PARTNER FEEDBACK REPORT
2017

U.S. Department of Transportation
Federal Highway Administration
Eastern Federal Lands Highway Division
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Introduction

The Federal Highway Administration (FHWA), Eastern Federal Lands Highway Division (EFLHDD), is committed to serving the needs of our Partners and we have been engaged in an ongoing evaluation and improvement process since 1993. As part of that process, we have collected survey information from our Partner Agencies and used their responses to improve our products and services. This Report has been developed to provide a summary of the feedback we received in relation to our program and project delivery, including identification of proposed improvement actions, and to report on some of our significant accomplishments.

In Fiscal Year (FY) 2017, we distributed the following web-based surveys:
- Program Administration (Program Support Throughout Project Delivery)
- Environmental Collaboration
- Roadway Inventory Program
- Completed Projects (Construction Process)
- Project Development (Design Process)

Note the addition of the Roadway Inventory Program. We’ve been collecting feedback for many years and decided to incorporate it into this summary report.

The results from those surveys have been reviewed and actions have been implemented to correct and/or improve upon our FY 2017 scores. We appreciate our many Partners; and value the feedback you provide. The adjustments and adaptations we implement are our efforts to better meet your needs in the delivery of your program of projects.

In FY 2017, we awarded 33 projects at over $126.5 million in construction contracts from which survey solicitations were requested. We received comments from the following Agencies:
- National Park Service
- U.S. Fish and Wildlife Service
- U.S. Forest Service
- State Departments of Transportation
- US Army Corps of Engineers
- Other Agencies

Comments are evaluated in consideration of the Program activity addressed and the partner representative from whom they were received. Our Staff often contacts the representatives to clarify individual comments.

We continue to reach out to our partner agencies through site visits, feedback sessions, program status updates and teleconferences for the continual improvement of our program and project delivery services. In FY 2017, we had partner satisfaction scores at or above target for Environmental Collaboration, while Project Development, Program Administration and Completed Construction summary values ended below target this year. The overall satisfaction score for combining all surveys for FY 2017 comes in at 83.8%, putting the overall score just below our target of ≥ 85%.

We would like to take this opportunity to extend our thanks for your participation and support of our efforts toward continued improvement. Your feedback is vital in the successful delivery of the Federal Lands Highway Program (FLHP) and is greatly appreciated. If you have any questions, or additional comments, please contact Ms. Aide Romero, Division Program Management Analyst and System Manager, at 703-404-6235 or by email Aide.Romero@dot.gov.
Survey Approach

We measure the satisfaction of our Partner Agencies at the major milestones of the program and project delivery processes. The surveys are sent throughout the calendar year at the completion of the environmental assessment, project design and construction phase, to gauge overall administrative support. Survey respondents include representatives of our Partners and other Agencies directly involved with delivery of the Program.

Survey scores have fluctuated slightly over the last several years. EFLHD’s value of 83.8% in 2017 continued this trend. We are below our goal of ≥ 85%. The overall value has remained statistically the same for several years now. Each of the four components that comprise this overall score is addressed in detail on subsequent pages of this report.

The average value for all partner surveys is composed of the 2017 Program Administration (Program Support throughout Project Delivery) at 79.1% with a response rate of 42%. The Environmental Collaboration Survey at 90.8% with responses of 41%. The Project Development (Design) survey at 83.4% and a response rate of 40%, and the final component is the Completed Projects (Construction) Survey that contributed 81.7% and had a response rate at 45%.

Our target value aligns with the Federal Lands Highway and FHWA goals which strive for an 85% or greater for all external Partner Satisfaction surveys.

The combined rate of return for all four survey areas in FY 2017 was only at 41%; this was lower than the prior year value of 44%. Solicitation efforts remained high with 292 invitations for feedback distributed but only 121 were returned. At a population size nearing 300 we need to get an additional 30 responses for our percentage returned to be statistically desirable and have a confidence level of 95%, so efforts to improve will be continuing. In 2018 branch office personnel will be contacting respondents to improve response rate over 2017 values. We continue to ask for your valued input to this improvement effort at EFLHD and welcome feedback that can assist us in increasing our customer satisfaction.
Survey Respondents by Partner Agency in 2017

- National Park Service
- U.S. Fish and Wildlife Service
- U.S. Forest Service
- State Dept. of Transportation
- Other Agencies

Total Responses: 49
Program Administration: 14
Environmental Collaboration: 17
Project Development (Design): 23
Completed Projects (Construction): 33

- Other Agencies: 13
- Total Responses: 49
Program Administration Survey

The purpose of the Program Administration Survey is to determine whether the program needs of Federal Lands Highway (FLH) partner agencies are being met by FLH’s administrative practices.

EFLHD Overall Satisfaction Index Target ≥ 85%
Survey Results: Survey scores for the Program Administration Survey improved by 1.4 percentage points over last year’s score. The current score of 79.1% remains below our target level of 85. All five category areas of Program Strategy, Program of Projects, Program Funding, Program Scope of Work and Program Support showed improved from the prior year’s scores. An analysis of the survey’s results by category yielded the following:

<table>
<thead>
<tr>
<th>Category</th>
<th>2013</th>
<th>2014</th>
<th>2015</th>
<th>2016</th>
<th>2017</th>
<th>Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>Program Strategy</td>
<td>82.1</td>
<td>79.1</td>
<td>80.4</td>
<td>80.3</td>
<td>80.6</td>
<td>0.3</td>
</tr>
<tr>
<td>Program of Projects</td>
<td>77.5</td>
<td>76.5</td>
<td>77.9</td>
<td>77.0</td>
<td>77.6</td>
<td>0.6</td>
</tr>
<tr>
<td>Program Funding</td>
<td>77.6</td>
<td>74.5</td>
<td>79.4</td>
<td>74.1</td>
<td>75.9</td>
<td>1.8</td>
</tr>
<tr>
<td>Program Scope of Work</td>
<td>77.9</td>
<td>78.3</td>
<td>77.4</td>
<td>73.9</td>
<td>77.6</td>
<td>3.7</td>
</tr>
<tr>
<td>Program Support</td>
<td>81.9</td>
<td>79.8</td>
<td>81.5</td>
<td>80.0</td>
<td>81.3</td>
<td>1.3</td>
</tr>
<tr>
<td><strong>Overall Score</strong></td>
<td><strong>79.9</strong></td>
<td><strong>78.0</strong></td>
<td><strong>79.8</strong></td>
<td><strong>77.7</strong></td>
<td><strong>79.1</strong></td>
<td><strong>1.4</strong></td>
</tr>
</tbody>
</table>

Questions resulting in the lowest scores for this survey period were:
- **Program Strategy (FLTP):** The consistency between FLH's and your agency's program policies. 71.1%
- **Funding:** The timeliness of funds distribution. 73.8%
- **Program of Projects:** The stability of the multi-year program schedule. 74.5%
- **Scope of Work:** The reliability of initial cost estimates. 75.5%

Question with the highest scores for the current survey period were:
- **Program Support:** The responsiveness to questions from you. 84.3%
- **Program Strategy (FLTP):** The communication of program policy and goals. 84.4%
- **Program Strategy:** The consistency between FLH's and your agency's program policies. 90.0%
- **Program Strategy:** The communication of program policy and goals. 96.7%

Our response rate for this year dropped to 41%, from 51% that was last year’s value. Our solicitation rate was 124 requests for feedback and 52 of those inquiries were answered and provided feedback for analysis. Division management analyst personnel will continue to undertake efforts to improve upon response rates for the 2018 survey cycle. A sampling of the written comments associated with this survey were:
- “I appreciate the person to person consultation and coordination that is had, the responsiveness and availability.”
- “FHWA has been responsive to changing priorities and in communicating the impacts to the planning and programming.”
- “Always a pleasure when doing business with EFLHD. Very attentive in a complex atmosphere of usually disaster related work.”
- “I don’t know who to talk to about programming issues, funding issues, agreement issues, so I send emails to the entire gang hoping someone will reply to my requests.”
- “We need to find a better way to program these funds (FLAP) that reduces the time it takes to apply and then ultimately receive funds.”
**Action to Improve:** We have initiated the following actions to improve and maintain partner satisfaction this year:

- We will work with our partner agencies to encourage and facilitate the deployment of the MSAR software package for the ERFO program. While it is not mandatory for the Program, we anticipate that use of this system will streamline the DSR development and approval process. In addition, it will provide centralized storage of all disaster related documentation.
- We will evaluate the roles and responsibilities of the Federal Lands Access Program (FLAP) team to determine how we can improve communication with individual applicants and PDCs.
- We will perform an evaluation of the most recent Call For Projects cycle for the FLAP program to identify improvements that can be made for future cycles.

**Actions Taken:** We implemented the following actions for program administration improvement last year:

- We reviewed and revised the FLAP project selection criteria to provide more weight to the FLMA priorities. Each application is awarded points based on the FLMA priority.
- We reviewed our web pages and added information about the Highway Safety Improvement Program and a document with tips on completing an application. In addition, we implemented processes to ensure that state-specific information (contacts, goals, program of projects) is kept up to date.
- We continued to encourage the development of Long Range Transportation Plans both on a National and Regional level and participated as requested by our Partner Agencies. In addition, we continue to foster and facilitate regular program meetings with individual FLMA’s to understand their priorities and determine how we can assist with meeting their needs.
- We led the establishment of a Federal Lands Planning Program Council which consists of representatives from multiple FLMA’s to review policies and procedures for data collection, asset management, and performance management. Several meetings have been held and we are optimistic that it will foster increased collaboration between FLMAs and result in a more efficient program.
Environmental Collaboration Survey

The purpose of the Environmental Collaboration Survey is to evaluate the degree to which our work supports and is consistent with partner and resource agencies’ environmental practices.

EFLHD Overall Satisfaction Index Target ≥ 85%

Environmental Collaboration Survey Results

Environmental Collaboration Component Scores (%)

Completeness and Adequacy of NEPA Documents
Regulatory Permits and Plans
Environmental Mitigation
Interagency Coordination
Environmental Collaboration and Compliance
Survey Results: The 2017 survey resulted in a reduction from last year’s value but still an overall score well above target at 90.8%. We recognize that of the 17 surveys we sent out, we only received 7 back. Increased scores since 2012 have kept the Environmental Collaboration Survey above target for several years. The survey categories Regulatory Permits and Plans, Completeness and Adequacy of NEPA Documents and Environmental Collaboration and Compliance all experienced decreases. This brings our results more in line with values recorded before the 2016 record high values. An analysis of the survey’s results by category area yielded the following:

<table>
<thead>
<tr>
<th>Category</th>
<th>2013</th>
<th>2014</th>
<th>2015</th>
<th>2016</th>
<th>2017</th>
<th>Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>NEPA Documents</td>
<td>90.5</td>
<td>92.0</td>
<td>85.0</td>
<td>96.7</td>
<td>76.7</td>
<td>-20.0</td>
</tr>
<tr>
<td>Regulatory Permits and Plans</td>
<td>86.3</td>
<td>90.0</td>
<td>74.6</td>
<td>96.7</td>
<td>80.0</td>
<td>-16.7</td>
</tr>
<tr>
<td>Environmental Mitigation</td>
<td>83.3</td>
<td>92.5</td>
<td>89.7</td>
<td>91.7</td>
<td>92.4</td>
<td>0.7</td>
</tr>
<tr>
<td>Interagency Coordination</td>
<td>90.7</td>
<td>90.0</td>
<td>92.0</td>
<td>95.6</td>
<td>96.9</td>
<td>1.3</td>
</tr>
<tr>
<td>Environmental Collaboration and Compliance</td>
<td>93.0</td>
<td>89.5</td>
<td>84.0</td>
<td>96.7</td>
<td>85.7</td>
<td>-11.0</td>
</tr>
<tr>
<td>Overall Score</td>
<td>88.6</td>
<td>90.9</td>
<td>88.2</td>
<td>95.0</td>
<td>90.8</td>
<td>4.2</td>
</tr>
</tbody>
</table>

Questions resulting in the lowest scores for this survey period were:
- **NEPA Documents: Completeness and Adequacy.** 76.7%
- **Regulatory Permits and Plans: Completeness and Timeliness.** 80.0%
- **Overall Score:** Please rate your satisfaction with the collaboration with your agency to complete the environmental compliances. 85.7%
- **Environmental Mitigation:** Monitoring / plans for mitigation commitments. 90.0%

Question with the highest scores for the current survey period were:
- **Interagency Coordination:** Effectiveness of coordination and consultation with your agency. 96.7%
- **Interagency Coordination:** Timeliness for completion of environmental documents. 96.7%
- **Interagency Coordination:** Timeliness of response to request from your agency. 97.1%
- **Interagency Coordination:** Quality of response to requests from your agency. 97.1%

Our response rate for this year was 41% and is nearly double last year’s value of 24%. Our improved efforts at increasing feedback have elevated the overall response rate. Division management analysis personnel are undertaking efforts to further improve upon our response rates for the 2018 survey cycle. A sampling of the written comments associated with this survey were:
- “Analysis was coordinated with the Mark Twain NF and NEPA document was completed on time.”
- “Provided support documents to EFLHD for our project.”

**Action to Improve:** We will initiate the following actions to maintain higher partner satisfaction this year:
- Update templates to reflect the process improvements identified by the SWM Report to provide a more accurate estimate of project schedule impacts.
- Develop an EFLH Permit Tracking Form to better convey our commitments to construction staff.
- Provide access to the Environment Lessons Learned folder and provide information at the Project Delivery Winter Training.
- Continue to encourage appropriate Design Staff to pursue State Specific Training and Certifications for Erosion and Sediment.

**Actions Taken:** We implemented the following actions last year:

- Developed a sample impact sheet that will meet permit agency requirements that Design will be able to use as a guide in the development of plan sets.
- Developed and presented Initiatives-2-Improvements of environmental compliance issues (permits, NEPA, etc.).
- Identified opportunities in PS&E checklist to include requirements from Environment before plan sets are sent out.
- Pursued training and certification opportunities in Erosion and Sediment with the Maryland and Tennessee. Two Design team members participated in the Tennessee training.
Road Inventory Program Survey

The purpose of the Road Inventory Program Survey is to evaluate the degree to which our work provides the information necessary to support our partner’s asset management and program development processes.

EFLHD Overall Satisfaction Index Target ≥ 85%

Survey Results: This is the first year that the Road Inventory Program Survey is included in the Partner Feedback report. This is not the first year that the Survey has been performed; however, the RIP surveys were rewritten in FY17 to eliminate redundancy to help improve response rates. This makes it difficult to compare category results with prior years. The Overall Satisfaction scores for the Road Inventory Program Survey remained consistent with last year’s score at 90.7%. The current score continues to meet our target level of 85. An analysis of the survey’s results by category yielded the following:

<table>
<thead>
<tr>
<th>Category</th>
<th>2017</th>
</tr>
</thead>
<tbody>
<tr>
<td>Route ID</td>
<td>94.8</td>
</tr>
<tr>
<td>Manual Collection</td>
<td>90.0</td>
</tr>
<tr>
<td>Vehicle Collection</td>
<td>90.4</td>
</tr>
<tr>
<td>Data Delivery / Training</td>
<td>87.5</td>
</tr>
<tr>
<td><strong>Overall Score</strong></td>
<td><strong>90.7</strong></td>
</tr>
</tbody>
</table>

Questions resulting in the lowest scores for this survey period were:
- Data Delivery Training: Was the data delivered in the anticipated time frame established at the Route ID Meeting? 86.7%
- Data Delivery Training: What was your overall satisfaction with the RIP data? 86.7%
- Data Delivery Training: How satisfied were you with the web training on RIP deliverables? 86.7%
Question with the highest scores for the current survey period were:

- Route ID Meeting: How beneficial do you feel the RIP Route ID web conference is to your staff? 100%
- Route ID Meeting: Was the meeting conducted in a professional manner? 97.1%
- Route ID Meeting: Efficiency and Effectiveness of the web meeting structure flowing from one topic to the next? 94.3%
- Route ID Meeting: Was the RIP process explained in a clear way for you and your staff to understand? 94.3%

A low response rate continues to be the biggest challenge with these surveys. Division management analyst personnel will continue to undertake efforts to improve upon response rates for the 2018 survey cycle. A sampling of the written comments associated with this survey were:

- “I was well impressed on how the web conference was conducted and all my questions were answered.”
- “Thank you for the communications and for making this as easy as possible for park staff. Much appreciated.”
- “I was contacted by phone to say they were in the park but no attempt was made to touch base in person.”
- “The collection of data is really good. Knowing when the data is available and how to access the data has always been my issue with the RIP info.”

**Action to Improve:** We have initiated the following actions to improve and maintain partner satisfaction this year:

- We will continue to focus on our communication with our Partners. If we are unable to meet face-to-face during inspection visits due to staff availability or time constraints, we will contact them by phone at the beginning of the collection effort to finalize scheduling and hear any unit concerns.
- We will incorporate more live feedback opportunities into the RIP data training webinars that are conducted with each unit when data is delivered. For instance, we may query participants about the type of RIP data they use most in order for us to understand the best information to share with them and how. We will incorporate this feedback into future training webinars.
- We will study the feasibility of using Pathweb to view RIP video and condition information. Pathweb is our contractor’s web interface that allows a multitude of users to access data more easily than PathView.
Project Development (Design) Survey

The purpose of the Project Development Survey is to assess the quality of all project design elements and FLH management practices that lead to final design.

EFLHD Overall Satisfaction Index Target $\geq 85\%$

![Project Development Design Survey Results](image)

![Project Development Component Scores (%)](image)
**Survey Results:** The Project Development Survey was reconfigured for the 2016 collection cycle and the old five categories became six that better separate the survey into the various project design elements. The new categories are: Project Management Practices, Roadway and Safety Design, Hydraulic and Environmental Design, Structural Design, Final Design and lastly Advertisement and Award of Contracts. The scaling for this survey was also changed to a 1 to 10 scale versus a 5-increment scale. The current survey value of 83.4% comes in under target. This continues a downward trend from 2013. An analysis of the survey’s results by the category area yielded the following results.

<table>
<thead>
<tr>
<th>Category</th>
<th>2013</th>
<th>2014</th>
<th>2015</th>
<th>2016</th>
<th>2017</th>
<th>Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>Project Management Practices</td>
<td>90.9</td>
<td>85.9</td>
<td>83.2</td>
<td>84.6</td>
<td>85.3</td>
<td>0.7</td>
</tr>
<tr>
<td>Project Development Elements</td>
<td>90.4</td>
<td>86.7</td>
<td>85.2</td>
<td>---</td>
<td>---</td>
<td>---</td>
</tr>
<tr>
<td>Roadway and Safety Design Elements</td>
<td>---</td>
<td>---</td>
<td>---</td>
<td>83.0</td>
<td>82.3</td>
<td>-0.7</td>
</tr>
<tr>
<td>Hydraulic and Environmental Design Elements</td>
<td>---</td>
<td>---</td>
<td>---</td>
<td>85.3</td>
<td>81.6</td>
<td>-3.7</td>
</tr>
<tr>
<td>Technical Design Elements</td>
<td>90.7</td>
<td>86.6</td>
<td>85.8</td>
<td>---</td>
<td>---</td>
<td>---</td>
</tr>
<tr>
<td>Structural Design Elements</td>
<td>---</td>
<td>---</td>
<td>---</td>
<td>84.2</td>
<td>81.6</td>
<td>-2.6</td>
</tr>
<tr>
<td>Final Design</td>
<td>90.8</td>
<td>87.2</td>
<td>84.6</td>
<td>85.0</td>
<td>85.5</td>
<td>0.5</td>
</tr>
<tr>
<td>Advertisement and Award of Contracts</td>
<td>---</td>
<td>---</td>
<td>---</td>
<td>79.0</td>
<td>82.9</td>
<td>3.9</td>
</tr>
<tr>
<td><strong>Overall Score</strong></td>
<td>90.7</td>
<td>86.5</td>
<td>84.8</td>
<td>83.7</td>
<td>83.4</td>
<td>-0.3</td>
</tr>
</tbody>
</table>

Questions resulting in the lowest scores for this survey period were:
- **Roadway and Safety Design Elements:** Bicycle and Pedestrian Accommodation. 75.2%
- **Structural Design Elements:** Consideration and quality of alternative structural designs. 76.0%
- **Structural Design Elements:** Use of innovative construction methods or materials. 76.9%
- **Structural Design Elements:** If new, structure type and size is appropriate for the site location. 78.2%

Questions with the highest scores for the current survey period were:
- **Final Design:** Adherence to the project scope documented in the delivery plan/project agreement. 86.9%
- **Project Management Practices:** Development of a project scope that met your agency needs. 87.1%
- **Structural Design Elements:** Bridge safety features (bridge rails, transitions, etc.) 87.4%
- **Project Management Practices:** Quality of responses to requests by your agency. 87.4%

Our satisfaction score continues to be close to target and we have met that goal in Project Management Practices and Final Design. Although still below target, Advertisement and Award of Contracts showed the most improvement when compared to the previous year. The areas
needing more attention are Hydraulic and Environmental Design Elements, and Structural Design Elements which dropped from last year and comprised our lowest scores for this year’s results.

A sampling of the written comments representing positive themes from this survey were:
- “The clarity and completeness of the final PS&E package was exemplary. Throughout the process, the Highway Designer did an outstanding job of focusing on the important issues and to carefully track and incorporate comments into the final PS&E package.”
- “This project faced several NEPA issues early on which impacted the delivery dates of the project design. Concern was noted by both the NPS and EFL. EFL is recognized for patiently working with the NPS to resolve the NEPA issues and in successfully delivering the project within the funding deadlines.”
- “I really like summary pages that provide info on what work was scheduled for each structure. And, the Traffic Control Summary easily highlighted what kind of traffic control would be used for each structure.”
- “Very much appreciate FHWA’s diligence working through the solicitation process and vetting the contractors against the contract requirements.”
- “Project involves replacing concrete road panels on a historic road. FHWA was very sensitive to the historic materials and engineering alignment. The FHWA Project Manager and acquisitions team were very open to NPS concerns. FHWA explained options and risk to the NPS and provided continuous support throughout. The NPS was very pleased with project development, the contract package, and acquisition process.”

The following survey comments convey specific items within projects where we did not meet our partner’s expectations:
- “We understand the requirements for contracting but it would seem that there should be other options available to ensure that we get the best contractor at the best price for the job.”
- “Regarding funding, we had to add additional funds twice for PE due to inaccurate projections made by the EFL PM.”
- “The final design will work, and hopefully for a long time. However, I do not believe the design addressed all our concerns. Primarily, there was evidence of overland flow contributing to the side slope failure which stemmed from an inadequate ditch (rock bottom) above the failure area. This, in my opinion, was not addressed in a manner which will prevent this from potentially happening again. We were not kept in the loop for quite a few things, so our knowledge of these things was all after the fact. Overall, communication at all stages was not what it should have been.

Actions to Improve: We will implement the following in FY 2018:
- Project Management – We are emphasizing that the PM is to manage the project in total and be the consistent voice with our partners, through both design and construction. This effort is being reemphasized with periodic check-ins with the partner agency representatives.
- Procurement Type – We will continue to investigate the use of Sources Sought notices to supplement existing market information for each contract solicitation. This will help us verify that there are qualified small businesses interested in the project before limiting our advertisement. This effort includes specific questions to prospective bidders in areas where we are not as familiar with contractor capabilities and availabilities in the project area. We will also continue to evaluate innovative contracting methods where appropriate and deemed cost effective.
- Project Scoping – Establishing clear and consistent communication early improves the likelihood for the overall success of a project. During project scoping phase, the project
manager (PM) will work with the partners to establish clear project goals, and identify their concerns and project risks including in-stream and work zone restrictions, permitting and NEPA impacts, and construction contractor availability and capability. We are focusing on reducing the time from scoping to complete the project budget and schedule.

- **Schedules and Budget** – The PM and project team will consider opportunities for using a simplified project delivery method when the project scope is straight-forward and it is possible to eliminate a design review stage(s) during scoping. Stormwater management and permit requirements are being evaluated as early as possible and are emphasized during scoping.

- **Hydraulic and Environmental Design Elements** – We will continue to use the FHWA’s HEC-26 design approach to provide for an adequate, cost-effective and “practical design” solution for drainage structures while ensuring habitat connectivity appropriate for the roadway functional classification. On ERFO Projects where the partner may disagree with the HEC-26 approach, EFL will design to a higher design flood event as requested, but the cost difference will be borne by the Partner (using non-ERFO funds) for both design and construction.

- **Structural Design Elements** – Using innovative materials will continue to be implemented to further increase quality and durability of the structures. Innovative materials and methods include the use of Ultra High-Performance Concrete and Prefabricated Bridge Element Systems.

- **Bridge Inspection Special Studies** – Bridge Inspection is identifying bridges that may require special in-depth studies to help assess the condition of the bridges and properly scope the recommended work.

**Actions Taken:** We implemented the following actions last year:

- **Reducing Planning Cost Estimates Variance** – During the development of Bridge Inspection Reports, Recommended Work and Cost Estimates are being developed with the input and certification of the EFL Bridge Design Staff. This should help in minimizing changes of scope during the project’s development.

- **Cost Emphasis** – During the scoping stage, the Project Manager is leading discussions with the project team in determining if the design can be advanced using a simplified delivery approach. The simplified delivery approach identifies low-risk projects that can be developed with minimal involvement from various technical resources to reduce delivery time and/or cost. PMs are working to reduce the time for approval of the initial project budget to improve cost awareness and control.

- **ERFO Project Timelines** – During several site meetings, leadership is emphasizing to the partner the importance of receiving the approvals of the Damage Survey Reports (DSR) and Program of Projects (POP) as soon as possible to obtain the funding and proceed into design. When applicable, the simplified delivery approach is intended to reduce the design timeline.

- **Project Timelines** – We continue to emphasize with Program and Project Managers to work with Regional FLMA FLTP staff to clearly communicate program needs and expectations to improve program delivery. If potential scope changes are encountered on a project, the PM is to lead the discussion with the partner agency on schedule and budget impacts to the program.
Completed Projects (Construction) Survey

The purpose of the Completed Project Survey is to assess the quality of all completed construction projects and overall FLH management practices.

EFLHD Overall Satisfaction Index Target ≥ 85%

![Completed Projects Construction Survey Results](image)

![Completed Projects Component Scores (%)](image)
Survey Results: Overall the Completed Projects Survey score came in below our target value at 83.7%. A concerted effort by the construction office personnel to contact partner agencies to improve survey feedback response rate was continued for 2017. The results of this work continue improving rates from a low of 39% in 2012 to today’s value of 45%. For this year, all category’s experienced declines. An analysis of the survey’s results by the category area yielded the following results.

<table>
<thead>
<tr>
<th>Category</th>
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Questions resulting in the lowest scores for this survey period were:
- Completed Project Elements: Drainage structures (culverts, channels, and ditches) 80.0%
- Completed Project Elements: Stability of cut and fill slopes and road shoulders. 80.0%
- Completed Project Aesthetics: Earth shoulders and slopes (including rock slopes) 80.0%
- Completed Project Aesthetics: Landscaping and seeding.

Question with the highest scores for the current survey period were:
- Completed Project Aesthetics: The overall aesthetics of the completed project. 86.3%
- Conditions During Construction: Access to business and adjacent property. 90.0%
- Completed Project Aesthetics: Striping (roadway and parking areas). 86.3%
- FLH’s Management Practices: Timeliness of response to guidance and requests by your agency.

A sampling of the written comments associated with this survey were:
- “With this project being a 3/4” lift the ride is very good. The contractor went above and beyond to provide a great finished project. I wish all our projects went this smooth and had the result of this project. Thanks to EFL project staff for their work on this project.”
- “It was a real pleasure working with Eastern Federal Lands team on the project to build our second intersection at TFHRC. We had a lot of hurdles with the contractors but the professionalism from the project engineers ensured the government was getting a solid product. We look forward to more opportunities to work together in the future.”
- “This project went very smoothly. I think we had a good contractor who did a good job communicating with Project Engineer. Project engineer did a good job of keeping me informed of progress.”

Actions to Improve: We will continue to strive for higher partner satisfaction and will implement the following actions this year:
- We will continue providing OSHA Safety Training (Confined Space) to project staff. This training will benefit the project staff to administer the construction contract for safety enforcement.
- We will provide bridge painting training to project staff. This training will enhance the skill of project staff during the inspection of bridge painting work.
- We will provide training to project staff on a case study of lesson learned from geotechnical issues including the slope failure and earth stabilization.
- We will provide a design-build contract related training to project staff.
- We will provide in-depth training of EEBACS system and OneNote system. This training will enhance the skill of project staff for maintaining the electronic project records.

**Actions Taken:** We implemented the following actions last year:
- We provided an OSHA Safety Training to project staff during the construction winter training. This training would benefit the project staff to administer the construction contract for safety enforcement.
- We provided specific trainings to project staff on the need for more attention toward the preservation of environmental safeguards including erosion and sediment control and SWPPPs.
- We hosted asphalt pavement related training. This training was provided by Asphalt Institute to enhance the inspection skill of project staff during the construction of asphalt pavement.
- We implemented 100% inspection coverage for pavement preservation projects.
- We enhanced our discussion with owners about expectations regarding acceptance at the preconstruction and other on-site meetings between the COEs and the local owner’s management.
- We provided training to project staff on landscaping, turf establishment and other common items that have historically slowed owner acceptance.
Accomplishments for Fiscal Year 2017

Project Delivery

White Pond Road, Assabet National Wildlife Refuge, Massachusetts

Assabet River National Wildlife Refuge is a large wetland complex and forested area important to feeding and breeding for migratory birds and other wildlife. 15 miles of walking and biking trails provide for the enjoyment of nature. The White Pond Trail, provides primary access to these areas in the Towns of Maynard and Stow, Massachusetts. The White Pond Road was carefully reconstructed to preserve historic hand-laid stone walls and historic stone boundary markers while improving pavement and drainage.

Bridge Rehabilitation, New River Gorge National River, West Virginia

The New River in the Appalachian Mountains of southern West Virginia is a rugged, whitewater river that flows northward through deep and spectacular canyons. The Park is renowned for its premier recreational opportunities. FLH completed rehabilitation of 5 historic timber bridges within the park, including Mill Creek Bridge, Upper Glade Creek Bridge, Fayette Station Bridge, and Camp Brookside Access Bridge. The work included repair and replacement of timber rails, posts, curbs, decking, and running boards; cleaning and painting of steel bridge members; repair and repointing of stone masonry; and construction of a concrete retaining wall.

Big and Little Swan Creek Bridges, Natchez Trace Parkway, Tennessee
Bridge Replacement, Natchez Trace Parkway

Over the last 30 years Federal Lands has replaced numerous bridges along the Natchez Trace Parkway in Tennessee, Alabama and Mississippi because of alkali-silica reactivity (ASR). The rehabilitation of the Big Swan Bridge and replacement of the Little Swan Bridge are the most recent examples of this concrete condition. ASR is caused by a reaction between the hydroxyl ions in the cement with the silica in aggregates which forms a gel that expands and cracks the concrete. 50 to 75 years ago, most bridges along the Trace were built from locally available bank-run gravels that contained chert, an aggregate now well known for its reactivity. Construction of the bridges also included a spray-applied waterproofing membrane over the bridge deck prior to the final asphalt concrete to protect against water infiltration, reduce potential for corrosion, and prolong the service life of the bridge deck. The bridges were completed in May 2017.

Top Left: Application of prime coat; Right: Application of polymer membrane Bottom: Application of top coat
Foothills Parkway, Missing Link, Great Smoky Mountains National Park, Tennessee

Part of the Great Smoky Mountains National Park, the Foothills Parkway has been under construction since 1983. Sections 8E and F, 16.1 miles from Wear Valley to Walland, are some of the most difficult construction in terrain and environmentally sensitivity that includes the 1.6-mile section at Caylor Gap called the “Missing Link.” Construction of the Missing Link alone has been under construction since 1999. Because of the NPS’ original desire to open the Parkway for the NPS Centennial Celebration in 2016, the final paving project was accelerated to ensure an essentially complete design despite an unidentified source of construction funding. With the grading and bridges under contract, the project team was asked to regenerate and design the final alignment, full pavement structure, drainage and safety appurtenances over the full 16 miles and work long hours to ensure a PS&E ready to advertise once funding came. The project was awarded in April 2017, and this segment of Parkway will be opened finally after 35 years!

Portsmouth Ditch Road, Great Dismal Swamp National Wildlife Refuge, Virginia

The Great Dismal Swamp National Wildlife Refuge is the largest intact remnant of a vast habitat that once covered a million acres of southeastern Virginia and northeastern North Carolina, critical to the protection, preservation and perpetuation of a unique and outstanding ecosystem supporting a diversity of animal and plant life. The Portsmouth Ditch Road is an aggregate-surfaced road providing access to the northern part of the Refuge, as well as several adjacent private properties. In various areas the road was realigned to avoid encroachment on the private properties. As part of the work, two wooden pedestrian bridges in extremely poor condition were replaced over the Portsmouth Ditch, a canal running parallel to the road. To minimize preliminary engineering costs on the project, a risk-based practical design approach for the design of the two bridges was recommended. Consequently, no geotechnical investigation for the foundation design was conducted and the bearing capacity of the soil was estimated using available soil data to develop the abutment design. The design was further streamlined to use pre-fabricated fiber reinforced polymer trusses. This practical design approach reduced preliminary engineering costs substantially.
Established in 1963, the Jordan River National Fish Hatchery is the primary hatchery stocking lake trout into Lakes Michigan and Huron. Located in Antrim County, the hatchery annually propagates nearly 2 million yearling lake trout. Numerous visitors come every year to enjoy fishery education and hatchery tours. Throughout the hatchery, the pavement and safety condition had become dangerous and rehabilitation of the Hatchery Entrance and other roadways, driveways, and parking areas became a necessity. The work included asphalt pavement removal, select full-depth pavement patching and widening, asphalt pavement reconstruction as well as new asphalt pavement construction, asphalt concrete pavement overlay, concrete curb and gutter replacement, drainage replacements and improvements, guardrail replacement, and other miscellaneous work.

Beach Drive provides a pleasant trip through the Rock Creek Park in Washington, DC for commuters, drivers, bicyclists and pedestrians. The condition of the pavement and safety had deteriorated to a point of extreme requiring full reconstruction. The project also includes improvements to pedestrian and bicycle trails in collaboration with the District DOT, storm drain rehabilitation; raised pavement markers, centerline rumble strips, guardrails and road signs; parking area reconstruction; traffic signal and streetlight replacement; and the rehabilitation of six bridges. Work has also included construction of new sidewalk and guardrail within the adjacent Washington National Zoo Tunnel. The project will require 5 phases of construction to accommodate the very complicated and high volume peak hour traffic.
Big Fork-Athens Road, Ouachita National Forest, Arkansas

The Big Fork-Athens Road (County Road 64) provides access to the Shady Lake Recreation Area, a popular tourist destination in the Ouachita National Forest, Polk County, Arkansas. This project for the final grading and paving was the culmination of a 9-year effort to relocate and pave the road. Design began in 2008, and the work was constructed in a series of 4 projects between 2013 and 2017. The relocation improved visitor access by reducing the distance from State Highway 246 to the recreation area, and by replacing the existing narrow, winding, unpaved road with a 2-lane all-weather facility.

United States Marine Corps War Memorial (Iwo Jima Memorial) Access Improvements, Virginia

Over 1.5 million people visit this national monument each year. Funded by private donations specifically to restore the monument and surrounding parklands, the project includes reconstruction of the Iwo Jima Memorial Access Road and parking area, new curb and gutter, as well as sidewalk and trail resurfacing at the US Marine Corps War Memorial. Asphalt pavement will be replaced with concrete pavement which will require less maintenance and provide better support for the traffic volumes and heavy weight of the many tour buses which frequent the monument. The project team was able to expedite design and acquisition activities to advertise one month ahead of schedule to accommodate the project’s very narrow construction window. The collaboration continued through the procurement stage in developing prenegotiation objectives and conducting successful negotiations with the 8(a) contracting firm that led to contract award.
I-564 Intermodal Connector, Norfolk, Virginia

The I-564 Intermodal Connector project in Norfolk, VA is a collaborative transportation partnership between EFLHD, VDOT, and the U.S. Navy. The new high-speed roadway will connect the existing I-564 through two of the region’s economic powerhouses – Naval Station Norfolk (NSN), the largest naval base in the world and the area’s largest employer, and to Norfolk International Terminals (NIT), the Virginia Port Authority’s largest terminal in Hampton Roads. The project’s construction was accelerated to provide access to the NIT north gate by late December 2017. The acceleration included extensive ground improvement techniques to achieve rapid consolidation of the poor quality underlying soils and prevent future settlement of the nearly 300,000 cubic yards of embankment fill needed to construct the roadways. Four bridges are also being constructed, including a 3-span flyover bridge over I-564. The roadway is expected to be open to all traffic by Fall 2018.

Veteran’s Drive, St. Thomas, USVI

The project consists of the reconstruction and widening of approximately 0.5 miles of Veterans Drive (Route 30) from west of Hospital Gade to Long Bay Road in the Charlotte Amalie Harbor area on the island of St. Thomas, U.S. Virgin Islands (USVI). To improve mobility and access, the USVI Department of Public Works (DPW) proposed to widen Veterans Drive towards the bay to add 2 additional traffic lanes, medians, and a promenade, among other features. The work includes roadway excavation, embankment, aggregate base, asphalt pavement milling, hot asphalt concrete pavement, reinforced concrete pavement, concrete curb and gutter, concrete, brick, and cobblestone sidewalk, precast modular block retaining walls (seawalls), drainage, utility (water, telephone, sewer, power, and irrigation) adjustments and replacements, traffic signal and street lighting replacements, and other miscellaneous work. Benefits of the project include alleviating the existing traffic congestion, providing additional roadway capacity, improving safety for motorists and pedestrians, and enhancing the aesthetics of the waterfront and cultural and historical features.
The USVI government requested FLH to deliver the complex project, which included resolving questions during review of the contract developed by the DPW design consultant; coordinated approval of NEPA compliance, required permits, and all unique proprietary items to meet the unique cultural and historical streetscape elements that relieves congestion and creates a signature pedestrian-friendly environment. This project highlights Federal Lands ability to deliver complex projects and collaborating with multiple stakeholders and other Federal Agencies. Project construction contract was awarded in September 2017, with construction anticipated to begin Spring 2018.
Emergency Relief for Federally Owned Roads (ERFO)

Hurricanes Irma and Maria, Puerto Rico, US Virgin Islands

In response to a Mission Assignment from the Federal Emergency Management Agency (FEMA) issued in mid October, FLH provided direct support to Puerto Rico and the Virgin Islands in the aftermath of Hurricanes Irma and Maria. FLH staff made a field visit during the week of October 25 through November 3 to establish initial contact with Puerto Rico Highways and Transportation Authority (PRHTA) staff in the different regions, to assist in the location and prioritization of damage sites. During this visit the team was able to do market research among local contractors. The determination was made that Letter Contracts were the only feasible way to execute the work to reestablish critical access within the timeframe given.

Chequamegon-Nicolet National Forest, Wisconsin

A deluge of rainfall on July 11, 2016 led to extensive flooding and damage to roadway and bridge infrastructure of the Chequamegon-Nicolet National Forest, located in northern Wisconsin. This project aims to identify and repair all the damage from that storm, which stretches across hundreds of miles of roadway and trails and included over 55 original Disaster Survey Reports (DSR). The project team developed a comprehensive scoping report which described the damage in detail and estimated the repair cost for all sites, as well as developed a feasible grouping of projects that optimized the delivery schedule for all work and encompassed all 55 DSR sites including roadway and trail bridges, culvert repair and replacement and AOP determination, grading, and slide repair. The design team expended significant effort to develop detailed and quality preliminary estimates for each DSR site, which ultimately helped in deciding the appropriate delivery method for design, which includes both A&E and in-house work.
Emergency Slide Repair and Pavement Reconstruction, Monongahela National Forest, West Virginia

In June 2016, the Monongahela National Forest experienced a 1000-year storm with 10 inches of rain falling in less than 24 hours. The event devastated this West Virginia National Forest Unit and surrounding communities. The Forest Service requested immediate assistance and 12 FLH engineers of varying disciplines were dispatched to assess damage and document in Damage Survey Reports (DSRs) for the Forest. The inspection team was joined with Forest Service staff to guide them through the devastation.

The damage will result in multiple future projects. One project at Milepost 16 on FS Route 86, Williams River Road was identified as an immediate priority to reestablish access to local residents and visitors. The project consisted of slide repair and pavement reconstruction. With an accelerated schedule, project inception to contract award took less than 4 months. FLH has identified and will deliver 8 projects totaling $20 Million in damage resulting from the storms.

A Forest Service Timber Technician accompanying the FLH inspection team prepares to clear a path of fallen trees with protective gear and chain saw.

Ouachita and Ozarks/St. Francis National Forests, Arkansas

The May flood in Arkansas affected both the Ouachita and Ozarks/St. Francis Units of the Forest Service. The extensive damage that had to be assessed on these forests took an entire week of less than smooth surfaced, unpaved roads in the middle of one of the largest forests in the east. On the final road, of the final day, in the final Ranger District, Federal Lands and Forest Service personnel were treated to the rare sight of wild mustangs grazing in one of the Forest clearings. The Assessment Team agreed, the scene made all the bumps and dips worth it!
Emergency Road and Trail Repairs, Lake Shelbyville, Kaskaskia River, and Lake Carlyle, Illinois

FLH demonstrated commitment to accelerate the preliminary schedule for this emergency project from scoping to PS&E approval within 6 months from the time project funds were made available after scoping. The project consisted of emergency repair of gravel roads, parking areas, and sidewalks/trails damaged by flooding from a storm in 2016.

Tamarac Wildlife Refuge, Minnesota

In July 2016 the Northern plains of Minnesota were flooded. One of the casualties of the flood was Tamarac Wildlife Refuge just south of the White Earth Indian Reservation that specializes as a breeding ground for migratory birds. Thankfully the damage was minor considering the widespread nature of the storm. During the assessment visit the ERFO Coordinator took a rare opportunity to capture one of the many dozens of hummingbirds in midflight! Seeing these amazing animals in a protected habit was a great way to cap a two week tour of damage that eventually exceeded $20,000,000 affecting 3 states and 7 partner units.

Black Bayou Lake National Wildlife Refuge, Louisiana

The holiday storms of 2015 caused damage in 8 Southeastern states from Missouri through Louisiana all the way to the South Carolina coast. It has been the most extensive and widespread event in the history of the ERFO program. Even though the total cost of the combined damage was not a program record there were some very unique projects involved and many units that got their first taste of the devastation associated with these disasters. The Black Bayou Lake National Wildlife Refuge in Louisiana lost a vital piece of their infrastructure in their boardwalks that take visitors into the heart of these storied wetlands. FLH took the lead in the repair of these structures and have made a positive impression on this unit as they struggle with their first huge infrastructure loss.
Technical Assistance
Bridge Inspection Program

With inspection teams now located in all three Federal Lands Divisions, the efficiency of the Bridge Inspection Program (BIP) continues to improve. Advantages include cost savings through reduction of travel time, performing a higher percentage of inspections with in-house resources, and furthering closer working relationships with our partner agencies in the various regions. This has allowed the divisions to become more familiar with bridges in their inventory, share more work, and function as one organization with the goal of delivering quality projects in a cost-effective and timely manner.

Because of the allocation of inspection work among the three Divisions, the Bridge Inspection Program has been able to reduce the average cost of an inspection by up to $500 per bridge.

Under Bridge Inspection, Lake Shasta Spillway Bridge, California

FLH Geotechnical Engineer consults with on-site staff on the construction of the new George E. Tryon Bridge, South Fork Smith River Road, California

FLH Bridge Management Team reviewing process for bridge inspections with NPS staff during the annual Roads Working Group meeting, Gettysburg, PA
Buford Dam Road Feasibility Study

In cooperation with the US Army Corps of Engineers, FLH completed a feasibility study to relocate the Buford Dam Road for traffic and pedestrian safety and security at Lake Sydney Lanier in Forsythe and Gwinnet Counties, Georgia. Constructed by the Corps in the 1950’s, the multi-purpose lake provides for flood protection, power production, water supply, navigation, recreation and fish and wildlife management. Initially designed to provide access for recreation and engineered structures associated with the dam, the route has turned into a major commuter thoroughfare carrying 350,000 cars per month. The narrow typical section creates a safety hazard for visitors and challenges associated with emergency response. The dam is rated in the top five security interests in the State. The study considered five alignment alternatives with roundabouts and various phases of construction including an ultimate alternative to bypass the dam with a 1200’ bridge structure over the Chattahoochee River. The Corps has requested FLH to begin design for at least the first phase of the project.

FLH conducts George Mason University Civil and Infrastructure Engineering (CEIE) 499-Highway Design Construction Course

For the eighth time, the FLH conducted its George Mason University course for Fall 2017 to ten (10) civil engineering students. This year the class was upgraded to a full 3-credit course. This laboratory course introduces senior-level students to the tools, techniques, and methods used by various civil engineering disciplines to design and construct roads and bridges. The laboratory uses short lectures, individual readings, equipment demonstrations, and hands-on exposure to the equipment and processes used by civil engineering staff. Sessions are held either in a classroom setting or on a local project. For most students, it is their first experience within a professional engineering office environment. The course runs 14 sessions for the full fall semester on Thursday mornings.
Road Safety Audits and Safety Reviews

The FLH Safety Team provides technical services to our FLMA partners and to our own project development and construction staff. The Team seeks opportunities to incorporate safety measures in projects, balanced with resource preservation to reduce the number of fatal and injury crashes. The Safety Team conducts Road Safety Audits and other safety reviews, encourages the use of new technologies such as the latest crash-tested hardware, provides training, and continues to pursue the use of proven safety countermeasures such as high-friction surface treatments and wider edge lines.

FLH Highway Safety Engineers collecting measurements of pavement edge slope and vehicle speed for project safety reviews.

U.S. DOT’s Small Business Innovation Research (SBIR) Program Real-Time Solar Powered Traffic Data Network

With the support of the SBIR program, the FLH and NPS contracted to develop, test and deploy a low-profile Traffic Monitoring System developed by small business, Intelligent Automation. The Unobtrusive Traffic Monitoring System (UTMS) consists of a Doppler microwave radar and Wi-Fi/Bluetooth sensors that can be installed either on the back of NPS traffic signs along roadways, or mounted on bridge piers or lighting poles. The sensors collect vehicle volume, speed, travel time, and vehicle type classification data. Advanced prototype UTMS systems are currently being tested at six locations on the George Washington Memorial Parkway (GWMP) in Northern Virginia under Phase II of SBIR funding. The next steps for moving the technology toward deployment include long-term testing and validation of the system on the GWMP.

Plans are in place to further improve and ruggedize sensor hardware and software, as well as deploy the system at other NPS parkway locations.
SHRP 2 R07 Performance Specifications for Rapid Renewal – Furthering the Use of Performance Specifications

FLH has been working with FHWA Turner-Fairbanks Highway Research Center TFHRC to refine the development of performance-based specifications for hot mix asphalt materials through the SHRP2 R07 — Performance Specifications for Rapid Renewal effort. FLH is one of the first agencies to actively pursue a performance type specification for hot mix asphalt. The intent is to further advance the quality and application of the agency’s asphalt mixtures and extend the service life of its pavements.

Being able to determine quality-adjusted pay factors that realistically reflect pavement performance is a material and construction related challenge faced by all public agencies that design, construct, or manage asphalt concrete pavements. Research has led to the development of relationships that predict pavement performance based on the volumetric properties measured in present-day construction practice. When combined with proven laboratory test methods that measure pavement performance, these performance predictive relationships can be further enhanced to provide a more accurate determination of the expected pavement life. These predictive relationships and advanced testing provide a valuable piece of information that can be used to: optimize and improve pavement performance, determine how volumetric property variations affect pavement life and provide information needed to determine performance-based pay factors that reflect the as-constructed pavement life. Studies are underway on past projects with the goal being to develop a performance specification for hot mix asphalt and determine appropriate pay factors for the as-constructed project.

Asphalt Mixture Performance Tester — testing machine used in pavement structural design and mixture design specifically designed to measure asphalt mixture engineering properties

Internally Cured Concrete (ICC)

FLH is working on Internally Cured Concrete technology deployment under the Coordinated Technology Implementation Program (CTIP). ICC provides more durable concrete by reducing the early age cracking potential for critical structural elements. This occurs by providing internal curing of the concrete by substituting highly absorptive lightweight fine aggregate for a portion of the normal fine aggregate utilized in the concrete mix design. The highly absorptive light weight fine aggregate releases the water during concrete hydration and aid in reducing autogenous shrinkage.

Three separate bridge replacement projects are using this technology. The Fort Pulaski Bridge in Georgia has currently placed the bridge deck concrete. The Shoup and Manning Crevice bridges in Idaho will finish the concrete deck placement in the upcoming months. Laboratory testing of the concrete materials and monitoring of the structures will occur to validate the technology deployment.
FLMA’s Utilize New Unstable Slope Management Program to Inform Planning through Project Delivery in Denali National Park

The 92-mile Denali National Park Road has a long history of landslides causing substantial disruptions to transportation, access restrictions for private inholders, and concerns for public safety. The most dramatic example occurred in July 2016 when a large debris flow triggered by intense rains blocked and closed the road to normal traffic for 10 days, emphasizing the need to reduce risk and make the area more resilient to unstable slope events.

The first step was to implement the new asset management program, Unstable Slope Management Program for Federal Land Management Agencies (USMP for FLMA). This program was developed for NPS, Forest Service, and BLM to systematically identify the location and condition of the relative unstable slope hazards and risks along the park road. The results of the initial USMP work was used to evaluate 141 unstable slopes. In 2017, Denali National Park completed a Long Range Transportation Plan (LRTP) and Risk Assessment (RA) Workshop where a broad, multidisciplinary group identified unstable slopes as the greatest risk to the park road.

Since completing the LRTP and the RA Workshop utilizing the new USMP for FLMA program and processes, three highly rated unstable slopes along the Park Road have been programmed for risk reduction implementation. In 2018, FHWA is scheduled to assist the Park with a benefit cost analysis for the highly rated unstable slopes in the USMP for the park road to help develop a reprioritized list for programming based on the greatest benefit to the users to provide decision support for prioritizing facility needs in the out-years. Denali National Park in conjunction with FHWA hopes the USMP asset management system teamed with other useful geologic hazard and
risk susceptibility work in the Park will arm decision makers with the data they need to make transparent, prioritized programming decisions to reduce risk from unstable slopes and increase resiliency of the park road well into the future.

![Eagle’s Nest Debris Flow in July 2016, looking down to the Denali Park Road](image)


FLH Pavement Engineers traveled to Dakar, Senegal to provide engineering assistance to support mission critical audits on roadway projects pertaining to pavement management, maintenance, stewardship and oversight, and sustainability processes. With the lack of in-house engineering expertise within OIG-MCC, FLH was in the unique position to provide this assistance while simultaneously using the opportunity to promote FHWA as the agency-of-choice for transportation engineering services at an international level.

Work included providing project level pavement investigations, analyses, recommendations, and construction support for pavement work ranging from preservation, rehabilitation and maintenance, and reconstruction.

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*Thank You for Your Feedback*