans. Federal roads are also essential for the effective implementation of Federal land use and resource management.

FLHP is administered through partnerships and agreements with its many FLMA and Tribal customers, which include the Bureau of Indian Affairs (BIA), U.S. Department of Agriculture (USDA) Forest Service (USDA Forest Service), National Park Service (NPS), and U.S. Fish and Wildlife Service (FWS). Other FLMAs that participate in the program are the Bureau of Land Management, Department of Defense (DoD), Surface Deployment and Distribution Command of the U.S. Army, U.S. Army Corps of Engineers, U.S. Navy, Tennessee Valley Authority, and the Bureau of Reclamation. FLH also works closely with many State and territorial partners.

FLH's Tribal partners are the 561 federally recognized tribal governments in the United States. These governments administer and manage 55.7 million acres of

land held in trust by the United States for Native Americans, Indian tribes, and Alaska Natives. FLH helps these governments meet their highway transportation needs and, at the same time, maintains its reputation as a leader in context sensitivity. BIA is a vital partner in these interactions.

## Core Programs and Partners

### Indian Reservation Roads Program

The Indian Reservation Roads (IRR) Program provides funding for public roads that grant access to or within an Indian reservation, Indian lands, Indian communities, and Alaska Native villages. In addition, the IRR Program under the Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU) includes a new bridge program



*Pennsylvania Avenue in front of the White House, Washington, District of Columbia (National Park Service)*

for replacement or rehabilitation purposes. The IRR system consists of more than 27,000 miles of public roads owned by the BIA and Tribal governments and more than 59,000 miles of State and local public roads within the Indian lands or providing access to those lands.

### New Indian Reservation Road Bridge Program

In FY 2005, a separate IRR Bridge Program was created in SAFETEA-LU to fund bridge replacement or rehabilitation as well as funding for design.

### Park Roads and Parkways Program

The Park Roads and Parkways (PRP) Program provides funding for public roads that make access available to or within national parks, recreation areas, historic areas, and other units of the National Park System. The park road system consists of more than 8,000 miles of public roads owned by the National Park Service.

### Public Lands Highways Program

The Public Lands Highways (PLH) Program's two components—the Public Lands Highways Discretionary (PLHD) Program and the Forest Highway (FH) Program— provides funding for public roads serving Federal and Indian lands that are on the Federal-aid primary and secondary systems; i.e., State and/or locally owned public roads providing access to or within national forests and grasslands or to areas adjacent to those lands.

Sixty-six percent of PLH funds are available for the FH Program. Approximately 29,000 miles of State or locally owned public roads are designated as forest highways. Conversely, 34 percent of the PLH category funds, as reflected in SAFETEA-LU, are available for the PLHD Program. This program currently provides funding for congressionally selected transportation projects providing access to or within Federal and Indian lands or to areas adjacent to those lands.

Per Section 202 Title 23, planning funds are made available from PLHD and FH Programs.

### Refuge Roads Program

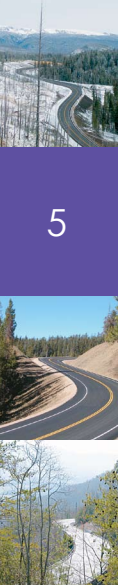
The Refuge Roads (RR) Program maintains and improves public roads that provide access to or within a unit of the National Wildlife Refuge System. FWS manages and maintains approximately 5,100 miles (paved and unpaved) of public use roads and 87 bridges.

### Important Programs That FLH Supports

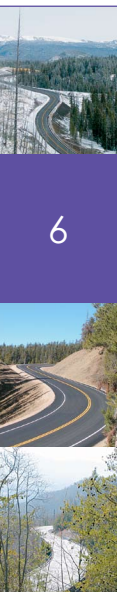
FLH administers additional important transportation funds from programs outside the core Federal Lands Highway Program. FLH-related programs in which we receive and manage transportation appropriations governed by U.S.C. Title 23 include Emergency Relief for Federally Owned Roads (ERFO), scenic byways, high-priority projects, Section 378 miscellaneous funds, Section 1118 National Corridor Planning and Development Program, Coordinated Border Infrastructure Program, and Section 1207 Ferry Boat Discretionary Program. We also received non-Title 23 funds that support the Defense Access Road (DAR) Program and other special projects. For purposes of this report, we are highlighting just two—ERFO and DAR—of the many important programs we support in collaboration with other Federal Highway Administration (FHWA) offices and/or Federal agencies.



*Pennsylvania Avenue in front of the White House, Washington, District of Columbia (National Park Service)*







## Emergency Relief for Federally Owned Roads Program

The ERFO Program helps to pay the unusually heavy expenses associated with repairing and reconstructing Federal roads and bridges over a wide area that have been seriously damaged by natural disasters. Restoration in kind to predisaster conditions is the predominant type of repair. The ERFO Program provides assistance for roads that have been defined as Federal roads—forest highways, forest development roads, park roads and parkways, Indian reservation roads, public lands highways, refuge roads, and public lands development roads.

## Defense Access Road Program

The DAR Program provides a means for the military to pay the cost

of public highway improvements necessary to mitigate an unusual impact arising from a defense activity. An unusual impact could be a significant increase in personnel at a military installation, relocation of an access gate, or the deployment of an oversized or overweight military vehicle or transporter unit. Under the DAR Program, the FHWA is authorized (Title 23 U.S.C., Section 210) to construct or improve highways with funds transferred from DoD appropriations. DoD also provides operation and maintenance (O&M) funds to States having gravel-surfaced roads that support the Minuteman missile system. O&M funds are allocated based on needs identified by the U.S. Air Force in cooperation with the States and FHWA. When requested by States, projects are designed and administered directly by FLH divisions.

## Snapshot of Accomplishments

FLH is constantly striving to improve its performance both strategically and tactically. In doing so, we leverage the U.S. Department of Transportation’s (DOT’s) strategic goals that include, but are not limited to, safety, environmental stewardship and streamlining, mobility (emphasis on congestion mitigation), and organizational excellence. In addition, FLH plans its activities, in coordination with its partners, based on an FLH 5-Year Business Plan. This multiyear plan focuses on four to five core FLH business areas (Table 1). Therefore, the balance of this report provides examples of accomplishments in each area to illustrate how we are supporting (cross-walking) both our DOT/FHWA corporate goals and primary FLH business areas.

Table 1. FLH Business Area/DOT Strategic Goal Alignment

FLH Business Area	Description	FHWA Strategic Goal(s)
Program Administration	The stewardship and oversight responsibilities associated with planning; and the resource management, both human and monetary, that is entrusted to FLH to improve the transportation system that serves Federal and Indian lands.	<ul style="list-style-type: none"> <li>Organizational Excellence</li> </ul>
Project Delivery	The planning, procurement, design, and construction management services FLH provides to FLMAs to improve the transportation system that serves Federal and Indian lands.	<ul style="list-style-type: none"> <li>Safety</li> <li>Environmental Stewardship &amp; Streamlining</li> <li>Mobility</li> </ul>
Technology Delivery	Developing, promoting, demonstrating, evaluating, and implementing new and improved technological advances.	<ul style="list-style-type: none"> <li>Safety</li> <li>Environmental Stewardship &amp; Streamlining</li> <li>Mobility</li> </ul>
Professional Development	Hands-on experience in construction and project development activities such as highway design, bridge design, environment, soils and materials, safety, and planning. Professional development also includes technical assistance to FLMAs as well as FHWA, State DOTs, counties, the public, and foreign governments.	<ul style="list-style-type: none"> <li>Safety</li> <li>Environmental Stewardship &amp; Streamlining</li> <li>Mobility</li> <li>Organizational Excellence</li> </ul>
Organizational Excellence	Improving customer and partner satisfaction, internal processes, and business results.	<ul style="list-style-type: none"> <li>Organizational Excellence</li> </ul>

# Program Administration: Major Accomplishments

**A**s discussed in the introduction, FLH is entrusted with many different types of funds. In fiscal year (FY) 2005, DOT continued to operate under TEA-21 continuing resolutions through August 10, 2005; these stops and starts affected our ability to obligate FLHP funds. Specifically, we obligated 70 percent of FLHP dollars in FY 2005 and improved to 78 percent in FY 2006. With a stable funding stream (SAFETEA-LU authorization *and subsequent annual appropriations*), coupled with greater attention and action on addressing unobligated balances with our partners, we envision this area to continue to improve in FY 2007 and beyond. The specific funding information by core program is provided in Table 2.

## Indian Reservation Roads Program

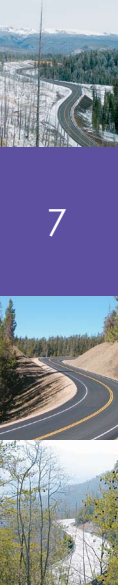
During FY 2005 and FY 2006, the funds available for obligation were nearly \$804 million. Conversely, the actual obligated amount was \$538 million, or 67 percent (see Table 2).

## IRR Agreements accomplishments

**FHWA/TRIBAL IRR PROGRAM AGREEMENTS:** Three Native American tribes, the Standing Rock Sioux Tribe from North Dakota and South Dakota, the Ramah Navajo Chapter of the Navajo Nation from New Mexico, and the Chickaloon Native Village from Alaska signed historic government-to-government IRR program agreements with the Federal Highway Administration's Federal Lands Highway Office. These agreements allow the tribes to directly manage their Highway Trust Fund dollars for transportation improvement and road safety. A signing ceremony commemorating the event took place in Washington, D.C., on September 27, 2006. These agreements contain the roles and responsibilities of the tribe and the Federal Government in carrying out the identified projects and detail the funding made available to each tribe.

Table 2. FY 2005 and FY 2006 Title 23 Appropriations, Allocations, and Obligations

FLH Programs	Authorization/ Allocation Made Available (\$)	Program Reductions (\$)	Prior Year Funds (\$)	Total Funds Available (\$)	Total Obligations (\$)
Indian Reservation Roads	630,000,000	(106,468,430)	280,429,618	803,961,188	537,764,144
New Indian Reservation Road Bridge Program	28,000,000	(3,971,800)	11,970,000	35,998,200	23,894,201
Park Roads and Parkways	375,000,000	(63,404,222)	35,826,795	347,422,573	320,146,416
Public Lands Highways	—	—	—	—	—
Forest Highways	356,400,000	(68,188,531)	96,617,322	384,828,791	306,085,159
Public Lands Highway Discretionary	75,111,926	(16,191,573)	44,060,765	102,981,118	65,721,135
Public Lands Highway Transportation Planning	—	11,349,886	2,138,169	13,488,055	13,409,450
Refuge Roads Program	58,000,000	(9,831,007)	31,555,344	79,724,337	48,689,878
<b>Subtotal</b>	<b>1,522,511,926</b>	<b>(256,705,677)</b>	<b>502,598,014</b>	<b>1,768,404,263</b>	<b>1,315,710,383</b>







### Park Roads and Parkways Program

During FY 2005 and FY 2006, the funds available for obligation were \$347 million. Conversely, the actual obligated amount was \$320 million, or 92 percent (see Table 2).

### Public Lands Highways Program

Forest Highways: During FY 2005 and FY 2006, the funds available for obligation were \$385 million. Conversely, the actual obligated amount was \$306 million, or 80 percent (see Table 2).

### Public Lands Highways Discretionary Program

During FY 2005 and FY 2006, the funds available for obligation were \$103 million. Conversely, the actual obligated amount was \$66 million, or 64 percent (see Table 2).

### Refuge Roads Program

During FY 2005 and FY 2006, the funds available for obligation were \$80 million. Conversely, the actual obligated amount was \$49 million, or 61 percent (see Table 2).

### Emergency Relief for Federally Owned Roads Program

The BIA, USDA Forest Service, FWS, and NPS made a total of 77 requests for ERFO financial assistance for disasters that occurred in FY 2005 and FY 2006. Of these requests, the FLH divisions have approved 29 to date, for a total investment of approximately

\$105 million. The increase in the number of requests for financial assistance can be contributed directly to the type of weather (heavy rain, flooding, hurricanes) and resulting damage along the entire eastern coast experienced during the past 3 years or so.

### Defense Access Road Program

During FY 2005 and FY 2006, 17 projects, expected to cost approximately \$230 million, were in various stages of design and construction throughout the country. FLH led the delivery of two of these projects, which had a total construction cost of approximately \$90 million. In addition, each year FLH administered approximately \$7 million in Air Force operation and maintenance (O&M) funds, improving access to Minuteman missile sites in five western states. In addition to managing the O&M program, FLH staff delivered two of the three regravelling contracts, awarded each fiscal year, from design through construction. These contracts totaled approximately \$4.5 million each year.

### Other Critical Initiatives

In addition to accomplishing program-specific administrative efforts, the FLHP completed many other critical initiatives that contributed to its successful year. We address some of those initiatives in the following paragraphs.

### Road Inventory Program Cycle 3 Completion

The Road Inventory Program completed the delivery of the NPS road inventory data for Cycle 3 in April 2005. Cycle 3 included the inventory and condition assessment of 5,553 route miles and 6,232 parking areas in 297 parks throughout the United States, including Puerto Rico, the U.S. Virgin Islands, Guam, and American Samoa.

### Asset Management Pilot—Northeast Region

The EFLHD, in cooperation with the NPS, conducted a pilot study of the application of an automated Pavement Management System (PMS) to assist in developing a prototype Transportation Improvement Program for the PRP Program of the NPS Northeast Region. The pilot study incorporated asset management practices, including both the PMS and the Bridge Management System, into a transportation planning process to influence transportation decisionmaking from economical and technical points of view. Using the PMS, the study team was able to perform a network-level analysis to determine maintenance and rehabilitation needs, forecast future impacts for various funding options, and develop a prioritized list of candidate projects by conducting an optimization analysis. The PMS analytical recommendations assist in the decisionmaking process to develop a multiyear program of prioritized projects.

## Proper Use of Taxpayers' Dollars

In accordance with the Financial Integrity Review and Evaluation (FIRE) Program for FLH, an independent financial review team conducted onsite financial reviews in the offices of the FLH headquarters (HQ), EFLHD, Central Federal Lands Highway Division (CFLHD), and Western Federal Lands Highway Division (WFLHD). The results indicate that we have adequate internal controls to minimize any possible waste, fraud, or abuse of taxpayers' dollars. One high-risk area—processing payroll—required extra attention, so FLH conducted a special payroll process review.

During the payroll process review, the team used the FIRE toolkit, personal interview process, and a random sampling of time and attendance records to validate payroll practices and processes. The review findings were divided into two major categories: (1) findings that the team considered to be in non-conformance with direct relationship to regulations or directives; and (2) areas of concern that the

team identified as needing further clarification, corrective actions, and standardization throughout FLH. For the second category, the review team included recommendations in areas identified as needing improvement to the existing process, which would enhance effectiveness and efficiency, minimize potential fraud, and improve internal control. The recommendations for both categories of review findings have been supported and addressed by the FLH Leadership Team.

## Richmond Highway—Telegraph Road Connector Environmental Assessment Release

The events of September 11, 2001, resulted in the security closure of several public roads through Fort Belvoir in Fairfax County, VA. These roadways provided access and connectivity between the north and south sides of Fort Belvoir for local residents and commuters. Fort Belvoir asked EFLHD to prepare the environmental documentation (environmental assessment [EA]) and to design and construct a solution to the traffic problems

created by the road closures. The release of the EA occurred in August 2006.

## National Park Service Environmental Streamlining Workshop

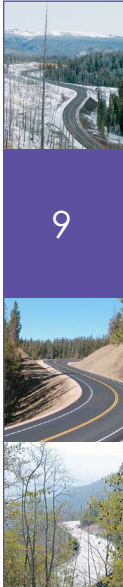
From March 8 through 10, 2005, the Eastern Federal Lands Highway Division (EFLHD) conducted an Environmental Streamlining Workshop in Denver, CO. The goals of the workshop, which included participants from the NPS and the FLH offices, were to increase the awareness of important environmental issues, identify process improvements for the effective delivery of the PRP Program, and develop improved working relationships. Two recurring issues dominated most of the workshop discussions: (1) Realistic timeframes should be developed for the completion of National Environmental Policy Act (NEPA) documents and the entire project development process; and (2) project agreements should be used as a mechanism for holding those accountable for their agreed-upon roles, responsibilities,



Existing Condition—Richmond Highway (U.S. Route 1) and Telegraph Road (VA Route 611) Connector Environmental Assessment, Fairfax County, Virginia (U.S. Department of Defense)



Proposed Alternative—Old Mill Road—Richmond Highway (U.S. Route 1) and Telegraph Road (VA Route 611) Connector Environmental Assessment, Fairfax County, Virginia (U.S. Department of Defense)



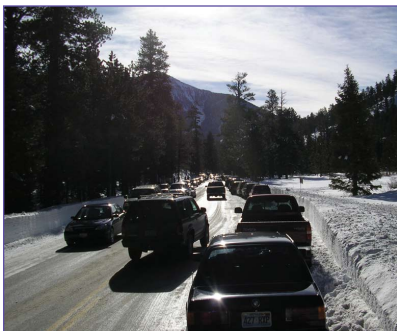


The solution is a replacement roadway that requires obtaining more than 2 acres of right-of-way from Woodlawn Plantation, a National Historic Landmark, owned by the National Trust for Historic Preservation and located in a National Register Historic District.

and schedules. As a result of the workshop, a policy was issued in August 2005 requiring timely completion of the NEPA documents (no later than the 70 percent design stage) and meaningful project agreements in place before the 30 percent design stage.

### Initiation of U.S. Fish and Wildlife Service Trails Inventory

SAFETEA-LU expands the eligibility of the RR Program to include the maintenance and improvement of recreation trails. The CFLHD worked closely with the FWS to initiate an inventory and condition assessment of the entire trail system. We developed an action plan that calls for



*New Year's Day 2005 Gridlock, Spring Mountains National Recreation Area, Humboldt-Toiyabe National Park, Nevada (USDA Forest Service)*

combining the trail inventory with the ongoing second Cycle 2 of the road inventory. We will map approximately 1,100 miles of trails in 50 States using the satellite-based global positioning system and will rate the trails for condition and accessibility. Our goal is to complete the inventory late in FY 2007.

### Public Outreach During the Planning Process

The CFLHD is leading three efforts to improve the planning process and better define projects before programming them. The first two efforts were funded with Forest Highways Program funds; the third was funded with PLH Discretionary Program funds.

1. The Spring Mountains National Recreation Area Transportation Study assessed both short- and long-term transportation needs in the Humboldt-Toiyabe National Forest, which is within 30 minutes of the rapidly urbanizing area of Las Vegas, NV. The study required coordination with several stakeholders, including the USDA Forest Service, Nevada DOT, the Regional Transportation Commission of Southern Nevada, Clark and Nye Counties, and the city of Las Vegas. Public outreach included a public open house and establishment of an ongoing project Web site. During the course of the study, FLH identified several nontraditional transportation alternatives, including implementing a

seasonal bus system, using Intelligent Transportation Systems technology, and constructing a multiuse trail.

2. The Deerfield Lake Road Study was initiated to better define the purpose of and need for a proposed Forest Highways project in an area of the Black Hills National Forest in South Dakota. FLH met with all stakeholders and held a public meeting to identify the problems and a range of alternatives before programming a project. The project is complex due to right-of-way constraints and a creek and multiuse trail that are adjacent to the Deerfield Lake Road.

3. The Kilauea Point National Wildlife Refuge Alternative Transportation Systems Study is seeking to identify integrated multimodal options for providing improved access to Kilauea Point, which is on the North Shore of the Island of Kauai. Kilauea Point is among the most heavily visited refuges in the United States. FLH has coordinated public involvement with numerous stakeholders—especially with the County of Kauai since the county government is amending its General Plan. This project is complicated by cultural and political considerations.

### Reimbursable Agreement Process Review

FLH conducted an extensive review of its reimbursable agreement process. We revised the process to ensure compliance with regulations

and policies and to provide standardized, written guidelines and forms for uniformity in products. The documented process also improves FLH's ability to meet revised requirements of FHWA's chief financial officer (CFO) for delegation of authority for reimbursable agreements.

### Continuity of Operations Training

WFLHD conducted Continuity of Operations (COOP) training for its Emergency Relocation Team, which includes primary responders and their alternates. Training included a course specific to Federal Preparedness Circular 65 and incorporated the WFLHD COOP. WFLHD has scheduled a functional exercise for the team in FY 2007.

### Improved Accuracy of Project Charges for Reimbursable Agreements

As part of a focus on cost consciousness, WFLHD developed a process for recovering the costs for processing reimbursable agreements and charging them to the appropriate project. The revised process budgets for the processing time associated with reimbursable agreements and assigns the processing time to specific projects instead of to management overhead.

Before WFLHD made this change, all acquisition and programming staff charged their time to overhead accounts. The new process sets up specific procedures and guidelines

for charging acquisition and programming staff time as it is expended directly to the project being worked on. This change more accurately reflects the true cost of the project while reducing overhead charges.

### Lewis and Clark National Historical Park Technical Support

WFLHD provided technical support to its partner, the NPS Lewis and Clark National Historical Park. Key projects for the Lewis and Clark Bicentennial included transportation planning for the Lewis and Clark Explorer Shuttle and technical engineering support for the Fort-To-Sea Trail and Netul River Trail in Oregon.

On October 3, 2005, a fire destroyed the replica of Fort Clatsop in Oregon. At the request of the NPS, WFLHD provided an overall project manager for the project. Reconstruction started December 10, 2005 (200 years to the day that Lewis and Clark started construction). The log walls

of the rebuilt Fort Clatsop were up on site by March 23, 2006, for a public dedication 200 years to the day that Lewis and Clark left for the return home. From December 10, 2005, to March 23, 2006, 725 individual volunteers were involved in the rebuilding effort. The rebuilding was completed on December 9, 2006.

### Lifelines—Your National Forest Roads

FLH partnered with the USDA Forest Service to produce an informational video, *Lifelines—Your National Forest Roads*. The video celebrates the partnership relationship among the USDA Forest Service, FLH, and State and local communities in providing continued stewardship and access to our national forests.

### Master Budget Sheet

FLH HQ successfully developed a database to generate allocations directly from a Web-based Master Budget Sheet (MBS) for the PRP



Fort Clatsop, Lewis and Clark National Historical Park, Astoria, Oregon (National Park Service)





Program. The NPS developed the MBS to facilitate fund requests and approvals for the PRP Program by all field units, including FLH Divisions.

### Acquisition/Procurement Functional Discipline Leader

In the area of acquisition, FLH accomplished the following:

- Developed a new Contracting Officer Certification Program that aligns with DOT's program.
- Launched the use of off-the-shelf PRISM contract writing software in all division offices.

- Conducted a procurement management review on construction and architect/engineering contracts.
- Developed a new reimbursable agreement policy that applies to all FLH divisions, thereby resulting in the redelegation of authority from the CFO to the FLH Associate Administrator.

### Project Reconciliation

FLH implemented a project reconciliation process in April 2005. Since then, project reconciliation has been performed monthly. Account owners assigned to each specific project performed the

project reconciliation using reports generated by Oracle Discoverer software and division cuff records that track project operations. In tackling the complexities of project reconciliation, employees have learned much about obligations, deobligations, expenditures, appropriation numbers, activities codes, labor charges, etc., regardless of discipline. FLH employees performed project reconciliation on expenditure and obligation transactions that occurred in FY 2005. In an effort to achieve the goal of performing reconciliation on all transactions, FLH will continue to improve reconciliation tools.

### 2006 Design Excellence Awards Excellence Award Winner

For Project Management  
Beartooth Highway Emergency  
Repairs, Montana Department  
of Transportation and WFLHD.

The Beartooth Highway begins at the northeast entrance to Yellowstone National Park and links the communities of Cooke City, Montana, and Red Lodge, Montana. After major mud and debris slides severely damaged the highway in May 2005, a unique design-build approach and significant partnering efforts resulted in reopening the road in less than 5 months.



*Beartooth Highway Emergency Repairs, Yellowstone National Park, Cooke City, Montana (National Park Service)*

# Project Delivery: Major Accomplishments

In FY 2005 and FY 2006, FLH completed more than 70 construction projects with a value of more than \$200 million, improved more than 1,077 miles of roads, and built and improved approximately 40 bridges. All these efforts enable the traveling public to better and more safely access our national treasures.

The FLH's project delivery accomplishments are too numerous to list, but we have provided a snapshot of some of them.

## Natchez Trace Parkway Completion

After 67 years of construction, the NPS and EFLHD celebrated the completion of the Natchez Trace Parkway in Tennessee, Alabama, and Mississippi. On May 21, 1934, Congress authorized an act that commissioned a survey to locate the old Natchez Trace with the intent of building a national

road to follow the old route from Natchez, MS to Nashville, TN. The NPS, with the engineering assistance of the Bureau of Public Roads (now FHWA), was requested to undertake this survey. In 1938 construction began on this historic national road.

Today, the Natchez Trace Parkway is considered one of the most scenic and beautifully designed roads in America. The Natchez Trace Parkway has received numerous engineering and landscape design awards and recognition, including the 1996 All American Road scenic byways designation and the 1999 American Society of Landscape Architect's Centennial Medallion for Outstanding Landscape Architecture. On May 21, 2005, a celebration of the completion of the parkway, including ceremonial opening events, a parade of antique automobiles, and dinner events were held in Clinton and Natchez,

MS. Mary Peters, Federal Highway Administrator, spoke at the events.

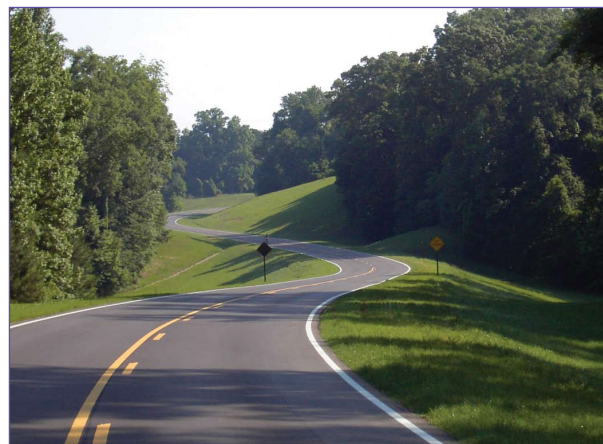
In commemoration of the event, the EFLHD prepared the booklet, "The Natchez Trace: Path to Parkway." This booklet includes a photographic history of the construction of the parkway.

## Taylor Street Bridge Project (Design-Build)

The Design-Build Project DC BH-3202(8) was located in the northeastern portion of the District of Columbia in Ward 5. The project work consisted of replacing the Taylor Street Bridge over the rail-road tracks and Brookland Avenue. The major work items included design and construction for replacing the Taylor Street Bridge and constructing a retaining wall along Puerto Rico Avenue. By shortening the new bridge structure in half, sight distance was improved and the speed limit was increased from



*Natchez Trace Parkway over Palestine Road, Adams County, Mississippi (National Park Service)*



*Natchez Trace Parkway Project, TEA-21-NATR 3014, Madison County, Mississippi (National Park Service)*





## 2006 Design Excellence Awards Merit Award Winner

For Highway Improvements on  
Publicly Owned Land

Natchez Trace Parkway, U.S.  
Department of the Interior, NPS, and  
EFLHD.

After 67 years, the 714-km (444-mi)  
Natchez Trace Parkway is now  
complete. The parkway's aesthetic  
features include alignments and  
roadway slopes that follow the  
topography of the land and offer  
spectacular views of the landscape.

25 to 35 miles per hour. In addition, the new bridge has increased the vertical clearance by 12 inches over the railroad tracks.

### Southern Avenue Bridge Project (Design-Build)

The Design-Build Project DC BR-3307(9) was located in the southeastern portion of the District of Columbia in Ward 8. The work consisted of replacing the old Southern Avenue Bridge. The original structure was a steel girder with lead-based paint. It was

simpler and less cost prohibitive to remove the structure from the site than to provide containment for lead-based paint removal and repair the old steel structure. The end results provide an aesthetically pleasing appearance to the entrance of our Nation's Capital.

### Norfolk Southern Project— Heartland Corridor

The Heartland Corridor project was identified as a major freight bottleneck and is addressed by SAFETEA-LU. This corridor runs from the Norfolk, VA area to Columbus, OH, and currently can carry only single-stack freight cars. By altering all the limited clearance structures along the route to allow double-stack cars to pass through, the capacity of the line can effectively be doubled. In many cases, this change will cut nearly a full day off the transit time of freight crossing the country.

The memorandum of agreement (MOA) between FHWA, EFLHD, and the States of West Virginia, Ohio, and Virginia was completed

on July 11, 2006. EFLHD is responsible for coordinating and facilitating the overall schedule for the entire project and for managing the Federal funding.

The MOA between FHWA, EFLHD, and Norfolk Southern Corporation (Railroad) was completed on August 8, 2006. This document defines the roles and responsibilities for the environmental planning, design, and construction of the Heartland Corridor project. EFLHD will do the environmental compliance work and the Railroad will do the design and construction. This basic operating agreement between EFLHD and the Railroad defines how the project is to be completed, relative to both engineering and funding roles and responsibilities.

### Project VI Q NH-E(8), Sunday Market Square, Christiansted, St. Croix, U.S. Virgin Islands

Project VI Q NH-E(8) is located at Sunday Market Square in Christiansted, St. Croix, U.S. Virgin



Before—Southern Avenue Bridge Project Replacement, Washington, District of Columbia (District Department of Transportation)



After—Southern Avenue Bridge Project Replacement, Washington, District of Columbia (District Department of Transportation)



Islands. The project work consisted of the complete reconstruction of this historical site, including relocating all utilities to new underground duct banks; widening pedestrian sidewalks; transplanting mahogany trees; installing architectural light poles and luminaries; installing custom-made, cast-iron bollards in the shape of cannons; and providing full-depth pavement reconstruction.

To rehabilitate the historical features of the area, the sidewalks and roadway were reconstructed using bricks and granite stones.

### District of Columbia Department of Transportation, Project DC BH-4000(77), D Street and E Street, NW Washington, DC

Project DC BH-4000(77) is located at D Street and E Street, between 2nd and 3rd Streets in Washington, DC. The project work consisted of bridge and roadway rehabilitation and reconstruction, street lighting and traffic signal replacement, and other miscellaneous work.

### 2006 Design Excellence Awards Merit Award Winner

For Historic Preservation

Sunday Market Square, Virgin Islands Department of Public Works and EFLHD.

This project restored Sunday Market Square, a historic streetscape in Christiansted in the U.S. Virgin Islands. Work included reconstructing the pavement with brick and cobblestone, preserving historic drainage infrastructure, and burying utilities in duct banks.

### CFLHD Takes on Rapid Oil Price Increases by Recycling in Lake Mead National Recreation Area (FY 2006)

Oil prices have been surging dramatically higher over the past 1 to 2 years. This increase has translated into significantly higher prices for fuel and construction materials, such as hot-mix asphalt pavement. CFLHD has always considered recycling an economical as well as environmentally friendly pavement rehabilitation alternative. With the current pace of inflation, however, the benefits of recycling are compounded and even more valuable. CFLHD can reduce the required hot-mix overlay thickness by 1, 2, or more inches when using recycling

methods such as full-depth reclamation with cement. At Lake Mead National Recreation Area, CFLHD used this recycling method to reduce the needed thickness of hot-mix asphalt pavement and to reduce the haul of new materials into the project and old, wasted materials out of the project. Pavement recycling can take a little of the sting out of higher prices for fuel and oil.

### CFLHD Recycles in Zion National Park (FY 2006)

Zion Scenic Canyon Road in Zion National Park is one of the most awe-inspiring road corridors in the National Park System. During the busy spring and summer months, the park allows access to this road only through the use of its



Before—Sunday Market Square, Christiansted, St. Croix, U.S. Virgin Islands (Virgin Islands Department of Public Works)



After—Sunday Market Square, Christiansted, St. Croix, U.S. Virgin Islands (Virgin Islands Department of Public Works)



shuttle bus operation. When the shuttle bus operation began about 7 years ago, the existing pavement structure was not strong enough to handle the additional, intensive loading from the buses, and the pavement began to deteriorate. A pavement rehabilitation project was programmed. Challenges to the project included minimizing the grade raise to allow safe foreslope grades and roadway width, while providing enough pavement structural strength to stand up to the intensive shuttle bus loading. The answer to this challenge was to use a recycling process known as full-depth reclamation with foamed asphalt. This process involves pulverizing the existing pavement and base, mixing in foamed asphalt to increase structural capacity, re-compacting, and placing a hot-mix asphalt layer as a riding surface. Using this innovative recycling method, CFLHD met the tough challenges of the project.

### Arizona Forest Highway 39

On July 6, 2005, CFLHD completed and dedicated Arizona Forest Highway 39, Mt. Lemmon Highway, on the outskirts of



*General Hitchcock Highway (Mt. Lemmon Highway, Arizona Forest Highway 39), Coronado National Forest, Tucson, Arizona (USDA Forest Service)*

Tucson, AZ. This roadway was the last of seven projects to totally reconstruct the 25-mile route at a cost of approximately \$75 million over a 17-year period. Many beautiful and significant rock formations along the new roadway were preserved using creative rock blasting techniques. The town of Summerhaven, located at the top of Mt. Lemmon and which was nearly destroyed by the Aspen Fire in 2003, is now recording record tourist visits. The route is listed as a National Scenic Byway.

### Hoover Dam Bypass

The \$31 million Nevada approach portion of the Hoover Dam Bypass was completed. This project included more than 1.7 million cubic yards of embankment and six bridges.

### The Colorado River Bridge for the Hoover Dam Bypass

Construction commenced on the \$114 million project. FLH made \$26 million in contract payments for the river bridge project, which is scheduled for completion in 2008. The Colorado River Bridge (nearly 2,000 feet long) is the final

connection for the Hoover Dam Bypass project. Spanning Black Canyon about 1,600 feet south of the dam, the Colorado River Bridge will connect the Arizona and Nevada approach highways over the Colorado River, which flows nearly 900 feet below. The bridge will also include pedestrian amenities, such as a pedestrian sidewalk on the northern side of the bridge. In addition, site preparation is under way for a pedestrian plaza nearby.

### New Mexico Forest Highway 45—Sacramento River Road

New Mexico Forest Highway 45, Sacramento River Road, was completed in October 2005. Five projects, with a combined contract value of nearly \$30 million, were spread out over a 15-year period. The last CFLHD project featured a dramatic alignment shift away from the Sacramento River floodplain to preserve the wetland vegetation and significantly enhance Timberon, NM, water quality issues. Creative habitat for the Little Brown Bat species was incorporated into the land features.



*New Mexico Forest Highway 45, Sacramento River Road, Lincoln National Forest, New Mexico (USDA Forest Service)*



*Yakataga Bridge Replacement, Yakutat Borough, Glen Allen, Alaska (Bureau of Land Management)*



## Alaska's Yakataga Bridge Replacement

The Yakataga Bridge project replaced the existing 493-foot-long, 16-foot-wide timber trestle bridge across the South Channel of Alaska's Yakataga River. Originally constructed in 1957, the bridge has been closed for the past 5 years. The bridge is located in one of the most remote locations WFLHD has ever worked. Access to the site is by airplane—flying into one of two small airstrips at Icy Bay or Cape Yakataga—or by barge and car—docking at the Icy Bay logging camp and driving 35 miles on a low-standard logging road.

The existing timber bridge was removed and a new bridge—490 feet long by 14 feet wide—was constructed in 39 days for a cost of \$2.1 million.

## Grand Loop Road—Dunraven Pass From Canyon Junction to Tower and From Canyon Junction to Fishing Bridge

WFLHD completed a 9.6-mile reconstruction project of the Grand Loop Road between Canyon Junction and Tower over Dunraven Pass and 15.1 miles of pavement rehabilitation between Canyon Junction and Fishing Bridge in Yellowstone National Park, Montana.

The Dunraven Pass project is the latest project completed in an ongoing program to reconstruct many of the park's 310 miles of roads. The road over Dunraven Pass, which is in the north-central part of Yellowstone Park, climbs to almost 9,000 feet and has 96 curves in the 9.6 miles.

## Yellowstone National Park Road Safety Audit

In the summer of FY 2005, WFLHD participated in a road safety audit (RSA) in Yellowstone National Park as part of an FHWA-sponsored effort to compile RSA case studies. The RSA team reviewed the early design stages of the Old Faithful interchange vicinity and also looked at the vehicular and pedestrian circulation within the Old Faithful complex.

The recommendations regarding how to deal with pedestrian and vehicular movements in the Old Faithful area were well received and reinforced some ideas under exploration in recent traffic studies and planning documents. The park even expressed some interest in conducting other RSAs at other locations in Yellowstone or with specific emphasis areas (such as signing).



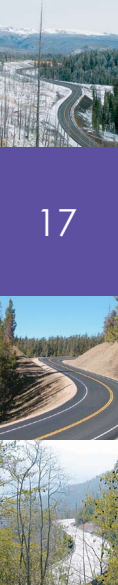
*Grand Loop Road (Dunraven Pass from Canyon Junction to Tower and from Canyon Junction to Fishing Bridge), Yellowstone National Park, Montana (National Park Service)*

### 2006 Design Excellence Awards Excellence Award Winner

For Highway Improvements on Publicly Owned Land

Grand Loop Road, Canyon to Tower Phase 1, Yellowstone National Park and WFLHD.

Constructed in the 1920s and 1930s, the Grand Loop Road is the primary public access to much of Yellowstone National Park. Reconstruction of the Canyon to Tower segment of the road improved the roadway to current Park Road Standards while protecting the historic and natural resources that define its character.





## 2006 Design Excellence Awards Honorable Mention (CFLHD)

For Highway Improvements on  
Publicly Owned Land:

Bear Lake Road, NPS, Rocky  
Mountain National Park, and CFLHD.

The first phase of construction on  
Bear Lake Road is an example  
of teamwork between NPS and  
FHWA to deliver an environmentally  
sensitive and aesthetically pleasing  
project that complies with sound  
engineering principles.



*Use of real stone facing blends the retaining walls with the terrain. Bear Lake Road, Rocky Mountain National Park, Colorado (National Park Service)*

Because participating in an RSA was a valuable experience, plans are under way to incorporate RSAs into the planning, design, construction, and in-service stages of WFLHD projects.

### Bear Lake Road, Phase 1 Reconstruction

The first phase of construction on Bear Lake Road exemplifies teamwork between the NPS and FHWA to deliver a world-class engineering and construction project. Highlights of the project and examples of effective teamwork include the following:

- Used environmental streamlining techniques to expedite project development.
- Used context-sensitive solutions (natural rock-faced retaining walls, colored concrete curb, steel-backed timber guardrail, and sculpted cut/fill slopes) throughout the project to protect natural resources, improve visitors' experience, and make the roadway aesthetically pleasing.
- Jointly developed technically sound, cost-effective solutions to problems.
- Used an innovative contracting method to expedite project construction and ensure selection of the best-qualified contractor.
- Used four funding sources, which required extensive communication, cooperation, and teamwork to make each construction package dovetail with the general direction of the project.

### New Pavement Analysis Equipment

WFLHD has acquired a falling weight deflectometer (FWD). This state-of-the-art equipment is used for pavement and subgrade analysis and has been made available to Federal Lands Highway Division offices by FHWA's Turner-Fairbanks Highway Research Center. The FWD is a nondestructive testing device used to complete structural testing for pavement rehabilitation, investigation, design, and research. WFLHD has historically used FWD testing by contractors to help with the design of overlay thicknesses. By owning this equipment, the cost for this type of testing will decrease and allow it to be used more often, not only for design purposes but also for construction needs.



*Relocation of parking areas increases safety and decreases environmental impacts. Bear Lake Road, Rocky Mountain National Park, Colorado (National Park Service)*

### FLH Safety Philosophy

The overall goal is to work cooperatively to integrate safety as a basic business principle in all activities jointly undertaken by the FLH and FLMAs.

### FLH Safety Philosophy

FLH developed the FLH Safety Philosophy for the three divisions to reach a consensus approach to incorporating safety improvements in all FLH projects. On numerous occasions our partners have discussed with FLH that we are doing things differently and requiring different standards across the Divisions. The overall goal is to work cooperatively to integrate safety as a basic business principle in all activities jointly undertaken by the FLH and FLMAs. The following efforts are being implemented to incorporate our safety goals:

- Collecting and reporting accurate, timely accident data.
- Implementing safety management systems and principles.
- Incorporating early consideration of safety in all highway programs and projects.

- Identifying and investigating impacted hazardous locations and features and establishing countermeasures and priorities to address the identified or potential hazards.
- Incorporating appropriate safety improvements consistent with the resource preservation goals of our FLH partners.
- Systematically upgrading roadside features and designing elements to meet current nationally accepted standards for crashworthiness.

### New Chapter for the Project Development and Design Manual

FLH developed and wrote a chapter for pavements in the Project Development and Design Manual (PDDM). This effort was groundbreaking and comprehensive because a chapter dedicated to the

pavement discipline did not exist in the previous version of the PDDM. This effort, which involved setting policy and standards for pavement engineering, was accomplished entirely in house through the expertise of the Pavement Functional Discipline Leader and his team.

### Field Testing the Pavement Management System

FLH, in conjunction with the NPS Denver Service Center, completed an extensive field appraisal of the PMS that the NPS is implementing. The field validation, which was completed in the NPS Northeast Region, involved reviewing the selected routes and treatment recommendations proposed by the PMS for a program of projects covering the next 10 years. As a result of this effort, several technical improvement initiatives were identified and are now under way.





# Technology Delivery: Major Accomplishments

## Blue Ridge Parkway Sample Guardwall

In FY 2006, the EFLHD completed the design, advertised, and awarded a contract for a project to construct two sample guardwalls to match the historic dry-stacked stone appearance along the Blue Ridge Parkway and meet National Cooperative Highway Research Program (NCHRP) 350 crashworthy standards. This project is an example of how EFLHD is implementing the FLH safety philosophy by balancing safety improvement with resource preservation. The existing dry-stacked stone guardwalls along the parkway were originally constructed at a height of 22 inches with irregular sizes and shapes of stones; it does not meet NCHRP 350 crashworthy standards. EFLHD partnered with the NPS to develop a crashworthy stone masonry guardwall that would match the historic characteristics

of the existing parkway guardwalls and, simultaneously, meet safety criteria.

## Project Management Software Implementation

EFLHD has implemented a project management software suite to streamline project scheduling, budgeting, communication, and financial reconciliation. The implementation of this software suite is in conjunction with a wider Division Initiative to improve project management stewardship and oversight responsibilities. In addition to using the software, EFLHD is retooling many of its internal practices, including reformatting the monthly project status cycle and meetings, electronically tracking procurement requests and correspondence, and reemphasizing the importance of project kickoff meetings to discuss scope and schedule issues face to face.

## Green Parking Area Alternatives

Eight roadside safety pulloff areas were constructed in the Great Smoky Mountains National Park in Tennessee to evaluate alternative methods for stabilizing grass shoulder areas using geosynthetic materials. Constructability issues and costs for the alternate methods were documented and performance monitoring continues.

## Electrical Resistivity Side Scanning for Unknown Foundations

FLMAs have many bridges in which drilling equipment cannot directly access the bridge foundations. Side scanning using an electrical resistivity meter is a new method used to map the subsurface materials at and beneath bridge foundations. This technology was used to determine subsurface materials beneath a pier at the



Placement of Geoweb—Green Parking Area Alternative, Great Smoky Mountains National Park, Tennessee (National Park Service)



Placement of Geoblock—Green Parking Area Alternative, Great Smoky Mountains National Park, Tennessee (National Park Service)



Pimmit Run Bridge on the George Washington Parkway in Virginia and a pier at the Minnehaha Creek Trail Bridge in Glen Echo Park in Maryland.

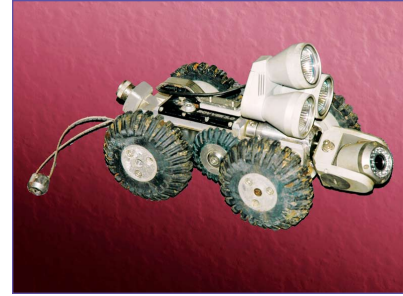
## Roadway Aesthetic Treatments Showcase

This newly designed, online version of the Roadway Aesthetic Treatments Photo Album Showcase incorporates new features and new sections. In the past, the FHWA published two versions of disk-based photo albums. This new comprehensive online version includes projects from previous versions as well as new projects and some additional chapters. Previously focusing on retaining walls, bridges, fences, barriers, Bioengineering, and slope treatments, the latest edition also includes two new sections devoted to pavements and landslide mitigation. The online Showcase, which is easy to update and to which new data is added frequently, is located at <http://gallery.company39.com/flh/>.

## Design Visualization

CFLHD took the lead in developing a Web-based application to educate users and to easily produce simple design visualization examples from proposed projects. The examples below are in the new guide posted at <http://www.efl.fhwa.dot.gov/manuals/dv/>.

Design Visualization, a focus technology for the FLH Technology Deployment Program, was demonstrated for the Going-to-the-Sun Road rehabilitation project in Glacier National Park. The purpose of the project is to promote the use of design visualization concepts and technologies within the FLH design workflow. Shown here are views of an interactive 3D model of a section of the road called the "Loop" displaying proposed improvements to transit stops, public parking, and pedestrian access to trails. Visualizations were produced at several different levels of complexity and sophistication to show the range of possible tools and techniques available.



ROVVER 600 portable robotic crawler is used for inspection of pipes and small places.

## Outreach and Marketing

WFLHD made presentations at conferences, conducted workshops, developed training materials, and published reports and technical briefs for NIEU (New, Innovative, Emerging, and Underutilized) technologies. These activities were requested throughout the fiscal year to address the needs of our internal customers and external partners in a timely manner.

This year, WFLHD showcased remote imaging technologies within the transportation-engineering environments. The response to the ROVVER 600 was overwhelming and resulted in



Design Visualization, Going-to-the-Sun Road, Glacier National Park, Montana (National Park Service)



Design Visualization, Going-to-the-Sun Road, Glacier National Park, Montana (National Park Service)



requests from 12 transportation public works entities located in eight States, including Hawaii.

### Flagging in the Work Zone

This safety video was targeted toward State DOT, county, and city road workers responsible for setting up and performing maintenance work within temporary work zones. The video emphasizes correct flagger practices for temporary work zones and the proper placement of advance warning signs as specified in Part 6 of the *Manual of Uniform Traffic Control Devices*.

### Ground Anchors and Soil Nails

The *Introduction to the Inspection of Ground Anchors and Soil Nails* and the *Inspection of Ground Anchors* continues WFLHD's effort to provide "just-in-time" training resources. The training material breaks away from traditional field training manuals and develops a highly portable and interactive training media. The technical content was a great joint effort

between ground anchor experts from academia, FHWA, private industry, and State DOTs.

### Safety Circuit Rider Program

FLH, in coordination with the Office of Safety, funded a 12-month pilot safety circuit rider position in the Northern Plains Tribal Technical Assistance Program office. The program provides technical support and training activities that would have a direct effect on reducing accidents on Indian lands. Several RSAs and training events have been provided throughout the Northwest Region; as a result, road safety counter measures have been implemented on various reservations.

### Pavement Performance Models

As part of developing a PMS for the NPS, EFLHD Pavement Section took the lead in developing pavement performance models and pavement maintenance/rehabilitation decisionmaking processes and administered pavement management computer

software development during FY 2005. The formulated performance models and the decisionmaking processes were validated and calibrated by conducting site reconnaissance of selected national parks that represent all environmental/geographical regions. The Pavement Section also applied emerging technologies, such as the rolling weight deflectometer and ground-penetrating radar at selected sites to collect more reliable pavement structure information to support development of a PMS. The result of this effort was the substantial completion of the NPS PMS.

In addition, the EFLHD steered the completion of calculating pavement maintenance and rehabilitation unit costs and updating as-built construction information from previous FLH projects in the PMS database. Using the developed software and the updated data, the EFLHD successfully completed the national pavement deferred maintenance cost calculation for the NPS as part of the NPS Facility Management System efforts.



Co-op students at Taylor Street Bridge Replacement, DC BH-3202(8), Washington, District of Columbia (District Department of Transportation)



Natchez Trace Parkway Project, TEA-21-NATR 3014, Madison County, Mississippi (National Park Service)



# Professional Development: Major Accomplishments

**M**ore than 3,000 individuals outside of FLH received professional development training from FLH in FY 2005 and FY 2006. In addition, division employees provided more than 10,500 hours of technical assistance to FLMAs, FHWA, State DOTs, counties, and the public.

## Leadership Development Academy

FLH made a significant investment in preparing for the future leadership of our agency through the FLH Leadership Development Academy (LDA), which is based on the concepts of increasing emotional intelligence and having “leaders train leaders.” The LDA was conducted at our EFLHD and WFLHD offices. In addition to developing future FHWA leaders, the academy, through the work

of teams, generates numerous improvement initiatives that benefit both the Division and FLH organizations.

## Introduction to FLH Environmental Processes Workshop

EFLHD hosted the Introduction to FLH Environmental Processes Workshop on August 2–4, 2005. The course outlined the decision-making process of NEPA as it is applied on FLH projects across the three FLH Divisions. The workshop focused on highlighting the steps of the project development, public involvement, and permitting processes particular to the FHWA, NPS, USDA Forest Service, and the FWS. Participants represented various disciplines, including environmental, construction, highway design, programs, and planning and included our partner agencies.

## FHWA Context-Sensitive Solutions Pilot

EFLHD led the effort for FLH in conjunction with FHWA’s National Highway Institute (NHI) in developing an introductory course entitled “Context-Sensitive Solutions.” The pilot course was held August 30 and September 1, 2005, in Arlington, VA. The session consisted of 30 enrollees from Virginia, Maryland, and the District of Columbia; State DOTs; NPS; and FHWA headquarters. Members of the course’s FHWA technical oversight panel also attended.

## Technical Assistance

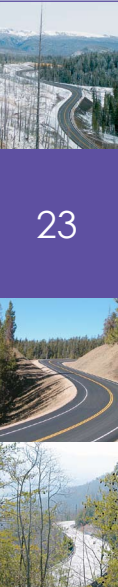
EFLHD provided training for state-of-the-art road design techniques and their application to reconstructing the Iraq infrastructure to visiting Iraqi engineers. The Iraqi engineers were invited to come to the United



*Class of 2005 Leadership Development Academy, Western Federal Lands Highway Division, Vancouver, Washington*



*Class of 2006 Leadership Development Academy, Eastern Federal Lands Highway Division, Sterling, Virginia*





States as part of America's efforts to help Iraq rebuild its damaged and aging infrastructure.

The FLH Bridge office provided technical assistance to FHWA and the Massachusetts Division Office through its active participation on the FHWA Boston Artery Failure Investigative Teams. EFLHD served on the FHWA team that worked collaboratively with the Massachusetts Highway Department to determine the conditions under which the Interstate 90 connector could be reopened.

EFLHD Construction office also served on the team that investigated and determined the level of construction quality control/quality assurance (QC/QA) practiced during the project, the type of load testing conducted on the tunnel panel's anchor system, and the documentation of the testing.

### Awards and Excellence

Team members earned several outstanding awards throughout

FY 2005, including FHWA's Award of Engineering Excellence, Environmental and Engineering Geophysics Society, Institutional Award for industry support, and the Secretary's Team Award for ERFO work on the Blue Ridge Parkway.

### Federal Lands 101

EFLHD led the effort for FLH in conjunction with the FHWA's NHI

to develop an introductory course entitled Federal Lands 101. Full-scale delivery of this training course began in FY 2005. Seven courses were presented, six primarily for FLH employees (EFLHD, 3; CFLHD, 2; WFLHD, 1) for approximately 150 people. In addition, one course was presented to the USDA Forest Service, at its request, for 13 participants. The course is now available through NHI.



*Yasir Musa and Khoa Nguyen of the FLH Bridge Office reviewing documents for FHWA Boston Artery Failure Investigative Team*

# Organizational Excellence: Major Accomplishments

FLH recognizes that successful partnerships with its FLMA and Tribal government customers are possible only when these customers trust that FLH is doing its best to meet their specific needs and project concerns. FLH is continuously soliciting customer feedback on its performance, specifically on its project development techniques and the quality of the completed project.

To measure project development customer satisfaction, FLH collects input from its customers throughout the year in the form of customer satisfaction surveys (after the development stage and after final project completion) in FLH's management practices, project development elements, technical design elements, and final design and requests an overall rating. These surveys are sent out to each customer upon completion of that portion of the project.

Figure 2 shows that project development satisfaction is below the target of 85 percent in FY 2006 and the fluctuation of ratings from year to year is within a small range.

After a project is completed, FLH collects customer satisfaction surveys on FLH's management practices, completed project elements, completed project aesthetics, conditions during construction, and environmental

sensitivity and requests an overall rating. For both surveys, a rating of more than 80 percent is considered excellent. Figure 3 shows that completed project satisfaction was slightly below the target rating of 85 percent in FY 2006, and the fluctuation of ratings from year to year was within a small range. No significant trend is exhibited by the data from either survey.

## Diversity

The EFLHD held activities to celebrate monthly observances for Black History Month in February and Women's History Month in March via brown bag lunch discussions. In addition, EFLHD organized a tour of the Smithsonian Institute's "Sikhs: Legacy of the Punjab" exhibition with hosts Satvinder Sandhu (FHWA) and

Figure 2. Project Development Survey

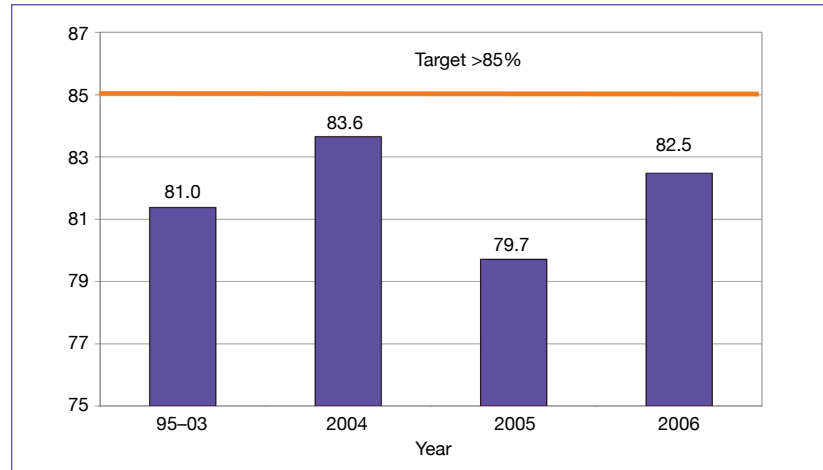
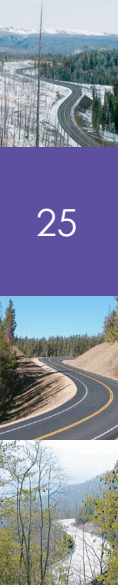
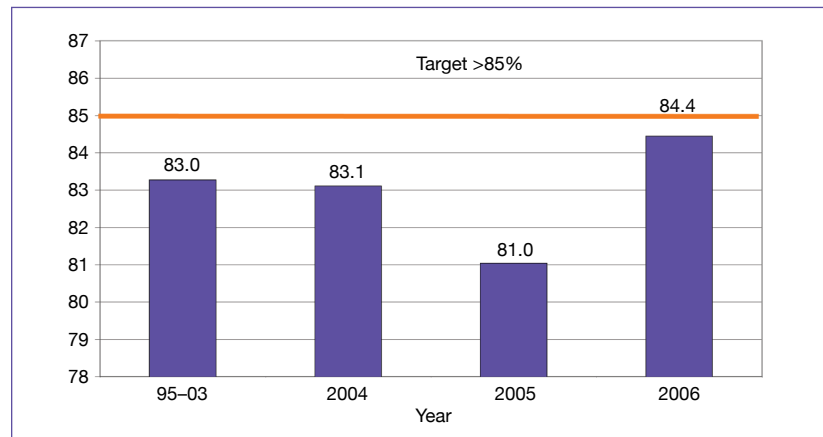


Figure 3. Completed Project Survey



Raminder Bindra (Smithsonian Institute). In June, EFLHD held its first-ever “Juneteenth Jubilee,” a commemoration celebration for the ending of slavery in the United States.

During our Diversity Day celebration, more than 130 employees had a chance to learn and have fun with diversity-centered trivia via EFLHD’s Diversity Jeopardy game. In addition, more than 200 employees received training on the importance of Feedback, Assistance, Inclusion, and Respect (FAIR) with the “Just Be FAIR” training.

### Initiative to Improve (I-2-I) Minitraining

The EFLHD Highway Design (HD) office implemented minitraining sessions to help designers, engineers, technicians, or other staff around the Division with a variety of engineering or FLH-related subjects. Training is provided to learn basic concepts that our employees either uniformly or consistently misinterpret or apply, or for procedures that are long

forgotten or dismissed. This training is further complicated by the reality that some of the previous courses for highway engineering degrees are either no longer mandatory nor offered but still necessary for the work we do. Some basics of highway engineering are unfamiliar to many of our newer hires.

### Project Management Cost Database

CFLHD developed a project-level preliminary engineering cost database that produces monthly cost reports for project budget controls. It is based on the most current DOT accounting system (Delphi) data and includes sufficiently accurate salary cost estimates from the project scheduler to provide timely salary costs until Delphi is developed to produce this information.

### Materials Quality Specifications and Acceptance

A computer program, PWL (percent within limits)-Risk, has been

developed through the joint efforts of WFLHD, the Atlanta Resource Center, and the Washington Office of Pavement Technology. PWL-Risk enables engineers to analyze existing acceptance plans for risk. The program also provides a means for developing valid statistical acceptance plans in which the risks to the contractor and the agency are appropriately addressed.

Furthermore, a 1 ½-day training course was developed in the use of the program. The course, “PWL Specifications: A Risk Analysis Approach,” provides an overview of the pitfalls associated with the development of statistical acceptance plans and introduces the use of the PWL-Risk software. It is an advanced level training course aimed at individuals having a working knowledge of statistics and a basic knowledge of construction activities, including materials sampling and testing.

### Project Management-Based Matrix Organization

The WFLHD Project Development Branch has reorganized as a Project Management (PM) Based Matrix Organization. The branch implemented the 2003 Project Management Study. This transformation includes reorganization, as well as the revamping of roles, responsibilities, and processes. The Change Management Team formed in FY 2005; employees were solicited to provide ideas and feedback. This work led to the “Flip of the Switch” for the new PM Based Matrix



*Natchez Trace Parkway Project, Madison County, Mississippi (National Park Service)*



Organization on January 17, 2006, in which the PM Team, the HD Team, and the Environment Team were formed.

Subsequently, the “Project Management Based Matrix Organization—Transformation Implementation Report was completed. This report included action strategies, such as a permanent QC/QA Team to provide QC/QA reviews and help develop an integrated Officewide QC/QA process.

### Design and Compliance Integration Practices

A team consisting of members from the Intermountain Region, Denver Service Center, CFLHD, and WFLHD formed to improve our combined NPS and FLH project delivery practices. The team focused on ensuring that project design and environmental compliance are integrated and completed in a timely fashion. The following objectives were identified:

- Help all team members on a project understand the processes and steps needed to deliver a PRP Program project to avoid untimely delays and confusion.
- Advance NEPA decisions earlier in the entire project development process.
- Provide a framework for roles and responsibilities.

A 3R (repair, rehabilitate and resurface of existing road) template and table were developed and finalized in response to the conference.

### Project Management Certification

FLH continues to reinforce the project management culture in its Divisions. In fiscal year 2006, FLH supported 12 engineers to become certified by the Project Management Institute as project management professionals. The Project Management Institute is a globally recognized organization that sets the standard for the industry. A professional skill level in the field of project management is needed to continue to provide our partners the services they are accustomed to obtaining with FLH. Certification helps establish this creditable project management workforce within FLH.



Blue Ridge Parkway, ERFO Project, McDowell County, North Carolina (National Park Service)



## Safe, Accountable, Flexible, Efficient Transportation Equity Act—A Legacy for Users Initiatives

Following the passage of the new surface transportation authorization Act—SAFETEA-LU—the FLH embarked on a number of initiatives including, but not limited to, the following:

- In partnership with the USDA Forest Service and Bureau of Land Management (BLM), we created a new Web-based training module and resource library. The video is targeted for USDA Forest Service and BLM field staff and provides presentations on numerous different FLH and Federal-aid programs of interest to our partners.
- In partnership with FWS, we convened a FWS National Training Conference in Shepherdstown, WV, attended by more than 200 representatives from the FWS, FHWA, NPS, USDA Forest Service, U.S. Congress, and other public and private organizations. The conference succeeded in its goal to educate refuge managers on transportation programs and, conversely, to educate program managers about the needs of the FWS field staff.

- The development and distribution of guidance and educational information to our stakeholders; e.g., launched a new Web site (below) for internal and external use (<http://www.fhwa.dot.gov/flh/safetealu.htm>).

## WFL Sponsors Contractor Conference

On March 30, 2006, a group of 68 highway construction industry contractors, local AGC representatives, interested parties, and representatives of Western Federal Lands took the opportunity to meet in Spokane, Washington. The goal of the conference was to improve the project delivery processes by reaching out to the

highway construction industry, providing relevant information, and receiving feedback. The conference topics included a historical perspective on highway construction, what context-sensitive solutions design means to the contractor, updates and explanations of the contracting processes, updates on Project Delivery (tentative future projects, the new highway bill and its impacts), contractor partner award, updates on materials, transition to Superpave, changes to pavement smoothness specifications, contractor quality control specification, and avoiding cost and time delays related to environmental and cultural clearances.



*Belton Bridge across the Middle Fork of the Flathead River, Glacier National Park, Flathead County, Montana (National Park Service)*



# Acronyms

BIA	Bureau of Indian Affairs
BLM	Bureau of Land Management
CFLHD	Central Federal Lands Highway Division
CFO	chief financial officer
COOP	Continuity of Operations
DAR	Defense Access Road Program
DoD	Department of Defense
DOT	Department of Transportation
EA	environmental assessment
EFLHD	Eastern Federal Lands Highway Division
ERFO	Emergency Relief for Federally Owned Roads
FAIR	Feedback, Assistance, Inclusion, and Respect
FH	Forest Highways Program
FHWA	Federal Highway Administration
FIRE	Financial Integrity Review and Evaluation
FLH	Office of Federal Lands Highway
FLH HQ	Office of Federal Lands Highway headquarters
FLHP	Federal Lands Highway Program
FLMA	Federal Land Management Agency
FWD	falling weight deflectometer
FWS	U.S. Fish and Wildlife Service
HD	Highway Design
I-2-I	Initiative to Improve
IRR	Indian Reservation Roads Program
LDA	Leadership Development Academy
MBS	Master Budget Sheet
MOA	memorandum of agreement
NCHRP	National Cooperative Highway Research Program
NEPA	National Environmental Policy Act
NHI	National Highway Institute
NPS	National Park Service
O&M	operation and maintenance (U.S. Air Force)
PDDM	Project Development and Design Manual
PLH	Public Lands Highways Program



PLHD	Public Lands Highways Discretionary Program
PM	project management
PMS	Pavement Management System
PRP	Park Roads and Parkways Program
QC/QA	quality control/quality assurance
RR	Refuge Roads Program
RSA	road safety audit
SAFETEA-LU	Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users
TEA-21	Transportation Equity Act for the 21 <sup>st</sup> Century
USDA Forest Service	U.S. Department of Agriculture, Forest Service
WFLHD	Western Federal Lands Highway Division

