



The Federal Lands Highway Program

2013

The Year in Review



From the desk of the Associate Administrator

As FHWA Associate Administrator for Federal Lands, the 2013 fiscal year found me with responsibility for 676 employees and the \$1 billion Federal Lands Highway Program we deliver with our partners. As we reflect on all our accomplishments this past year, I have a sense of awe as I hope all Federal Lands employees do, over all the lives we've touched through the transportation improvements made across the country. It was the first year of a transformational bill that held many changes to the way we've done business for decades. There were rules, and guidelines to be written and regulations and policies to put into place all while implementing them in the same place and time. Our workforce remained open minded and collaborative while looking for ways to continuously improve what we do and how we do it and although incredibly challenging and often frustrating, looking back it's easy to see we opened new doors, met new partners and found new reasons to be proud!



*Joyce A. Curtis, Associate Administrator for
Office of Federal Lands Highway*



Associate Administrator Joyce Curtis, prepares to board a float plane in Ketchikan, Alaska for the flight to Craig on Prince of Wales Island. While there, Joyce met with Tribal leaders and reviewed Tribal projects in Craig, Klawock and Kassan. A meeting was also held with representatives from Tongass National Forest and WFL to review two large reconstruction projects at the north end of the island. — July 2013

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Special thanks to the Federal Lands employees responsible for taking the majority of the beautiful photographs contained in this report.



U.S. Department of Transportation
Federal Highway Administration
Office of Federal Lands Highway

Front Cover: General's Highway, Sequoia and Kings Canyon National Park, California

Back Cover: Stevens Canyon Road, Reflection Lakes, Mount Ranier National Park, Washington



Vision

To be the **partner** of choice to Federal Lands Management Agencies and Tribes. We will implement **innovative** transportation solutions that provide **access** to and through public lands.

Mission

Improving transportation to and within Federal and Tribal Lands by **providing** technical services to the highway/transportation community, as well as building **accessible** and **scenic** roads that ensure the many national treasures, within our Federal Lands, can be enjoyed by all.

Denali National Park, Alaska

Our Role

The Federal Highway Administration (FHWA) Federal Lands Highway Program (FLHP) was established to promote effective, efficient, and reliable administration for a coordinated program of public roads and bridges; to protect and enhance our Nation's natural resources; and to provide needed transportation access for Native Americans. The Federal Government, through various Federal Land Management Agencies (FLMAs): the **National Park Service (NPS)**; **USDA Forest Service (Forest Service)**; **U.S. Fish and Wildlife Service (USFWS)**; **Bureau of Indian Affairs (BIA) and Tribal Governments**; **Bureau of Land Management (BLM)**; **Department of Defense (DOD)**; **U.S. Army Corps of Engineers (USACE)**; and **Bureau of Reclamation (BOR)**, have ownership responsibilities for more than 30% of the Nation's land. This responsibility covers more than 500,000 miles of public and administrative roads on federal land across the U.S. and its island territories.

The Office of Federal Lands Highway (FLH) is relied upon by these partners to solve and manage unique challenges that are wide-ranging in environment, geography and complexity, through engineering solutions that are sensitive to the context of the land. We are often confronted by unique terrain, challenging work restrictions, and uncompromising deadlines. Whether it is building highly visible and political projects, constructing roads that are national landmarks, or providing critical access on low-volume transportation facilities, FLH is at the forefront of consistently delivering distinct and sound engineering projects.

FLH consists of a Headquarters Office (HFL) in Washington, DC and 3 field Division Offices: Eastern Federal Lands (EFL) in Sterling, Virginia; Central Federal Lands (CFL) in Lakewood, Colorado; and Western Federal Lands (WFL) in Vancouver, Washington.

Federal Lands' role is categorized into two areas: Program Administration and Project Delivery. Program Administration addresses stewardship and oversight for our resources; as well as management and oversight of the program including responsibility for the Highway Trust Fund, totaling over \$1 billion per year. Project Delivery is the development of projects and begins at preliminary design and continues through the construction of the project. Within those areas we also focus on Innovation & Technology Deployment and Professional Development. All of this comes together to support the delivery of the program.

FLH is uniquely enabled and entrusted to administer many different types of funds to facilitate transportation improvements for our many Partners.

Now in its 31st year, the program and our role continue to expand and now includes more Federal partners and road networks. FLH expertise and credibility has grown to deliver a wider variety of transportation projects and improvements nationwide.



Tarryall Creek Road, Colorado

The Program

The Moving Ahead for Progress in the 21st Century Act, or MAP-21, is the first multi-year highway authorization enacted since 2005. It represents a milestone for the U.S. economy and the Nation's surface transportation program.

FLH entered a new era with the program changes in MAP-21. This legislation introduced new partners and required the development of new guidance and delivery mechanisms. MAP-21 moves us toward a performance based program with increased communication with our State DOTs and FLMA partners.

The Federal Lands Access Program (FLAP)

The Federal Lands Access Program (FLAP), authorized at \$250M, funds projects that benefit transportation facilities such as public highways, roads, bridges, trails, or transit systems that are located on, are adjacent to, or provide access to Federal lands for which title or maintenance responsibility is vested in a State, county, town, township, tribal, municipal, or local government.

Programming decisions for FLAP funds are determined by Programming Decision Committees (PDC's) comprised of representatives from FHWA, a State DOT and of an appropriate political subdivision of the State. The committee is required to cooperate with applicable Federal agencies within the State prior to any joint discussion or final programming decision with preference given to projects that provide access to, are adjacent to, or are located within high-use Federal recreation sites or Federal economic generators, as identified by the FLMAs.

Creation of the PDC's enhanced our interaction with Federal-aid Division Offices, State DOT's, Local Governments, and FLMA's as we identified and selected eligible projects. This program also, for the first time on Federal Lands facilities, required a funding match. This concept required a lot of facilitation and conversations with state and local owners. Initially we implemented the program while writing the rules and developing guidance across our three Divisions.

We successfully awarded the first construction contract in the country under the new FLAP program. The project, Sage Creek Road in Wyoming, was awarded in January 2013, in the amount of \$14.50M and will improve approximately 27 miles of road. This segment completes the entire route which ultimately improved 43 miles of road. The project was accomplished with a loan/borrow from California FLAP to Wyoming FLAP in the amount of \$4.4 million. The purpose of the project was to remedy existing roadway design, surface and drainage deficiencies to reduce maintenance costs, provide safe access, and promote recreation. Utilizing flexibilities established under MAP-21 and leveraging strong partnerships, everything came together in a structured, organized and systematic manner. This project also



A glimpse of the beauty of the area — Aspen Alley, a gravel road near the Sierra Madre Mountains leading into Medicine Bow National Forest. The Sage Creek Road project provides access to this pristine site.



Sage Creek Road, Medicine Bow National Forest, Carbon County, Wyoming



demonstrated our commitment as good stewards of the limited resources entrusted to us.

Federal Lands Transportation Program (FLTP)

The Federal Lands Transportation Program (FLTP), authorized at \$300M, funds projects that improve access within Federal lands maintained by the BLM, the USACE, the USFWS, the Forest Service, and the NPS.

The program covers program administration, transportation planning, construction, and reconstruction of Federal lands transportation facilities. Other aspects of the program include: research, preventive maintenance, engineering, rehabilitation, restoration, adjacent vehicular parking areas;

The Program

acquisition of necessary scenic easements and scenic or historic sites with provisions for pedestrians and bicycles. Environmental mitigation to improve public safety and reduce vehicle-caused wildlife mortality while maintaining habitat connectivity is also a focus. The program is intended to mitigate the damage to wildlife, aquatic organism passage, habitat, and ecosystem connectivity, including the costs of constructing, maintaining, replacing, or removing culverts and bridges, as appropriate; construction and reconstruction of roadside rest areas; congestion mitigation; and other appropriate public road facilities as determined by the Secretary.

The FLTP complements the FLAP. Where the Access Program provides funds for State and local roads that access the Federal estate, the FLTP focuses on the transportation infrastructure owned and maintained by FLMA's.

The first NPS project awarded in the nation under the FLTP is located in the southern part of Joshua Tree National Park. Approximately 15 miles from Indio, California, the Pinto Basin Road Project includes 11 miles of 3R work and 1 mile of 4R work, plus flood damage repairs and has an estimated construction cost of \$7.4M "A+B" bidding was used for this project and the contractor bid the minimum number of 160 days. Construction was completed in July and celebrated by CFL and the NPS with a ribbon cutting ceremony on Monday, July 15, 2013. The contract was completed ahead of schedule and under budget.



*Pinto Basin Road Project,
Joshua Tree National
Park, California*

Building Coalitions

MAP-21

By far the largest authorization in FHWA history, this 2-year transportation investment resulted in significant improvements on Federal and Tribal lands.

52 PDC's

Programming Decision Committees Established Nationwide (including District of Columbia & Puerto Rico)

"The strategy Western Federal Lands communicated initially was clear and helpful and assisted us with understanding the complexity of the new Federal Lands Access Program and how to best navigate the processes necessary to build collaborative relationships with partners throughout Montana."

— Regional Transportation Coordinator, U.S. Fish and Wildlife Service



Foothills Parkway, Bridge 2

Great Smoky Mountains National Park, Tennessee
Recipient of the 2013 American Segmental Bridge Institute (ASBI) Award of Excellence and named Roads & Bridges Magazine, Number 2 of the 2013 Top 10 Bridges

The Foothills Parkway was authorized by Congress in 1944 to provide beautiful vistas of the Great Smoky Mountains (GRSM) National Park from the Tennessee border. The “Missing Link” of the Foothills Parkway is a particularly rugged stretch traversing steep mountain sides. The construction of Foothills Bridge Two was instrumental to completing the Missing Link in that it crosses the most difficult terrain and is needed to access the construction of the Missing Link.

This project was a Design/Build contract. The team developed an innovative proposal to construct a steel temporary work trestle that would provide access to the entire bridge site with a minimum amount of ground disturbance. The trestle was designed to allow top-down construction of the substructure foundations, and then be reconfigured for setting the precast pier and superstructure segments. A specialized gantry crane, the “Segment Walker” was designed specifically for this project. It was fabricated, shop assembled, disassembled, shipped to the site, and then reassembled on-site. The Segment Walker included structural, mechanical, electrical, and hydraulic components.

Modern construction methods allowed this bridge to be constructed while “lying lightly on the land”, ensuring a product combining beauty and function to the great satisfaction of the NPS. The new bridge has an expected design life of 100 years.



GRSM National Park Superintendant and EFL Division Engineer holding ASBI award flanked from left to right by NPS-Denver Service Center Project Manager, GRSM Chief of Facilities Management, EFL Director of Project Delivery and EFL Construction Operations Engineer.



Point Bonita Lighthouse
Golden Gate National Recreational Area, California

Recipient of the 2013 American Council of Engineering Companies of Colorado ACEC/CO Engineering Excellence Award

The Point Bonita Lighthouse once guided ships enroute to California's gold. More than 150 years later, the lighthouse still operates, doubling as a historic attraction at Golden Gate National Recreational Area. FLH worked closely with the contractor and the NPS to create a safe and more accessible experience for those visiting this historic site. The design team employed an innovative combination of unique materials to successfully deliver a bridge to withstand the harsh marine setting and combat corrosion while closely replicating the historic intent of the original suspension bridge. The bridge is thought to be the only tropical hardwood bridge in the world to incorporate a Noxyde coating system which extends the life of the structure. The new structure reuses the existing bridge foundations, thus reducing costs and minimizing impacts to adjacent historic radio tower supports.

With such limited site access, the construction team had to be creative and resort back to "old school" techniques and tools to complete the work, as bringing in heavy equipment was not at all feasible.

By incorporating a construction management general contractor (CMGC) process to collaborate on a constructible and cost-effective solution, the team completed the project on schedule and on budget while maintaining 24/7 U.S. Coast Guard access to the lighthouse and protecting the habitats of endangered wildlife in the area. As beautiful as its predecessor, the new Point Bonita Bridge is safer and designed for a longer lifespan.

Design/Build

CONTEXT SENSITIVITY

"A perfect blend of functionality and context sensitive construction. The bridge is a part of and compliment to the surrounding terrain." — ASBI Jury, Foothills Parkway, Bridge 2

CMGC Contracting

ENDANGERED SPECIES

An ATV shuttle system was developed that stuck to the trail's original footprint as required by the contract, engineering a solution that eliminated the need for expensive helicopter transport minimizing impact on the endangered harbor seals that inhabit the rocks below the site. — Point Bonita Lighthouse

Tribal Transportation Program (TTP)

The Tribal Transportation Program (TTP) provides access to basic community services to enhance the quality of life in Indian country. The TTP replaces the former Indian Reservation Roads (IRR) program, funded at \$450M, the program involves 567 federally recognized tribal governments.

Federal Lands' role involves the stewardship and oversight of funds transferred to tribal governments and the Bureau of Indian Affairs (BIA).

During 2013, FLH Leadership met with tribes in Arizona, New Mexico, North Carolina, and Alaska to listen to their concerns and issues. Progressive thinking and technical assistance to the tribes caused the BIA to add a government to government process to their portfolio, increasing the amount of funds that were actually obligated. This change may reduce the number of tribes coming to the FHWA umbrella, but it is enhancing the effectiveness of this program and increasing the amount of funds obligated during the Fiscal Year, a win for us and the tribes.



Before — North McCurdy Road, Ohkay Owingeh Pueblo (San Juan Pueblo) Indian Reservation, Espanola, New Mexico. A vital connection for the community, this road was subject to high accident rates and desperately in need of maintenance and safety improvements.



After — Ohkay Owingeh Public Works Director accompanies FHWA personnel during Final Inspection tour of the new all-weather surfaced road which now includes sidewalk, curb, gutter and solar lighting.



FLH Associate Administrator (4th from left) poses with FLH TTP staff, and the Manley Village Council transportation staff alongside the Village Express bus.

Minto Alaska is a small native village made up of Athabaskan Indians, unique because it is one of the few with road access. Having road access helps keep the cost of living down compared to other villages in Alaska. Although by comparison it is still much higher than most places across the US!

While locals are expected to use the shuttle for shopping and medical appointments the hope is, that tourists will also use the service for the approximately four-hour road trip between Minto, Manley Hot Springs and Fairbanks. The shuttle makes two roundtrip journeys a week to Fairbanks, each with overnight stays, with a stop in Minto along the way.

The FLH Associate Administrator traveled with a group of TTP employees to several remote Alaska Native Villages this year. Departing from Fairbanks, and arriving at the Native Village of Minto the group met with Tribal leadership and then attended a public meeting in honor of the Tribe's partnership with FHWA.

Following a presentation by the tribal Chief on the history of Minto, the Associate Administrator spoke briefly to the community, expressing appreciation for the Tribe taking on the leadership and direction for the TTP in that area.

Tribal Transportation Program (TTP)

The Saint Michael Roadway Improvement project fully reconstructed nearly all streets in the remote tribal village of Saint Michael on the Bering Sea. The project added a new street for access to housing sites, improved drainage, provided a dust free asphalt surface treatment, and constructed or reconstructed village boardwalks, a vital part of the infrastructure. New boardwalks were constructed on helical piers across the tundra to provide better pedestrian access, while preserving the wetland and permafrost. The Saint Michael Tribal Council expressed appreciation for how this project greatly improved the quality of life for this community.



17 Mile Road, Wyoming, was built almost entirely by tribal workers of the Shoshone and Arapahoe Tribes, who were paid more than \$3.7 million in wages for their successful efforts at improving “the most important road on the Wind River Reservation.” Prior to being rebuilt, 17 Mile Road was historically called one of the most dangerous roadways in Wyoming. The average fatality rate was twice the national average. Project completion was celebrated with a ribbon cutting and “cedaring”.



CFL Division Engineer with Consultant Project Engineer, CFL Project Manager, and Shoshone/Arapahoe Tribal Transportation Planner at ribbon cutting.

Traditional Blessing Songs were sung by the Eagle Drum of Arapahoe and the Fox Trail Singers of Fort Washakie and Tribal elders perform a “cedaring” ceremony along 17 Mile Road. In tribes across North America, “cedaring” or “smudging” ceremonies honor the dead or celebrate a new beginning. The rite includes the burning of cedar or sweetgrass during song and prayer. The ribbon-cutting ceremony included honoring families who had lost loved ones on 17 Mile Road.

“FHWA is the hope of the Alaskan natives.” — owner of tribal transportation service

116 Tribes

total number of Tribes who have signed direct funding agreements with FHWA

97.4%

TTP 2013 Funds Obligated

Enhanced stewardship and oversight leads to increase of expended percentage of Tribal Program funds to almost 98%

Significant increase over the 55% in past years.

Tribal Transportation Program (TTP)

Training of Tribal Villagers in Construction Skills for Transportation Projects in Remote Alaska Villages —

Tribal Villagers are constructing the Eek Community Street Improvements project (mostly boardwalk construction), in their remote Alaskan village. Supported by the TTP, a group completed training in welding. Other workers, including those from surrounding villages, have been trained in traffic control and other construction related skills. The Association of Village Council Presidents (AVCP), Tribal Consortium hire these trained welders and other skilled workers upon completion of their courses for future TTP projects.

The AVCP is a non-profit tribal organization based in Bethel, Alaska. Bethel, the largest town in Southwest Alaska, is the regional hub for its surrounding 56 federally recognized tribes, all of whom are members of AVCP. AVCP's member tribes reside in small isolated villages scattered throughout the Yukon-Kuskokwim Delta in an area that is approximately 59,000 square miles and roughly the size of the State of Oregon. The villages are not connected to one another by road, nor to the rest of Alaska. English is a second language for many tribal members who continue to practice a centuries old hunting, fishing and gathering way of life, congregating at home village sites in the winter and moving to fish camps in the summer.

Local hiring not only provides jobs, but provides cost savings for the projects. For instance, for boardwalk steel railing and equipment trailers the cost of shipping steel to this remote village is reduced, because these items are being assembled on site by the trained welders.



Trainees with AVCP Transportation Director (3rd from left)

Trainees construct an equipment trailer

CFL carried out a two day outreach/training in Colorado with the Navajo Nation at which the TTP Team and CFL shared FLH philosophy and standards of practice on Project Management and Program Delivery. This outreach included a tour of the materials lab, presentations on Every Day Counts (EDC) topics and it also resulted in a signed agreement between FLH and the Navajo Nation to carry out design and construction projects for the Nation while also providing some Peer-to-Peer education activities.



Tevyraq Railway Tram, 38 miles NW of Bethel, Alaska

Tribal Transportation Program (TTP)

The Tevraq Tram project was presented to the Denali Commission for consideration by the Association of Village Council Presidents, as a transportation project of high importance to the villages of southwest Alaska. This route from interior Alaska to the Baird Inlet has been used for subsistence activities for many years, even before the tram portage structure was built by the BLM in the 1950's. The project consisted of removing the existing tram railway structure (portage) and constructing a new tram railway with boat ramps, winches, and a rail cart for portaging boats across the tundra between two lakes (Takslesluk and Kavigualik) in Tevraq. The villagers had been maintaining the existing structure, but it was in dire need of replacement.

This short connection between the two lakes cuts out 175 miles of open water travel for many villagers in southwestern Alaska. The Alaska Native coastal villages of Newtok, Tununak, Toksook Bay, and Nightmute will be able to use a series of inlets, lakes, sloughs and rivers to access Bethel instead of boating through the Bering Sea and Kuskokwim River. This multimodal portage also enables inland villagers to gain access to traditional hunting and fishing grounds and to safely visit relatives.

Working in cooperation with the Alaska Native Villages of Nunapitchuk, Kasigluk and Atmautlauk this unique project was completed on time and under budget.



ECONOMIC DEVELOPMENT

Training

WORKFORCE

100% Tribal

TTP Program

FLH approved 61 NEPA decisions:

- 47 Categorical Exclusions (CE's) (77%)
- 12 Reevaluations (20%)
- 2 Environmental Assessments/
Findings of No Significant Impact (3%)
- no Environmental Impact
Statements/Records of Decision

Streamlined NEPA process for TTP

Project Delivery

Completed in one season — Final Segment Taylor River Road, Gunnison National Forest, Gunnison County, Colorado

The first MAP-21 FLAP project for the state of Colorado. Agreement on road closure saved over 20% in anticipated construction costs on the project.



Collaboration and communication are the keys — Stevens Canyon Road, Mount Rainier National Park, Washington

The project was designed and developed to provide the utmost protection to the areas natural resources and consisted of significant subgrade improvements, drainage improvements, rehabilitation of historical stone masonry, Mechanically Stabilized Earth and Reinforced Soil Slope Walls with extensive milling of the existing pavement surface and overlay.

This was the first road reconstruction project in several years close to the center of the park, consequently resource protection was the partners primary focus. The addition of a new primary liaison, well rounded to both, resource issues and the projects technical and contractual issues insured the projects success. Through daily visits and weekly meetings, issues and concerns, resource, technical and contractual, were coordinated and brought to the attention of the right individuals and problems were resolved.



Project Delivery

Highlighting Partnership — Blennerhassett Island Historical State Park, Wood County, West Virginia

West Virginia DOT, Division of Highways (DOH); the West Virginia Department of Commerce Division of Natural Resources (DNR), the Army, USACE, and FLH collaborated on the environmental planning, design, and construction of this project to construct dikes and restore the Island river bank.

Through this partnership, recreational use of Blennerhassett Island, as well as the conservation of the State Park's natural and cultural resources were recovered and enhanced.

An innovative method of bank stabilization was used that has been successful for Refuges on other islands along the Ohio River providing necessary island bank protection while using less stone and improving the island riparian corridor and aquatic habitats.



PROGRAM DELIVERY SUCCESS

99.75%

of Recovery Act Funds Expended

93.5%

of \$1 Billion Program Expended

105

Bridges Repaired or Replaced

1,328

Lane Miles of Roadway Improved

Project Delivery



Kings River Bridge, Sequoia National Park, California



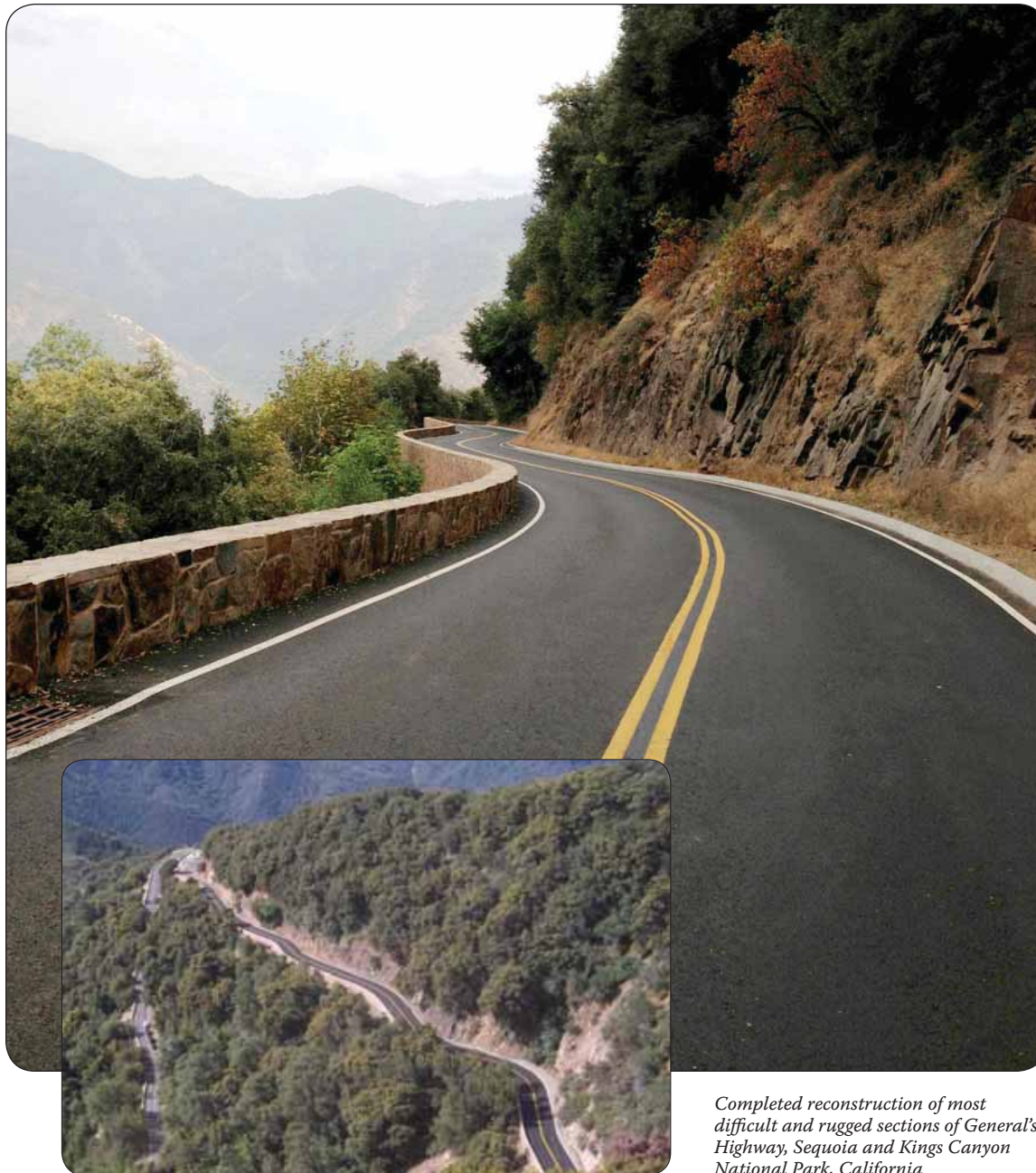
Lees Ferry, Glen Canyon National Recreation Area, Arizona — near the northernmost end of Grand Canyon National Park



Views of stonework on Kings River Bridge, Sequoia National Park, California



Tarryall Creek Road, Colorado



Completed reconstruction of most difficult and rugged sections of General's Highway, Sequoia and Kings Canyon National Park, California

IMPROVING EFFICIENCY

EEBACS System

Engineer's Estimate, Bidding, Award, and Construction System — for estimation, solicitation/award, and contract administration of FLH's highway/bridge construction projects.

Web-based system tracks project cost from inception through construction and final acceptance.

3 MAJOR COMPONENTS:

**Design
Acquisition
Construction**

**STREAMLINING PROJECT
WORKFLOW**

Project Delivery

Great Outdoors Initiative — North Carolina Route 12 (NC 12), Cape Hatteras National Seashore, Dare County, North Carolina

The project constructed five-foot wide paved shoulders as a safety enhancement for bicyclists, and pedestrians while also providing a connection between adjacent sections of NC 12 north and south of the project.



Fragile Marine Environment — Trinidad Pier, Trinidad Bay, California

The Trinidad Pier reconstruction project corrected structural deficiencies while improving water quality conditions and providing additional habitat for protected species.



High Visitation Historic Area — Golden Gate National Recreation Area, Marin County, California

The Marin Headlands Project included improvements to historic roads to help promote safe public transit, pedestrian, and bicycle travel while preserving the historic character of this environmentally sensitive heavily traveled area. Work included construction of new parking areas and removal of an existing one to restore four acres of wetlands. Safety EdgeSM was utilized on all paved project roads. Widening of roads, including one over the East Bunker Road tunnel, a highly seismic area, was required to accommodate the biking population. Widening over the tunnel was achieved by spanning it with a concrete slab, supported by micropile foundations, with a Mechanically Stabilized Earth wall, adding no additional loading to the historic tunnel.



Multiuse Trail designed to preserve the scenic cultural landscape of the parkway while providing recreational opportunity for the park's 6 million visitors. Over 500,000 people live in the adjacent Jackson, Mississippi Metropolitan Area. The trail is graded for wheelchair users and is heavily used by visitors and resident. — Natchez Trace Parkway, Ridgeland, Mississippi.



Restoring Stream Function & Fish Passage, Benton Lake, Manistee Forest, Michigan



Bridge Replacement Project — South Fork Smith River Bridge, California

RESTORATION INITIATIVE

THE GREAT LAKES

Hold 21% of the earth's surface freshwater

Contain 84% of North America's surface freshwater

6 Quadrillion gallons of water!

Source of drinking water for more than 25 million people in the US

The Great Lakes Basin is 290,000 square miles

10,000 miles of shoreline are adjacent to 8 states and 2 Canadian provinces

Interagency Agreement between FHWA & EPA

“As always, the staff and management of LBL would like to express our gratitude and appreciation for the good work and the good efforts of the FLH staff and program managers we have had the benefit of working with.” — Land Between The Lakes (LBL) National Recreation Area Staff

Emergency Relief for Federally Owned Roads (ERFO)

Federally owned roads, like all roads, are vulnerable to the powerful forces of nature. The ERFO Program's primary function is to fund the repair or reconstruction of federally owned roads following a natural disaster. When FLH is contacted by one of our partners about damage to one of their roads, a team is sent out to survey the damage and begin the process to restore access. Although most ERFO damage is caused by heavy rain and drainage problems, there are numerous ways a roadway can fail, and each type of failure warrants a unique design approach to adequately restore safe access.



During the week of September 11, 2013, a storm producing heavy rains stalled over Colorado. After several days of intense rain, Colorado's Front Range from Colorado Springs to the Wyoming border began to experience catastrophic flooding. By the following day, parts of Larimer and Boulder Counties in Colorado had received upwards of 20 inches of rain. Both Governor Hickenlooper and President Obama issued disaster proclamations along the front range area. The damage the storm had on our partners was severe. CFL responded immediately to the request for help from NPS, USFS, and FWS and quickly formed a Rapid Response team. A "Colorado Flood War Room" was established so the team could have access to the most up to date information and provide a space to coordinate and expedite activities. CFL assessment teams were on the ground within 48 hours of the disaster and completed site work at Rocky Mountain National Park, Rocky Mountain Arsenal National Wildlife Refuge, and the Pike National Forest. Contracts were awarded for those repairs within a week of the disaster. CFL also worked closely with the FHWA Colorado Division Office, the Colorado DOT, FEMA, and other local agencies to provide assessment support across the entire disaster area. In addition, CFL, in partnership with Colorado DOT and Larimer County are providing delivery support on US36 and County Road 43. Together, the Colorado transportation community established a comprehensive strategy to rapidly respond and recover from this disaster.



Hydraulics Team Site Assessment



Emergency Relief for Federally Owned Roads (ERFO)

October 29, 2012, saw Superstorm Sandy ravage five National Parks on the East Coast: the Gateway National Recreation Area, the Statue of Liberty National Monument, Fire Island National Seashore, Governors Island National Monument, and Sagamore Hills National Historic Site. As the waters receded having covered over 75% of Liberty Island and all of Ellis Island, ERFO representatives from EFL were already on the way to assess the damage.

Liberty Island was the site of particular devastation with damage to the main passenger pier and the work/emergency pier, as well as the perimeter walkway and railings around the island. Funding for the Liberty Island effort was part of \$36M designated for repairs at the five National Parks.

The EFL Team imparted its engineering, environmental compliance, and project management expertise to meet the July 4th goal of reopening the Island to visitors. This combined with the tireless effort of the work crews allowed the island to open its gates to thousands of jubilant visitors eager to celebrate Independence Day.



Emergency Relief for Federally Owned Roads (ERFO)

The Hastings Trail Bridge, a 180-foot pedestrian and snowmobile suspension bridge over the Wild River in White Mountain National Forest, New Hampshire, was destroyed by Tropical Storm Irene. Both the states of Maine and New Hampshire identified the Hastings Bridge as having regional, statewide, national, and even international significance because of its relationship to the major corridor trail systems for the entire eastern Snow Belt. This bridge supported some of the largest winter tourism activities, tying both state's along with Quebec, Canada's winter economies together. It now continues to serve as an essential link in one of the heaviest used winter tourism trails for both states, and is one of only two joint state snowmobile corridors that allow reciprocal use by registered snowmobiles of either state. The new bridge a prefabricated steel arch still maintains the beauty of the view downriver.



Emergency Relief for Federally Owned Roads (ERFO)

Newfound Gap Road (U.S. Route 441) which connects the towns of Gatlinburg, Tennessee and Cherokee, North Carolina through the Great Smoky Mountains National Park was closed on January 16, 2013, as the result of a major landslide. Newfound Gap Road is the only access through the Park, and provides a vital economic link between the two towns and for the Eastern Band of the Cherokee Nation. It also provides visitor access to many iconic sites within the Park including Clingman's Dome and spectacular scenic views of the Great Smoky Mountains. The reconstruction and reopening of Newfound Gap Road was critical to the local economy. The solution to expedite design and construction was to structure the repair work as two projects. One to clear fallen trees and site debris from the slide area and construct a temporary access road and the other in the form of an emergency (letter) contract to construct a geogrid reinforced soil slope, rock embankment, underground drainage system, and asphalt pavement. For this contract, an accelerated two-step competitively bid contract type was used, with a No Excuse clause and an early completion incentive added for a May 15, 2013, construction completion date. This contract resulted in the road being reopened to the public on April 15, only 90 days after the landslide!



In FY 13 FLH Responded to a total of :

37 Disasters

Each disaster approved for coverage under the program may have numerous damage sites.

FLMA INITIAL DAMAGE ESTIMATED COST

\$80,229,547.00

.....
1st time

an Indian Nation under FHWA agreement (Eastern Band of the Cherokee Nation) directly received ERFO funds per MAP-21

Defense Access

FLH has been called upon to deliver projects for the military necessary to accommodate increased congestion due to relocations under the Base Realignment & Closure Act.



Improvements at 4 key intersections including modifications to surrounding I-395 general purpose ramps. — Mark Center, Virginia

Relocation of the U.S. Army's 7th Special Forces Group necessitated the redesign of the intersection of State Route (SR) 85 and West McWhorter Avenue. The original proposal called for a diamond interchange but after further analyses the Design-Build Team found the more efficient solution was a half cloverleaf design, effectively reducing the proposed construction area from 67 to 47 acres! This reduction reaped a few benefits. The half cloverleaf design avoided wetlands, ultimately saving time and money that would have gone towards assessments, permitting and mitigation. The new overpass was shifted 150 feet from the existing intersection, allowing construction activities to proceed without building a costly detour and allowing motorists to continue using the existing intersection with minimal disturbance throughout the project. The project's lesser footprint and increased productivity came in under budget and reduced construction time by 8 months.

A major milestone was reached in the completion of Saddle Road along with Hawaii DOT and the Department of the Army Pohakuloa Training area. Saddle Road previously had the highest accident rate in the State of Hawaii. Improvements have resulted in enhanced economic benefit to the local communities by safely and efficiently providing access for cross island commuters and trade while also reducing travel time across the island. Many initiatives are to be highlighted on this project, including the use of innovative contracting, A+B bidding, alternate item bidding, a GRS-IBS Bridge Abutment, an option to use warm mix asphalt, as well as implementation of pavement Safety Edge.



Ribbon cutting dedication held on September 7th, 2013 memorializing the late U.S. Senator Daniel K. Inouye with the renaming of the route in his name.



Intersection of SR-85 and West McWhorter Avenue — Outside Eglin Air Force Base, Florida

Public Private Partnerships

Full completion of Phase I, of the National Gateway Corridor Clearance Improvement Program has created a highly efficient rail system connecting Midwest producers and consumers with mid-Atlantic ports and world markets. Public funding for Phase One was supported by a federal TIGER (Transportation Investment Generating Economic Recovery) grant secured by the State of Ohio on behalf of the coalition, and administered by Federal Lands. Multiple agreements were required between the States in the Corridor (Ohio, Maryland, Pennsylvania, and West Virginia), FHWA, and CSX Railroad. Phase 1 will allow double-stack container trains to move between the Northwest Ohio Intermodal Terminal (North Baltimore, Ohio) and the newly opened intermodal facility in Chambersburg, Pennsylvania. In addition to spurring economic growth throughout the region, this project will double intermodal capacity along the existing corridor without increasing noise, emissions, or the number of trains. Various methods of gaining double stack clearances were used depending on the conditions and parameters of the site.



Train traffic continues to travel through the Pinkerton Tunnel Run-Around-Track while construction is underway to remove the existing tunnel. — Markelton, Pennsylvania



CSX double stacked container train — Baltimore, Maryland

PHASE ONE COMPLETE

\$98 million

OBSTRUCTIONS CLEARED

**Tunnels:
8 modified
3 open cut**

**Bridges:
8 replaced,
3 raised,
8 removed
2 modified**

**Tracks:
8 lowered**

.....
According to the USDOT trains can move 1 ton of freight nearly 500 miles on a single gallon of fuel, and one train can carry the load of 280 trucks.

Performance Management

FLH maintains a strategic approach, using various types of system information to make investment and policy decisions. In some cases, we are making use of data we've collected over the last few years as well. We've had success in creating benchmarks for our partners to make even harder decisions with less funding than under our past legislation.

Map-21 requires the use of performance management in our transportation programs. FLH took several steps in 2013 to increase the uniformity of this data and to spread its use. The first initiative, with the assistance of the Office of Performance Management, involved the selection of measurement criteria. The International Roughness Index (IRI) for paved roads and Pavement Surface Evaluation and Rating (PASER) for gravel roads become the performance criteria. The second issue was the designation of the system for measurement. Two of the FLMAs submitted their systems and we are negotiating with them to finalize their systems.

FLH is committed to assist our FLMA partners implement Performance Management as a routine business practice. The new business model will position Federal Lands as a "Total Package Partner" that will assist them with data collection, data analysis, data storage, project selection and finally development of Performance Measures.

MAP-21 seeks to strengthen the linkage to performance management and funding allocations for the FLMA road systems. This significant change requires FLMAs to demonstrate how the DOT Secretary's performance areas will be supported, in addition to their own resource agency's goals, before the award of program funds. Performance-driven criteria will promote a balance between supporting effective transportation access while preserving our national treasures for future generations. MAP-21 provides an opportunity for "off-the-top" funding and for FLH to structure our resources for a more corporate and cost-effective approach for collecting and managing data.

Bridge Inspection Program

The Bridge Inspection Team is responsible for the safety inspection and structural rating of approximately 2,100 structures owned by the National Park Service (NPS) and other federal agencies in accordance with the National Bridge Inspection Standards (NBIS). The team also manages the NPS structures inventory and evaluates the data it contains, providing the FLH and NPS planners with an annual list of structure rehabilitation and repair priorities. The team provides technical leadership and support to the FHWA and partners through technology advancement, data management, technical assistance, system preservation technology advancement, and bridge program policy and guidance.

As well as traditional partners, FLH provides bridge inspection services to multiple Federal agencies upon request, for example DOD, NASA, Pentagon, National Zoo, Metropolitan Washington Airports Authority, and the Smithsonian. A good recent example is the emergency inspection

services we provided to NASA at their Wallops Island Flight Facility. Our team responded within 24 hours of a report of popping sounds and vibration on the Cat Creek Bridge. This bridge connects the Mid-Atlantic Regional Spaceport's launchpads, the site of the next chapter of America's commercial



Inspection Team repels over the side of the Cat Creek Bridge — Wallops Island, Virginia

space effort, and other facilities on Wallops Island to the mainland Eastern Shore of Virginia.

Bridge Safety

NBIS Compliance assessment has been completed for Forest Service, USFWS, BOR, and US Navy & Marines; 30% completed for US Army; 60% completed for Tennessee Valley Authority, and 50% completed for BIA & Tribes. Assessments tasked to FLH are presently ahead of schedule. A NBIS Compliance Survey has been developed and sent to the federal bridge owners

Performance Management

whose inspection program has not been assessed. The Survey serves as guidance for the federal bridge owners to self-assess their inspection and bridge management programs.

Forest Service Land Between the Lakes (LBL) Safety Study

The purpose of the Safety Management Pilot Study was to showcase the benefits of using the information from a management system to improve transportation-related decision making in the Forest Service. More specifically, the Safety Management Pilot Study utilized existing crash data from LBL Law Enforcement to identify areas of safety concerns within LBL, develop recommendations for mitigation, develop opinion of probable costs, and prioritize the recommendations.

The “Hot Spot” locations from the report were provided to the LBL and they incorporated ALL the short term recommendations into their annual work plan. Therefore, use of existing data to provide economical is funding recommendations that would improve the safety for the LBL roads.

Forest Highway Pavement Condition Update Pilot for Regions 8 & 9

This pilot project used existing data that had been collected previously 11,500 miles of roadway condition data in 2007 at a cost of \$740,000. We used the NPS partners pavement deterioration models for similar roads to accurately extrapolate the FH data to the 2012 condition at a cost of \$85,000. This shows that analyzing existing data in an innovative way we can save our partners money but yet give them the data they need to plan for their project needs.

Texas Forest Highway Project Prioritization (Sabine, Angelina, Davy Crockett, and Sam Houston National Forests)

FLH road condition assessments from Forest Highway Region 8 & 9 afforded the needed assistance in determining where to spend Forest Highway funds quickly & effectively. That data coupled with our



Angelina National Forest, Texas

PERFORMANCE MEASURES

Paved Road Conditions measured by International Roughness Index (IRI)

Unpaved Road Conditions measured by Pavement Surface Evaluation and Rating (PASER)

Bridge Condition

Safety

Traffic Data

947

Bridge Inspections were performed by FLH this year of that total:

919 were NPS structures
687 were NBI structures

Completed assessment reports for 3 of the 19 Federal bridge owners

Performance Management

Pavement Management analysis helped to develop a recommended 5-year program of projects.

Road Inventory Program (RIP)

The RIP Team manages the nationwide Program for the NPS. With the use of state-of-the-art equipment and engineering expertise, this program documents the condition of pavements, geometrics and features locations on existing park roads and parkways. The data collected includes a video



The RIP Data Collection Vehicle (DCV) was shipped to the USVI in May 2013 to collect pavement condition data on the park roads at Virgin Islands National Park. (Shown here being transported by barge from the island of St. Thomas to St. John, white van center) The DCV collects video, GPS, and pavement cracking, roughness, and rutting information. Data was also collected during this trip on St. Croix' at Christiansted National Historic Site and Salt River Bay National Historical Park as well as on Puerto Rico at San Juan National Historic Site.



Haleakala National Park, Hawaii



RIP Project Manager collecting data on a parking area. The GPS is used for mapping and quantifying square footage. A manual pavement condition assessment is also recorded along with a features inventory. — War in the Pacific National Historical Park, Guam

log that can be used by the appropriate FLMA and FHWA managers to define and support decisions for improvement projects. This information is integrated into our Geographic Information System (GIS) and Pavement Management System (PMS).

OMAD Structures Management and Preservation Program

In cooperation with the Air Force Global Strike Command (AFGSC) Missile Engineer Office (MEO) through the Surface Deployment and Distribution Command (SDDC) we are developing a structural management program for the system of roads commonly known in FHWA as Operation and Maintenance-Access Defense (OMAD). The objective is to implement a structures management and preservation program for approximately 800 structures that provide access to specialized Transporter-Erector (T-E) and Payload-Transporter (P-T) vehicles in the vicinity of the bases with routes located in five states: Colorado, Wyoming, Nebraska, Montana and North Dakota. Ownership, operation, and maintenance responsibility for all of the structures lie with either the State DOT or local agencies, thus coordination with the SDDC, MEO and owner agencies is a key component to data collection and analysis, supplemental inspections, determination of structural adequacy for T-E and P-T vehicle loads, development of bridge preservation strategies, and prioritizing and performing needed work. The acceptance criteria, goals, measures and business practices for condition assessment

Performance Management

will be based on the National Bridge Inventory (NBI) data to best capitalize on the owner agency data and efforts.

The expected outcome is a cyclical set of structural evaluation reports, an annual asset management update, and resulting recommendations for repair, rehabilitation, replacement and/or preventative maintenance work for the set of structures. In coordination with the SDDC, MEO and owner agencies, development of a prioritized list of work items will feed a capital investment multi-year plan for programming, funding, and delivering the work.

USFWS Pavement Management Project

Prior to the passing of MAP-21, FLH worked with the NPS, Forest Service, and the USFWS. With the new legislation we have added two additional partners, USACE and the BLM.

The new partners as well as the old partners are asking for help in developing a data collection program for their roads. MAP-21 has created an opportunity for FLH to reorganize and has placed a greater emphasis on Performance Management with a more corporate approach.

Hosting International Scholar

FLH hosted a Korean engineer from the Korean Expressway Corporation on a rotational assignment. He was introduced to FLH Asset Management and saw how we used the data we have, to assist our partners in using the management systems.



left to right: EFL FLAP Program Manager, FLH Transportation Performance Management Program Manager, Senior Manager Korean Expressway Corporation



FLH personnel meeting with USFWS Regional Road Coordinators & Facility Managers at Patuxent Research Refuge to discuss verification of refuge road conditions and pavement recommendations system-wide.

ASSET MANAGEMENT

“The objective is to foster, develop, implement and market the asset management system to manage and optimize the preservation, maintenance and operation of the transportation infrastructures for our Federal Land or State agency partners.” — FLH Transportation Performance Management Program Manager

Innovation

FLH's key strength lies in our capability to assemble experienced teams that deliver innovative and timely solutions. FLH, along with the active assistance of our Federal partners, is always looking for innovations to move faster, think smarter and find more creative ways to advance programs and projects, stabilize our infrastructure and to stimulate national economic growth. Our Every Day Counts (EDC) implementation began with pilot projects incorporating the latest technologies and has grown into a commitment to change how we design and construct projects.

EDC/SHRP2

During this year we used six of the eleven EDC 2 initiatives. Prefabricated bridge elements were used on fifteen projects. Overall we used these initiatives on 25 projects with some projects using more than one initiative. Two examples of innovations implemented this year are "Intelligent Compaction" on the Alamogordo-Elk project in New Mexico and Geosynthetic Reinforced Soil-Integrated Bridge System (GRS-IBS) bridge abutments on Saddle Road in Hawaii. We used the intelligent compaction deployment opportunity to provide an Open House to the paving industry.

We were selected as lead adopters for Rapid Renewal and Innovative Strategies for Managing Complex Projects under the *Strategic Highway Research Program 2 (SHRP2)* as well. We received funding to construct a replacement bridge using prefabricated bridge elements and systems (PBES) in the Seney River National Wildlife Refuge, Michigan and to develop design



Bridge over Saddle Road constructed with GRS-IBS provides access for military operations to Pohakuloa Training Area, Big Island, Hawaii

guidance for future use. This guidance will also document the 25% reduction of construction time this method will allow on this project. We assisted the Gila River Indian Community in Arizona with their successful submission for SHRP2 funding. They were selected as lead adopter for a bridge project, for which FLH will provide technical assistance, we will also provide support to the Community to contract the project as CMGC.

Rockery Walls

On some damaged roadways, the most cost effective repair method may require a wall to be constructed. Fill walls can be constructed using a Welded Wire Faced Mechanically Stabilized Earth. These walls can be built on either a soil or rock foundation and cost approximately \$55 per square foot of finished face. A Rockery wall can be constructed to support a slope on the cut side of a roadway, and at approximately \$35 per square foot, provide a cheap solution for an unstable slope.



Rockery walls along Bear Lake Road — one of the most popular and heavily used routes in Rocky Mountain National Park, Colorado.

Innovation

Pavement Recycling

Although pavement recycling is nothing new, the approach being used in FLH and supported by our partners has provided new opportunities. We maximize the use and value of the existing pavement. When pavement recycling can be used, the amount of virgin materials needed to construct a project can be substantially reduced. On typical FLH projects, especially in the Western Division remote locations provide for longer haul distances and are a significant cost factor in construction. Reuse of materials on the project can result in substantial savings. When project conditions allow, WFL uses 100% recycled asphalt pavement (RAP) in the new structural pavement layer.

Constructing a new pavement layer using RAP, with the addition of binding agents, has great advantages:

- 1. The existing pavement is treated as a valuable commodity. Our partners are also recognizing the value and are providing stockpiling sites for the RAP to be processed and reused.*
- 2. The existing pavement was constructed using quality aggregates and therefore serves as an excellent materials source.*
- 3. With stockpiling capability, the pavement can be removed and processed to a uniform material. The grade can then be reconstructed and the processed RAP recycled and placed in a new stable pavement layer.*
- 4. Using the RAP as a cold recycled product means that there are no plant emissions thus allowing the mixing process to be accomplished in environmentally sensitive areas.*
- 5. Once the recycled pavement layer is constructed and sealed, it can be opened to public traffic. This allows for segments to be opened to traffic the same day as constructed. In addition, the newly constructed surface provides a dust-free all-weather surface for the traveling public prior to the placement of the final hot mix asphalt driving surface.*

The future of these recycling efforts looks very promising. With the use of improved asphalt binder technology, pavement recycling may provide even stronger, more durable mixtures that will further reduce the amount of virgin materials required.



Rockfall Mitigation

Rockfall is a prevalent problem causing hazardous conditions for motorists and other users of the roadway. FLH has been working with our partner agencies, namely the Forest Service, NPS, and State DOTs, to provide cost effective risk reduction and context sensitive mitigation solutions to address this hazard.

Rockfall mitigation designs include using integrally-colored concrete and a weathering stain (Natina) on steel components to help constructed elements blend into the surrounding materials.



Rock bolt drilling and installation on Banks Lowman Highway, Southwest Idaho, Boise National Forest, an area of frequent, hazardous rockfall in cooperation with Idaho Transportation Department, and Boise County.

USFWS National ITS Demonstration Project

This project focuses on the provision of improved real time visitor information services by developing a series of Intelligent Transportation Systems (ITS) demonstration projects. These projects are utilizing currently available and tested technologies that can address transportation needs compatible on USFWS lands. ITS is relatively new in a wildlife refuge environment. It is envisioned that the successful national wildlife refuge (NWR) demonstration projects could be scaled up or down for deployment on other NWR sites or other Federal lands. There are six selected refuge sites:

Workforce Development

FLH was very successful this year in our efforts to further the development of our employees, while providing a source of technical capacity to other offices of FHWA.

Eighty employees in FLH were promoted in 2013. Of these, 21 were minorities and 30 were females, furthering our goal of promoting diversity throughout the organization. FLH completed the PDP Pilot Program, provided training for 42 students, embraced 23 rotational assignments with Federal-aid Offices, and hosted 86 internal employee rotational assignments.

Developing and enhancing leadership skills

FLH held 2 classes this year for the Leadership Development Academy (LDA). The program which began in FLH is now a FHWA course that provides an opportunity for employees to improve their Leadership skills. The LDA is designed to elevate competency in the important arena of working effectively with others. The primary focus of the Academy is Emotional Intelligence — self-awareness, self-management, and building relationships.

Two classes were held this year:

At EFL 25 individuals participated from various offices within FHWA: EFL (13), Delmar Division (2), Resource Center Office of Technical Services (3), Pennsylvania Division (2), Virginia Division (3), and DC Division (2).

At WFL 23 individuals participated from various offices within FHWA: WFL (12), from the Hawaii Division (1), Alaska Division (1), Nevada Division (1), Colorado Division (1), Washington Division (1), Oregon Division (1), South Dakota Division (1), Montana Division (1), North Dakota Division (1), California Division (1), and Resource Center Office of Technical Services (1).

The WFL class graduated on March 27, EFL's took place on April, 30.



Instructor and creator of the LDA Program, speaking to a graduating class

There are other developmental activities taking place at each Division. For instance:

The EFL Division has a Toastmasters Club, in its 4th year, the group has achieved the distinction of "Select Distinguished Club" for maintaining membership and achieving 7 of 10 organizational goals.

The Employee Engagement Team at CFL strives to create an environment that values and supports employee engagement and promotes collaboration, personal development, integrity, public service, respect, and family through initiatives involving employee communications, employee performance, internal programs and events, and corporate social responsibility. And has been successful this year in implementing inventive incentive programs to recognize employees. The team is currently in the process of implementing an "Idea Wall" to promote engagement with employees in all the modes of DOT residing in their Lakewood facility.

The LEAP (Lead, Excel, Achieve, Perform) Program at WFL developed in response to employee surveys and input from focus groups, offers the opportunity for employees to gain information and develop skills to take charge of personal and career goals.

Half-day sessions are provided, up to 10 times per year, on a wide variety of topics including Life Planning, Emotional Intelligence, Resume Building and Interview Skills.

Assateague Lighthouse, Assateague Island National Seashore, Virginia



Onsite at Lassen Park Road, Lassen Volcanic National Park, California

Workforce Development

Our employees are the most valued asset in our organization and we like to make sure they get all the help they need for continued success!



Survey crew gets assistance working on Ivar's Bridge, Fort Yukon, Alaska



Image captured by WFL Lead Survey Technician, while working on a project near Kake, Alaska



South Fork Smith River Bridge job site, California



ERFO work, Walker Plains, Plumas National Forest, California



Data collection at Chincoteague National Wildlife Refuge, Virginia

Trinity County Bridge, Shasta-Trinity National Forest, California



ROTATIONALS/DETAILS

51%

within FLH

13%

FHWA to FLH

20%

FLH to FHWA

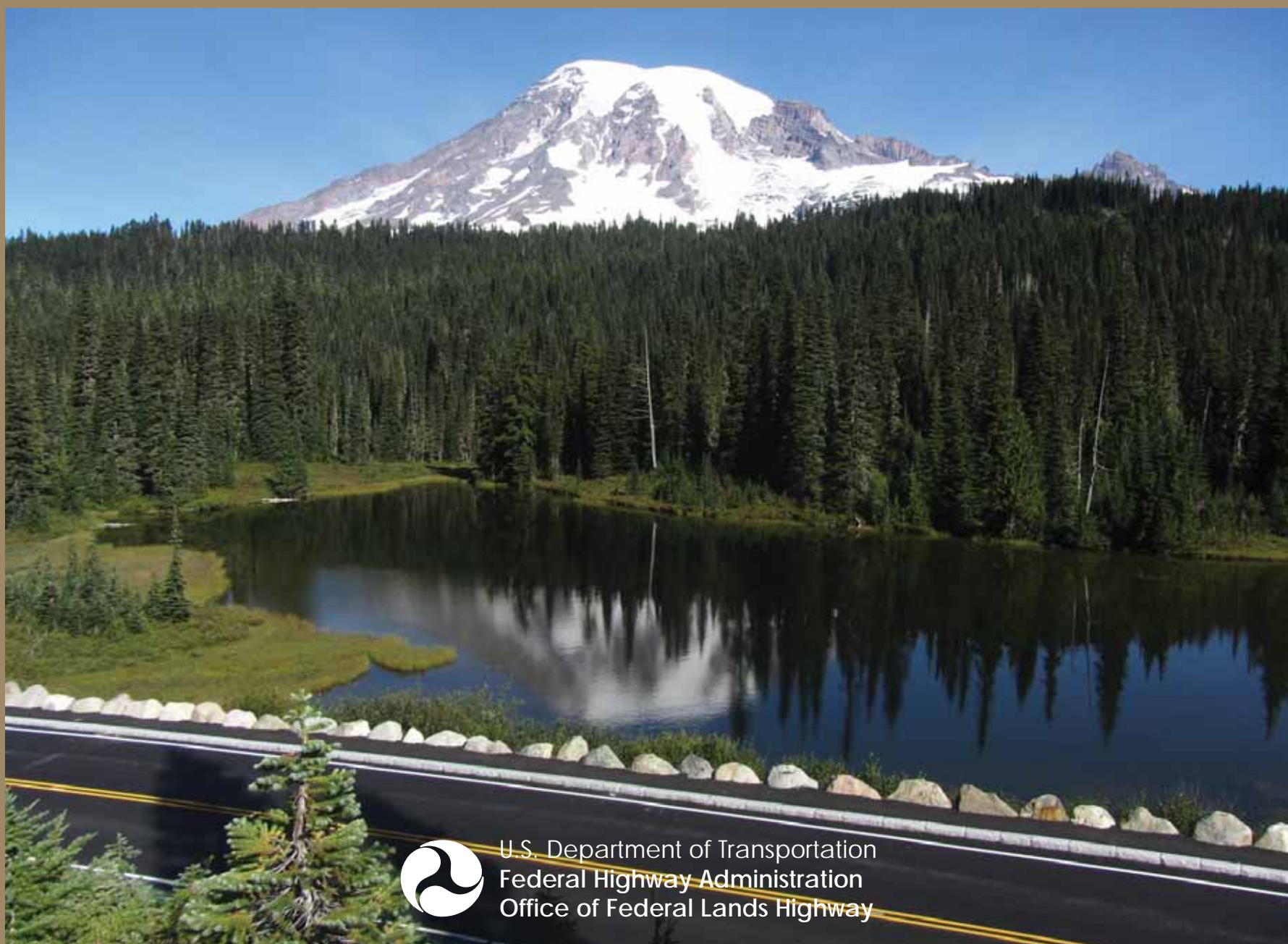
REASSIGNMENTS

64%

Laterals to FHWA

36%

Promotions to FHWA



U.S. Department of Transportation
Federal Highway Administration
Office of Federal Lands Highway