

### FHWA Research and Technology Evaluation



eNEPA

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### Foreword

The Federal Highway Administration's (FHWA) Research and Technology (R&T) Evaluation Program seeks to assess and communicate the benefits of FHWA's R&T efforts, ensure that the organization is expending public resources efficiently and effectively, and build evidence to shape and improve policymaking. FHWA partners with State transportation departments, local agencies, industries, and academia to conduct research on issues of national significance and accelerate adoption and deployment of promising research products.

This report examines how FHWA's investment in eNEPA, an electronic tool supporting interagency collaboration, affected interagency collaboration in developing environmental documents and the time it takes to conduct environmental reviews for major projects under the National Environmental Policy Act (NEPA).<sup>(1,2)</sup> This report should be of interest to the practitioners and decisionmakers involved in the development and review of environmental documents under NEPA.

Shana V. Baker Director, Office of Corporate Research, Technology and Innovation Management

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The Research and Technology Program Manager and Contracting Officer's Representative for this				ative for this		
16 Abstract						
TO, AUSTIDUE This report evaluates the use of eNEDA, particularly the use by State departments of						
transportation (DOTs) a	ind other	transportation	n stakehol	ders The	evaluation team col	llected
information on the brea	adth and	denth of eNFF		ability of e		ness of
eNFPA at reducing proi	ects' env	vironmental-rev	view timeli	ne and in	noroving timing aua	ntity and
quality of interagency c	ollaborat	ion in develop	ing enviror	nmental c	locuments. Data col	lected
through a literature rev	iew and s	stakeholder in	terviews si	uggest the	at eNEPA 2.0 has no	ot been in
use long enough for users to realize its full benefits. State DOTs have primarily used eNFPA's					NEPA's	
document-manager and	d file-sha	ring functions	and have	not fully a	applied eNEPA for pr	oject
reviews. By focusing its	outreac	h and educatio	on on those	e State D	 OTs that can most b	enefit from
using the tool, FHWA ca	an contin	ue to increase	the adopt	ion and u	se of eNEPA. While	eNEPA may
not ever be widely used	by State	e DOTs, the mo	ore State D	OTs use t	the tool, and therefo	ore build their
comfort with and expertise in using it, the more benefits			e benefits	s they are likely to experience.		
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SI* (MODERN METRIC) CONVERSION FACTORS				
	APPROXIMA	<b>FE CONVERSION</b>	S TO SI UNITS	
Symbol	When You Know	Multiply By	To Find	Symbol
		LENGTH		- <b>,</b>
in	inches	25.4	millimeters	mm
ft	feet	0.305	meters	m
vd	vards	0.914	meters	m
mi	miles	1.61	kilometers	km
		AREA		
in <sup>2</sup>	square inches	645.2	square millimeters	mm <sup>2</sup>
ft <sup>2</sup>	square feet	0.093	square meters	m <sup>2</sup>
yd <sup>2</sup>	square yard	0.836	square meters	m <sup>2</sup>
ac	acres	0.405	hectares	ha
mi <sup>2</sup>	square miles	2.59	square kilometers	km <sup>2</sup>
		VOLUME		
fl oz	fluid ounces	29.57	milliliters	mL
gal	gallons	3.785	liters	L
ft <sup>3</sup>	cubic feet	0.028	cubic meters	m <sup>3</sup>
yd <sup>3</sup>	cubic yards	0.765	cubic meters	m <sup>3</sup>
	NOTE: volur	nes greater than 1,000 L shall I	be shown in m <sup>3</sup>	
		MASS		
oz	ounces	28.35	grams	g
lb	pounds	0.454	kilograms	kg
Т	short tons (2,000 lb)	0.907	megagrams (or "metric ton")	Mg (or "t")
	TEN	IPERATURE (exact deo	arees)	
		5 (F-32)/9		
۴F	Fahrenheit	or (F-32)/1.8	Celsius	°C
		ILLUMINATION		
fc	foot-candles	10.76	lux	lx
fl	foot-Lamberts	3.426	candela/m <sup>2</sup>	cd/m <sup>2</sup>
	FORC	F and PRESSURE or S	TRESS	
lbf	poundforce	4 45	newtons	N
	poundioree		nomono	
lbf/in <sup>2</sup>	poundforce per square inch	6.89	kilopascals	kPa
lbf/in <sup>2</sup>	poundforce per square inch			kPa
Ibf/in <sup>2</sup>	poundforce per square inch APPROXIMATE When You Know	6.89 E CONVERSIONS Multiply By	kilopascals FROM SI UNITS To Find	kPa Symbol
Ibf/in <sup>2</sup> Symbol	poundforce per square inch APPROXIMATE When You Know	6.89 E CONVERSIONS Multiply By LENGTH	kilopascals FROM SI UNITS To Find	<sup>kPa</sup> Symbol
Ibf/in <sup>2</sup> Symbol mm	poundforce per square inch APPROXIMATE When You Know millimeters	6.89 E CONVERSIONS Multiply By LENGTH 0.039	kilopascals FROM SI UNITS To Find	kPa Symbol
Ibf/in <sup>2</sup> Symbol mm m	poundforce per square inch APPROXIMATE When You Know millimeters meters	6.89 E CONVERSIONS Multiply By LENGTH 0.039 3.28	kilopascals FROM SI UNITS To Find inches feet	kPa Symbol
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Ibf/in <sup>2</sup> Symbol mm m km	poundforce per square inch APPROXIMATE When You Know millimeters meters meters kilometers	6.89 <b>CONVERSIONS</b> Multiply By LENGTH 0.039 3.28 1.09 0.621 AREA	kilopascals FROM SI UNITS To Find inches feet yards miles	kPa Symbol in ft yd mi
Ibf/in <sup>2</sup> Symbol mm m km km	poundforce per square inch APPROXIMATE When You Know millimeters meters meters kilometers square millimeters	6.89 <b>CONVERSIONS</b> Multiply By LENGTH 0.039 3.28 1.09 0.621 AREA 0.0016	kilopascals FROM SI UNITS To Find inches feet yards miles square inches	kPa Symbol in ft yd mi in <sup>2</sup>
Ibf/in <sup>2</sup> Symbol mm m km km mm <sup>2</sup> m <sup>2</sup>	poundforce per square inch APPROXIMATE When You Know millimeters meters meters kilometers square millimeters square meters	6.89 <b>CONVERSIONS</b> Multiply By LENGTH 0.039 3.28 1.09 0.621 AREA 0.0016 10.764	kilopascals FROM SI UNITS To Find inches feet yards miles square inches square feet	kPa Symbol in ft yd mi in <sup>2</sup> ft <sup>2</sup>
Ibf/in <sup>2</sup> Symbol mm m m km km mm <sup>2</sup> m <sup>2</sup> m <sup>2</sup>	poundforce per square inch APPROXIMATE When You Know millimeters meters meters kilometers square millimeters square meters square meters	6.89 <b>CONVERSIONS</b> Multiply By LENGTH 0.039 3.28 1.09 0.621 AREA 0.0016 10.764 1.195	kilopascals FROM SI UNITS To Find inches feet yards miles square inches square feet square feet square yards	kPa Symbol in ft yd mi in <sup>2</sup> ft <sup>2</sup> yd <sup>2</sup>
Ibf/in <sup>2</sup> Symbol mm m m km km mm <sup>2</sup> m <sup>2</sup> ha	poundforce per square inch APPROXIMATE When You Know millimeters meters meters kilometers square millimeters square meters square meters hectares	6.89 <b>CONVERSIONS</b> Multiply By LENGTH 0.039 3.28 1.09 0.621 AREA 0.0016 10.764 1.195 2.47	kilopascals FROM SI UNITS To Find inches feet yards miles square inches square feet square feet square yards acres	kPa Symbol in ft yd mi in <sup>2</sup> ft <sup>2</sup> yd <sup>2</sup> ac
Ibf/in <sup>2</sup> Symbol mm m m km km m <sup>2</sup> m <sup>2</sup> ha km <sup>2</sup>	poundforce per square inch APPROXIMATE When You Know millimeters meters meters kilometers square millimeters square meters square meters hectares square kilometers	6.89 <b>CONVERSIONS</b> Multiply By LENGTH 0.039 3.28 1.09 0.621 AREA 0.0016 10.764 1.195 2.47 0.386	kilopascals FROM SI UNITS To Find inches feet yards miles square inches square feet square feet square yards acres square miles	kPa Symbol in ft yd mi in <sup>2</sup> ft <sup>2</sup> yd <sup>2</sup> ac mi <sup>2</sup>
Ibf/in <sup>2</sup> Symbol mm m km km mm <sup>2</sup> m <sup>2</sup> ha km <sup>2</sup>	poundforce per square inch APPROXIMATE When You Know millimeters meters meters kilometers square millimeters square meters hectares square kilometers	6.89 <b>CONVERSIONS</b> Multiply By LENGTH 0.039 3.28 1.09 0.621 AREA 0.0016 10.764 1.195 2.47 0.386 VOLUME	kilopascals FROM SI UNITS To Find inches feet yards miles square inches square feet square feet square yards acres square miles	kPa Symbol in ft yd mi in <sup>2</sup> ft <sup>2</sup> yd <sup>2</sup> ac mi <sup>2</sup>
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Ibf/in <sup>2</sup> Symbol mm m km km m <sup>2</sup> m <sup>2</sup> ha km <sup>2</sup> ha km <sup>2</sup> L L m <sup>3</sup> m <sup>3</sup>	poundforce per square inch APPROXIMATE When You Know millimeters meters meters kilometers square millimeters square meters square meters hectares square meters hectares square kilometers milliliters liters cubic meters cubic meters	6.89 <b>CONVERSIONS</b> Multiply By LENGTH 0.039 3.28 1.09 0.621 <b>AREA</b> 0.0016 10.764 1.195 2.47 0.386 <b>VOLUME</b> 0.034 0.264 35.314 1.307	kilopascals FROM SI UNITS To Find inches feet yards miles square inches square feet square yards acres square miles fluid ounces gallons cubic feet cubic yards	kPa Symbol in ft yd mi in <sup>2</sup> ft <sup>2</sup> yd <sup>2</sup> ac mi <sup>2</sup> fl oz gal ft <sup>3</sup> yd <sup>3</sup>
Ibf/in <sup>2</sup> Symbol mm m km km m <sup>2</sup> m <sup>2</sup> m <sup>2</sup> ha km <sup>2</sup> L L m <sup>3</sup> m <sup>3</sup>	poundforce per square inch APPROXIMATE When You Know millimeters meters meters kilometers square millimeters square meters hectares square meters hectares square kilometers milliliters liters cubic meters cubic meters	6.89 <b>CONVERSIONS</b> Multiply By LENGTH 0.039 3.28 1.09 0.621 <b>AREA</b> 0.0016 10.764 1.195 2.47 0.386 <b>VOLUME</b> 0.034 0.264 35.314 1.307 <b>MASS</b>	kilopascals FROM SI UNITS To Find inches feet yards miles square inches square feet square yards acres square miles fluid ounces gallons cubic feet cubic yards	kPa Symbol in ft yd mi in <sup>2</sup> ft <sup>2</sup> yd <sup>2</sup> ac mi <sup>2</sup> fl oz gal ft <sup>3</sup> yd <sup>3</sup>
Ibf/in <sup>2</sup> Symbol mm m km km m <sup>2</sup> m <sup>2</sup> m <sup>2</sup> ha km <sup>2</sup> mL L m <sup>3</sup> m <sup>3</sup>	poundforce per square inch APPROXIMATE When You Know millimeters meters meters kilometers square millimeters square meters hectares square meters hectares square kilometers milliliters liters cubic meters cubic meters grams	6.89 <b>CONVERSIONS</b> Multiply By LENGTH 0.039 3.28 1.09 0.621 <b>AREA</b> 0.0016 10.764 1.195 2.47 0.386 <b>VOLUME</b> 0.034 0.264 35.314 1.307 <b>MASS</b> 0.035	kilopascals FROM SI UNITS To Find inches feet yards miles square inches square feet square yards acres square miles fluid ounces gallons cubic feet cubic yards	kPa Symbol in ft yd mi in <sup>2</sup> ft <sup>2</sup> yd <sup>2</sup> ac mi <sup>2</sup> fl oz gal ft <sup>3</sup> yd <sup>3</sup> OZ
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\*SI is the symbol for International System of Units. Appropriate rounding should be made to comply with Section 4 of ASTM E380. (Revised March 2003)

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# List of Abbreviations and Acronyms

Abbreviation	Definition
CE	categorical exclusion
DEIS	draft environmental impact statement
DOT	department of transportation
DPM	Deputy Project Manager
EA	environmental assessment
EDC	Every Day Counts
EIS	environmental impact statement
FEIS	final environmental impact statement
FHWA	Federal Highway Administration
HEP	Office of Planning, Environment, and Realty
IT	information technology
NEPA	National Environmental Policy Act
NOI	notice of intent
ROD	record of decision
R&T	research and technology
UPACS	User Profile and Access Control System
USACE	United States Army Corps of Engineers
USCG	United States Coast Guard

# **Executive Summary**

### Purpose of the Evaluation

The purpose of this evaluation was to assess eNEPA's breadth and depth of use, usability, and effectiveness at reducing projects' environmental-review timeline and improving timing, quantity, and quality of interagency collaboration in developing environmental documents.

### **Program Description**

The Federal Highway Administration's (FHWA's) Office of Planning, Environment, and Realty (HEP) developed eNEPA, an electronic tool supporting interagency collaboration intended to improve the quality of interagency collaboration in developing environmental documents and reduce the time it takes to conduct environmental reviews for major projects under the National Environmental Policy Act (NEPA).<sup>(1,2)</sup>

eNEPA allows State departments of transportation (DOTs) to share documents, track comments, schedule tasks with participating agencies (including Federal agencies), and perform concurrent reviews for their environmental documents. Improving the process of concurrent agency reviews allows State DOTs to identify and deal with issues early and in real time, thereby simplifying and clarifying the review process and assisting agencies in fulfilling their NEPA responsibilities.

FHWA began developing eNEPA in 2012 and released the first version of the tool in August 2013. HEP marketed eNEPA to stakeholders using a variety of methods, including the Every Day Counts program, and conducted individual demonstration meetings and training for State DOTs and other stakeholders upon request. In 2016, FHWA initiated a rewrite of eNEPA to address issues with its overall architecture and enhance specific functions of the tool. FHWA released eNEPA 2.0 in January 2017.

### Methodology

This assessment focused on four evaluation areas:

- Evaluation Area 1: Breadth and depth of eNEPA use.
- Evaluation Area 2: Usability of eNEPA.
- Evaluation Area 3: Environmental-review timeline.
- Evaluation Area 4: Interagency collaboration.

The evaluation team used two primary data-collection methodologies to inform this evaluation. First, the team conducted a review of available literature to gain an understanding of FHWA's eNEPA, its development, and its use. Second, the evaluation team conducted indepth, semistructured interviews with FHWA program staff and 13 additional stakeholders, collectively representing 4 FHWA Division Offices and 9 State DOTs, all of which had experience using eNEPA.

#### **Findings**

Findings from the eNEPA evaluation indicate that eNEPA 2.0 has not been in use long enough for users to realize its full benefits. State DOTs have primarily used eNEPA's document-manager and file-sharing functions and have not fully applied eNEPA for project reviews, which is one of the primary features that differentiates eNEPA from other document-management systems that State DOTs use. A few current users plan to use eNEPA's project-review feature once their project progresses to that stage.

Like any new technology, eNEPA involves a steep learning curve before it can be effectively and efficiently used. There may be some stumbling blocks along the way as each State DOT figures out how to best use the tool for managing and facilitating the environmental-review process. The more that State DOTs use the tool, and therefore build their comfort with and expertise in using it, the more benefits they are likely to experience. By focusing its outreach and education on State DOTs that can benefit most from using the tool (i.e., State DOTs that conduct several complex environmental assessments or environmental impact statements per year), FHWA can continue to increase the adoption and use of eNEPA.

# 1. Introduction

### 1.1 Evaluation Purpose

The Federal Highway Administration (FHWA) initiated the Research and Technology (R&T) Evaluation program to help FHWA leadership and program and project managers communicate the impacts of their research, ensure resources are being expended effectively, and build evidence to inform future projects and policymaking.

The FHWA Office of Planning, Environment, and Realty (HEP) selected eNEPA<sup>(1)</sup> as one of the tools to evaluate as part of the R&T Evaluation program.

HEP's research program supports transportation professionals by assessing and providing tools, technical assistance, and data to help State and local agencies perform effective transportation planning, environmental, and realty decisionmaking. HEP's research efforts align with FHWA's four strategic goals:

- **Safety**—Reduce transportation-related fatalities and serious injuries across the transportation system.
- Infrastructure—Invest in infrastructure to ensure mobility and accessibility and stimulate economic growth, productivity, and competitiveness for the Nation's workers and businesses.
- **Innovation**—Lead in the development and deployment of innovative practices and technologies to improve the safety and performance of the Nation's transportation system.
- **Accountability**—Serve the Nation with reduced regulatory burden and greater efficiency, effectiveness, and accountability.

eNEPA is an electronic tool supporting interagency collaboration intended to improve the quality of interagency collaboration in developing environmental documents and reduce the time it takes to conduct environmental reviews for major projects under the National Environmental Policy Act (NEPA).<sup>(2)</sup> eNEPA allows State departments of transportation (DOTs) to share documents, track comments, schedule tasks with cooperating and participating agencies<sup>1</sup> (including Federal agencies), and perform concurrent reviews for their environmental reviews. HEP developed eNEPA to enable users to conduct more efficient environmental reviews. Improving the process of concurrent agency reviews allows State DOTs to identify and deal with issues early and in real time, thereby simplifying and clarifying the review process and assisting agencies in fulfilling their NEPA responsibilities.<sup>(3)</sup>

The purpose of this evaluation is to assess how FHWA's investment in eNEPA affected interagency collaboration in developing environmental documents and the time it takes to conduct

<sup>&</sup>lt;sup>1</sup>A cooperating agency is any Federal agency, other than a lead agency, that has jurisdiction by law or special expertise with respect to any environmental impact involved in a proposed project or project alternative. A State or local agency of similar qualifications or, when the effects are on lands of tribal interest, a Native American tribe may, by agreement with the lead agencies, also become a cooperating agency. Participating agencies are those with an interest in the project. The standard for status as a participating agency is more encompassing than the standard for status as a cooperating agency. Therefore, cooperating agencies are, by definition, participating agencies.

environmental reviews for major projects under the National Environmental Policy Act (NEPA). The research team evaluated eNEPA by focusing on four evaluation areas, as outlined in table 1.

Evaluation Area	Description
Breadth and depth of eNEPA use	The extent to which transportation agencies are using eNEPA, type of projects for which they are using eNEPA, and purpose for which they are using eNEPA.
Usability of eNEPA	Documentation/identification of user-friendliness of the tool, challenges when using the tool, and additional features and/or functionality desired.
Environmental-review timeline	The extent to which eNEPA has affected the time required to complete the environmental-review process.
Interagency collaboration	The extent to which eNEPA has affected the timing, quantity, and quality of collaboration among agencies during the environmental-review process.

#### Table 1. eNEPA evaluation areas.

### 1.2 eNEPA Background

For many years, FHWA has been developing policies, tools, and resources to shorten the time required for NEPA project approval. In 2012, FHWA engaged a consultant to conduct research to identify and evaluate existing electronic tools, technologies, and methods that could be used to enhance and expedite the FHWA NEPA process, particularly in terms of improving interagency collaboration. This research included evaluating tools developed and used by Federal agencies and State DOTs, as well as off-the-shelf open-source/commercially available software.

Based on the research, the consultant recommended FHWA implement a custom Web-based solution with a service-oriented architecture. The consultant also recommended FHWA use an incremental approach when developing eNEPA whereby they would start small and add additional functionalities at a later date.<sup>2</sup>

The consultant developed eNEPA using OrchardCMS5, a popular open-source documentmanagement and collaboration tool.<sup>(4)</sup> For the first iteration of eNEPA, FHWA focused on developing the core application and key functionalities with the intent to develop additional features and enhancements in future phases. Because the tool was intended to improve the quality of interagency collaboration, it was initially designed to focus on environmental impact statements (EISs) and environmental assessments (EAs).<sup>3</sup> Due to cost and schedule concerns, the workflow engine for the first iteration of eNEPA was designed with limited flexibility; the order of the tasks within the EIS and EA workflows were predefined, and users did not have the ability to reorder tasks.<sup>4</sup>

<sup>&</sup>lt;sup>2</sup>The Louis Berger Group Inc. and Data Transfer Solutions. (2012). *Development of an Electronic NEPA Collaboration Support Tool, Phase I Recommendation Report,* Prepared for the Federal Highway Administration. Obtained from the FHWA Office of Project Development and Environmental Review.

<sup>&</sup>lt;sup>3</sup>As categorical exclusions typically require little to no interagency collaboration, they were not considered in the initial design of eNEPA.

<sup>&</sup>lt;sup>4</sup>The Louis Berger Group Inc. and Data Transfer Solutions. (2012). *Development of an Electronic NEPA Collaboration Support Tool, Phase I Recommendation Report*, Prepared for FHWA. Obtained by personal communication.

During development, FHWA staff beta-tested eNEPA. In addition, prior to deployment, FHWA also briefly piloted eNEPA with a select group of five State DOTs: Arizona, North Dakota, Utah, Washington State, and Wisconsin. As part of their pilot participation, users provided feedback on the user interface and functionality of the tool.

During the pilot phase, the hosting and maintenance services for eNEPA were provided offsite by the consultant. Prior to deployment, FHWA determined that the consultant's website and database servers did not comply with Federal cybersecurity standards. FHWA conducted a cost evaluation to determine whether it should continue to host eNEPA externally through a different third party platform or to host eNEPA in-house. FHWA ultimately decided to bring eNEPA in-house and took over the hosting and maintenance services.

FHWA officially released eNEPA in August 2013 and marketed it to stakeholders using a variety of methods, such as the following:

- Held meetings with resource agencies to demonstrate eNEPA and seek support using the tool.
- Sent a letter signed by former Secretary of Transportation Anthony Foxx to the secretaries of several resource agencies to introduce eNEPA.
- Featured former Deputy Secretary of Transportation Victor Mendez in a video promoting eNEPA.<sup>(5)</sup>
- Conducted individual demonstration meetings and training for State DOTs and DOT modes upon request (table 2).<sup>5</sup>
- Collaborated with USDOT modal agencies to determine what system changes are needed to enable their use of eNEPA.
- Promoted eNEPA through the Every Day Counts (EDC) program. eNEPA was promoted through EDC-2 as part of the Implementing Quality Environmental Documents innovation and EDC-3 as part of the Improving Collaboration and Quality Environmental Documentation innovation.

<sup>&</sup>lt;sup>5</sup>FHWA. (2017). *eNEPA 2.0 Roll Out Plan*. Obtained from the FHWA Office of Project Development and Environmental Review.

Training Type	Agency
In-person	Louisiana DOT
	Maryland State Highway Administration
	Missouri DOT
	Nevada DOT
	U.S. Coast Guard
	U.S. Army Corps of Engineers
Web-based	Arkansas DOT
	Delaware DOT
	Indiana DOT
	North Carolina DOT

### Table 2. eNEPA trainings held between 2015 and 2016.

After FHWA released the initial version of eNEPA and State DOTs began using the tool, FHWA identified unforeseen issues in the coding. Some of these issues stemmed from the fact that eNEPA was initially programmed by a third-party developer and was later transferred to FHWA to host internally. This transfer caused many technical difficulties and made addressing the bugs in the system difficult to fix. In addition, after the State DOTs had been using eNEPA for several months, FHWA collected additional feedback from the initial group of pilot users on the usability of the tool. The State DOTs identified a number of issues with the initial version of the tool that greatly limited its usefulness (see section 3.2 for more details on the usability of eNEPA).

In 2016, FHWA initiated a rewrite of eNEPA to address issues with its overall architecture and enhance specific functions within the tool. The rewrite corrected the deficiencies in the architecture and improved the functionality of the tool.

As part of the rewrite, FHWA formed an eNEPA Technical Work Group to beta-test the updated version of the tool, provide an assessment, and make recommendations for additional modifications. The Technical Work Group included representatives from FHWA Headquarters, FHWA Division Offices, the FHWA Resource Center, FHWA Office of Federal Lands Highway, the U.S. Coast Guard (USCG), the U.S. Army Corps of Engineers (USACE), and seven State DOTs that had experience using eNEPA: Arkansas, Indiana, Louisiana, Maryland, Missouri, Nevada, and Washington State. FHWA released eNEPA 2.0 in January 2017.

After releasing eNEPA 2.0, FHWA continued to market the tool to stakeholders using a variety of methods:

- Conducted a national rollout webinar in April 2017 to introduce the updated tool and explain its new features to transportation stakeholders.
- Promoted eNEPA through EDC-4 as part of the Integrating NEPA and Permitting innovation.
- Continued to conduct individual demonstration meetings and trainings for State DOTs and resource agencies upon request.

FHWA continues to update eNEPA to enhance the user-friendliness of the tool and add new features. At this time, new features under development include the following:

- Redesigning the project dashboard: FHWA is redesigning the project dashboard page to enable users to view and access all the detailed information about a project from that page. This new design will allow users to see important details about a project, including upcoming project milestones, action items, and project documents, in one location. Users will be able to access individual project tabs (i.e., project details, project contacts, project actions) via the project dashboard. FHWA is also redesigning the look of the individual project tabs to make those more user-friendly as well.
- **Tracking environmental commitment:** FHWA is developing a new feature that will enable users to catalog and track the environmental commitments associated with a project. The new feature will enable users to categorize the commitment, identify which agency is responsible for the commitment, identify in which phase the mitigation will take place (i.e., construction, operations, etc.), and track the status of the commitment.
- Improving and diversifying communication methods: FHWA is improving and diversifying communication methods so system administrators will have the ability to send out systemwide emails to all users or set a system notification that will show a message on the main page when a user logs into eNEPA. Similarly, project managers will be able to send out emails to their entire team or set up a system notification within eNEPA.
- Creating how-to videos: FHWA is creating the ability to upload videos that describe how to use certain eNEPA functions. FHWA has not yet developed the content for these how-to videos.
- **Generating reports:** FHWA is creating a functionality so system administrators and project managers will be able to generate reports. For example, administrators will be able to quickly run reports on the number of active users and projects in eNEPA.

As with previous updates to eNEPA, FHWA is working with a small group of State DOTs and resource agencies to beta-test the new features. Once the new features are finalized, FHWA plans to conduct a national webinar and send a systemwide email to notify users of the new features.

FHWA is considering additional ways to enhance eNEPA to support user needs and broader agency and governmental priorities, such as the new requirement for Federal agencies to process environmental reviews and authorization decisions for major infrastructure projects as One Federal Decision.<sup>(6)</sup> To support One Federal Decision, FHWA is considering expanding the tool to support the processing of additional permits beyond USCG and USACE permits, which are currently included in the tool.

# 2. Evaluation Design

This assessment focused on four evaluation areas:

- 1. **Breadth and depth of eNEPA use**: The extent to which transportation agencies are using eNEPA, type of projects for which they are using eNEPA, and purpose for which they are using eNEPA.
- 2. **Usability of eNEPA**: Documentation/identification of user friendliness of the tool, challenges when using the tool, and additional features and/or functionality desired.
- 3. Environmental-review timeline: The extent to which eNEPA has affected the time required to complete the environmental-review process.
- 4. **Interagency collaboration**: The extent to which eNEPA has affected the timing, quantity, and quality of collaboration among agencies during the environmental-review process.

Table 3 lists the evaluation questions and key measures of effectiveness for each evaluation area.

Evaluation Area	Evaluation Questions	Key Performance Measures
1. Breadth and depth of eNEPA use	<ul> <li>To what extent are transportation agencies using eNEPA?</li> <li>For what classes of actions are agencies using eNEPA?</li> <li>What functions are agencies using in eNEPA?</li> </ul>	<ul> <li>Number of agencies actively using eNEPA.</li> <li>Number of active projects in eNEPA.</li> <li>Number of projects by class of action in eNEPA.</li> <li>Qualitative assessment of functions used.</li> </ul>
2. Usability of eNEPA	<ul> <li>What functions are most/least useful in eNEPA?</li> <li>What are the challenges with using eNEPA and/or specific functions within eNEPA?</li> <li>What additional features and/or functionality is desired?</li> </ul>	<ul> <li>Qualitative assessment of functions used.</li> <li>Compilation of challenges.</li> <li>Compilation of recommended features.</li> </ul>
3.Environmental-review timeline	<ul> <li>To what extent has using eNEPA for project development and agency review for a project led to shorter timeframes for specific milestones within project development?</li> <li>To what extent has using eNEPA for project development and agency review for a project led to agencies meeting milestone deadlines?</li> </ul>	<ul> <li>Length of time between specific project milestones (i.e., NOI, DEIS, FEIS, ROD, etc.).</li> <li>Comparison of deliverables against scheduled due dates.</li> </ul>

#### Table 3. eNEPA-evaluation research questions and measures.

Evaluation Area	Evaluation Questions	Key Performance Measures
4. Interagency collaboration	<ul> <li>To what extent has using eNEPA for project development and agency review for a project increased transparency in the process?</li> <li>To what extent has using eNEPA for project development and agency review for a project increased accountability in project decisionmaking?</li> <li>To what extent has eNEPA changed workflows?</li> </ul>	<ul> <li>Qualitative assessment of the transparency of the process.</li> <li>Qualitative assessment of improved accountability in project decisionmaking.</li> <li>Documented changes in workflow processes.</li> </ul>

changed workflows?NOI = notice of intent; DEIS = draft environmental impact statement; FEIS = final environmental impactstatement; ROD = record of decision.

# 3. Evaluation Methodology

The evaluation team used two primary data-collection methodologies to inform this evaluation: a literature and document review and stakeholder interviews.

### 3.1 Literature and Document Review

The evaluation team conducted a review of available literature to gain an understanding of FHWA's eNEPA, its development, and its use. The evaluation team reviewed multiple types of literature, including key FHWA program documents (e.g., technical reports, the eNEPA user guide, marketing and outreach plans, and results from an eNEPA user survey).

### 3.2 Stakeholder Interviews

Between September 2015 and February 2019, the evaluation team conducted indepth, semistructured interviews with FHWA program staff and 13 additional stakeholders, collectively representing 4 FHWA Division Offices and 9 State DOTs, all of whom had experience using eNEPA. (See appendix A for details on the interview approach.) Several of the interviewees were interviewed multiple times over the course of the multiyear evaluation to assess how an agency's use of eNEPA changed over time.

The interviews were designed to address each of the four evaluation areas. (See appendix B for the list of interview questions.) The evaluation team assured all interviewees that their identities would remain confidential to achieve unbiased answers to interview questions. Throughout this report, when interviewees are quoted, the evaluation team noted the month and year of the interview as well as the interviewer, but interviewees' names have been redacted. To maintain continuity and comparability between interviewee responses, a generic title was attributed to each interviewee. The aforementioned information is placed in a footnote for each interview.

# 4. Evaluation Findings

The findings discussed in this section highlight the extent to which State DOTs have used eNEPA, the usability of eNEPA, the extent to which eNEPA has affected the environmental review timeline, and the extent to which eNEPA has affected interagency collaboration.

# 4.1 Evaluation Area One: Breadth and Depth of eNEPA Use

Finding 1a: Few State DOTs are using eNEPA.

Of the nine State DOTs interviewed, only three have actively used eNEPA. Two additional State DOTs are open to using eNEPA but have not recently worked on a major NEPA study. These two agencies noted that, because their agencies have few, if any, EISs, eNEPA provides limited utility. These two agencies reported that the vast majority of their projects are categorical exclusions (CEs), and therefore they have limited opportunities to use eNEPA. Because they only work on a small number of EISs and EAs, these agencies have little incentive to invest the time and resources to implement eNEPA in their processes.

Four of the State DOTs interviewed decided to not use eNEPA when developing environmental documents for the following reasons:

- **Comparable systems available:** Four State DOTs reported having existing internal systems (i.e., project-collaboration software, secure project websites, or document management systems provided by consultants) that provide some of the same functionality as eNEPA in terms of sharing access to documents for review. Each of these agencies explored using eNEPA but found that their existing internal system was easier to use than eNEPA. Two of these agencies made this decision based on their review of eNEPA 1.0 and have not tested eNEPA 2.0.
- Partner agencies unwilling to use the tool: Two State DOTs reported that the resource and regulatory agencies they routinely work with are unwilling to use eNEPA to review and provide comments on draft environmental documents. In particular, one State DOT noted that one regulatory agency will not review documents submitted electronically, which means it is not useful for their agency to use eNEPA on projects that involve that particular regulatory agency.<sup>1</sup>
- Limited resources to train staff: Two State DOTs noted there was no agency-wide directive to use eNEPA and that diverting resources to train new users may not be feasible. The decentralized nature of some agencies and differences between headquarters and regional needs also prevented wider adoption of the tool.

<sup>&</sup>lt;sup>1</sup>NEPA Practitioner; phone interview conducted by evaluation team member Gina Filosa in November 2018.

#### Finding 1b: State DOTs are using eNEPA for complex projects involving multiple agencies.

All projects for which users have used or are using eNEPA have similar characteristics: they require either an EIS or EA and involve many entities, including local, State, and Federal agencies that have a role in reviewing the environmental documents. The State DOTs interviewed noted that eNEPA is likely most useful for complex projects that involve multiple groups due to its ability to help coordinate document reviews and organize and track comments on draft documents.

In addition to using eNEPA for these more complex documents, several State DOTs have considered using eNEPA to submit CEs and Section 4(f) documents to its FHWA Division Office for review instead of using email and/or an FTP site.<sup>(7)</sup> One State DOT believed that having staff use the tool more frequently on smaller projects rather than only on major projects, which happen much less frequently, would help staff become more familiar with the tool and improve their overall use of it.<sup>2</sup>

Another State DOT that expressed interest in using eNEPA to process CEs, noted that it would only do so if the process was simplified. A user from that State DOT found that, even for CE projects, a high degree of effort is required upfront to set up a project in eNEPA. Because of the time commitment and level of effort required to set up a project in eNEPA, the tool is not useful for CE projects.<sup>3</sup> Similarly, another State DOT noted that, while it would be good in theory to use eNEPA for CEs, it would likely not be practical. The agency noted that staff are entrenched in how they currently process CEs. Resource and regulatory agencies have their own tracking systems for CEs, and using eNEPA would fall outside those tracking systems. As a result, using eNEPA for CEs may actually create an extra step and make processing CEs a bit more complicated.<sup>4</sup>

Finding 1c: State DOTs are not using the full functionality of eNEPA.

State DOTs have primarily used eNEPA's document-manager and file-sharing functions and have not fully used eNEPA for project reviews, which is one of the primary features that differentiates eNEPA from other document-management systems that State DOTs use.

The following are examples of how State DOTs have used eNEPA to date:

One State DOT used eNEPA 2.0 for a road-relocation project that required an EA. The State DOT initially used the first version of eNEPA on this project and later transferred the project to eNEPA 2.0. The agency primarily used eNEPA as a document manager. The agency wanted to use eNEPA to share documents with participating agencies for review and to track their comments, but it had some difficulty getting the participating State and Federal agencies to use eNEPA for that purpose. The State DOT contact cited challenges with logging into eNEPA and a general resistance to changing the typical process of interagency coordination for an EA as the primary reasons the participating agencies did not use eNEPA to submit comments.<sup>5</sup>

<sup>&</sup>lt;sup>2</sup>NEPA Practitioner; email correspondence conducted by evaluation team member Gina Filosa in October 2017.

<sup>&</sup>lt;sup>3</sup>NEPA Practitioner; phone interview conducted by evaluation team member Gina Filosa in November 2018.

<sup>&</sup>lt;sup>4</sup>NEPA Practitioner; phone interview conducted by evaluation team member Gina Filosa in November 2017.

<sup>&</sup>lt;sup>5</sup>NEPA Practitioner; phone interview conducted by evaluation team member Gina Filosa in October 2015.

- The same State DOT is currently using eNEPA for a project that requires an EIS. The project is in the pre-notice-of-intent stage. To date, the agency has only used eNEPA to set up a project template.<sup>6</sup>
- A different State DOT is using eNEPA for a project that requires an EA. The State DOT is coleading the project with the National Park Service. The agencies are collaborating to draft the environmental document and are using eNEPA to share draft versions of the EA. The State DOT is not planning to use eNEPA to share the draft EA with regulatory or resource agencies for review and comment.<sup>7</sup>

### 4.2 Evaluation Area Two: Usability of eNEPA

Finding 2a: eNEPA 2.0 addressed many of the challenges users had with the initial version of the tool.

State DOTs identified a number of issues with the initial version of eNEPA that greatly limited its usefulness. Although FHWA piloted eNEPA with a small group of State DOTs prior to fully deploying the tool, it was not until after the national rollout that FHWA identified a number of issues with the tool. Some of these issues stemmed from the fact that eNEPA was initially programmed by a third-party developer and was later transferred to FHWA to host internally. Other issues were later identified once users were able to more fully use the tool for their projects.

As part of the eNEPA rewrite, FHWA formed an eNEPA Technical Work Group to beta-test the updated version of the tool, provide an assessment, and make recommendations for additional modifications. Engaging the end-users in the design and development of the updated version of the tool enabled FHWA to develop a product that met their needs. In 2017, the evaluation team conducted followup interviews with State DOTs about their use of eNEPA 2.0 and found that most users were satisfied with the changes made as they believed that version 2.0 was a vast improvement over the initial version. Several interviewees lauded FHWA's responsiveness to their suggestions for improving the tool to make it more usable for State DOTs.

Table 4 lists the issues that interviewees identified with eNEPA 1.0 and identifies how FHWA resolved these issues in eNEPA 2.0.

<sup>&</sup>lt;sup>6</sup>NEPA Practitioner; phone interview conducted by evaluation team member Gina Filosa in November 2018.

<sup>&</sup>lt;sup>7</sup>NEPA practitioner; phone interview conducted by evaluation team member Gina Filosa in November 2018.

#### Table 4. eNEPA issues and resolutions.

Issue in Version 1.0	Resolution in Version 2.0	
Lack of flexibility with project workflows: The Project Actions function in eNEPA 1.0 enabled users to complete specific tasks associated with their project. The actions, which represent tasks that users perform, were organized into three areas: Transportation Planning actions, EA actions, and EIS actions. Users were required to complete fields for specific predefined actions in a sequential order for a project. Users found eNEPA to be cumbersome, mostly due to the tool requiring a strict, linear order for completing actions and a decision tree that had limited flexibility. Users noted that, in practice, projects are not always completed in the linear process that eNEPA required.	Created customizable project workflows: eNEPA 2.0 allows users to fully customize their project workflows and add actions. These revisions allow users to develop entirely new workflows, including a CE-workflow, to cater to their State- specific or even region-specific processes. The State DOTs interviewed noted that the customizable project templates allow them to create a project workflow in eNEPA that works with their unique agency workflows. While one agency noted that they would like to see even more customization, namely in terms of being able to modify the name/description of fields within the workflow, <sup>8</sup> each confirmed that the project templates provide a vast improvement on the tool's overall usability.	
<ul> <li>Lack of flexibility with Document Review function: The Document Review function in eNEPA 1.0 was a collaboration interface for State DOT and agency reviewers. Several State DOT staff interviewed noted issues with the design of the features of the Document Review function:</li> <li>The workflow for reviewing a document did not align with the agency's internal review processes. eNEPA 1.0 was designed to only allow certain documents to be reviewed in a certain order and by certain reviewers.</li> <li>There was an option to upload a document and designate "State," "FHWA," or "All" users to review it. Agencies noted that many documents only require core project team members or a few select users to review them. eNEPA 1.0 did not have the capability to allow users to designate reviewers outside those preset options.</li> <li>eNEPA 1.0 had preset categories for documents and did not allow users to create different categories. Agencies noted that they wanted to use the Comments feature for documents not included in the preset categories (e.g., methodology memos).</li> </ul>	<ul> <li>Restructured Document Review function:</li> <li>eNEPA was restructured to make document reviews easier and enable version control. The capacity of the tool was increased to allow for multiple and larger file uploads. Restrictions were removed to allow actions to flow as the Project Manager sees fit and allow multiple reviews of the same action. The addition of customizable workflows and actions aids the Project Manager in assigning reviews to whomever they deem appropriate.</li> <li>Added the Deputy Project Manager role:</li> <li>A Deputy Project Manager (DPM) role was added to the tool. Two State DOTs interviewed noted that adding the DPM role has improved the usability of the tool because the role is key, particularly for projects that involve consultants who are tasked with leading the routing of documents.</li> </ul>	

<sup>&</sup>lt;sup>8</sup>NEPA practitioner; phone interview conducted by evaluation team member Gina Filosa in November 2017.

#### Finding 2b: Users identified additional challenges using eNEPA 2.0.

While the State DOTs using eNEPA have found version 2.0 more user-friendly than the initial version, respondents continued to identify challenges, such as the following:

• Many features are still not intuitive: The inherent nature of the environmental-review process, in that a project may go through several starts and stops and may have long lag times between key project milestones, means that many users will use eNEPA intermittently. This approach makes it more challenging for novice users to build up their familiarity and comfort with using the tool. Because of this outcome, the tool and its features need to be more intuitive for users so that they do not have to relearn the tool every time they use it.

As described in section 1.3, FHWA is currently making updates to eNEPA 2.0 to enhance the user-friendliness of the tool.

• Login and account setup are still problematic: One State DOT noted that they continue to experience issues when logging in to eNEPA and getting locked out of the tool after long periods of inactivity (eNEPA users that have not logged in to the tool in 90 days are locked out). The user cited the login issue as a major impediment to using the tool, particularly when using the tool to coordinate with resource and regulatory agencies. The individual also noted that the current process for unlocking an account, which requires someone at FHWA Headquarters to manually unlock an account, is not efficient and may result in long delays if the particular contact person is out of the office. Further, the State DOT user cited challenges when setting up eNEPA accounts for new users, noting that they recently encountered numerous problems when setting up an eNEPA account for a consultant managing their environmental document.<sup>9</sup>

FHWA is aware of the challenges that users face when their eNEPA accounts are locked. FHWA and other DOT employees access eNEPA through the User Profile and Access Control System (UPACS), the single sign-on security system used to access FHWA applications. Because eNEPA is accessed through UPACS, FHWA is not able to simplify the process by which eNEPA users unlock their accounts. FHWA did note that all users who have not accessed the system in the past 90 days receive an email that notifies them that they need to log into the system or they risk being locked out.

• **Project templates are still not flexible enough:** One State DOT noted that the inability to edit a template once it is created is an issue.<sup>10</sup> The user created a new project using the generic EIS template not knowing that they could not edit the template once it was set up. The State DOT user recommended providing more flexibility to enable users to edit templates throughout the process.

FHWA does not have immediate plans to enable users to edit templates once they are created.

<sup>&</sup>lt;sup>9</sup>NEPA practitioner; phone interview conducted by evaluation team member Gina Filosa in November 2018.

<sup>&</sup>lt;sup>10</sup>NEPA practitioner; phone interview conducted by evaluation team member Gina Filosa in November 2018.

# 4.3 Evaluation Area Three: Environmental-Review Timeline

Due to eNEPAs limited use to date, not enough data exist to assess the extent to which eNEPA has affected the time required to complete the environmental-review process; therefore, there are no findings associated with this evaluation area. One State DOT interviewed noted that its initial use of eNEPA delayed the process since several of the reviewers had technological problems logging into the system and submitting comments.<sup>11</sup>

### 4.4 Evaluation Area Four: Interagency Collaboration

Finding 4: Few State DOTs have used eNEPA for interagency collaboration.

Due to eNEPAs limited use to date, not enough data exist to assess the extent to which eNEPA has affected the timing, quantity, and quality of collaboration among agencies while developing environmental documents. Few State DOTs have used eNEPA for interagency collaboration. As noted in section 3.1, two State DOTs reported that the resource and regulatory agencies they routinely work with are unwilling to use the eNEPA system to review and provide comments on draft environmental documents.

One State DOT that used eNEPA 1.0 to coordinate an interagency project review with the two resource agencies—the Forest Service and Fish and Wildlife Service—identified benefits to using the tool. The user noted that eNEPA enabled the agency to set deadlines that were visible to everyone. The user also noted that the structure of the review, which enabled reviewers to either make limited comments in a forum-style posting or attach a marked-up document and enabled other reviewers to see others' comments, was useful for improving the transparency of the process and accountability of the State DOT's project decisionmaking. eNEPA provided a record of comments and responses that everyone could see. The user found this particular feature useful as one of the resource agencies they were working with argued that the State DOT did not consider their comments, but the State DOT had documentation within eNEPA showing that they did provide written responses to the resource agency.<sup>12</sup>

eNEPA 2.0 includes new features that may further facilitate interagency collaboration related to the permitting process. The tool features new functions for processing USCG and USACE permits as part of the eNEPA workflows. These functions have features like reminders and set actions in the workflow that correspond with the Synchronizing Environmental Reviews for Transportation and Other Infrastructure Projects: 2015 Red Book.<sup>13(8)</sup>

<sup>&</sup>lt;sup>11</sup>NEPA Practitioner; phone interview conducted by evaluation team member Gina Filosa in October 2015. <sup>12</sup>NEPA Practitioner; phone interview conducted by evaluation team member Gina Filosa in October 2015.

<sup>&</sup>lt;sup>13</sup>The Red Book encourages widespread adoption of concurrent review processes and supports effective coordination among transportation, resource, and regulatory agencies during NEPA and permit-review processes.

# 5. Recommendations

Based on the findings, as well as input from State DOT users, the evaluation team developed the following recommendations. The purpose of these recommendations is to help FHWA focus its resources and efforts to promote greater use of eNEPA and future tools.

### 5.1 Recommendations for eNEPA

Recommendation 1: Target outreach and education at State DOTs that have upcoming projects.

Several State DOTs interviewed noted that, because of their low volume of EISs, their agency has little incentive to invest time and resources to implement eNEPA into their processes. To increase the use of eNEPA among State DOTs, FHWA should target its outreach and education at State DOTs that conduct a higher number of EISs. FHWA should engage State DOTs to identify those that will be starting a complex EA or EIS in the short term and encourage them to use eNEPA.

State DOTs users also indicated that a long lag time often occurred between when they received training on eNEPA (either via webinar or a State-specific training) and when they started to use the tool for a project. As a result, users had to relearn the tool prior to using it. To maximize the impact of eNEPA training, a State should first identify a specific project for which they can use eNEPA. FHWA should then provide tailored training and/or technical assistance to the project team once the team is ready to begin using eNEPA.

Recommendation 2: Provide additional training videos.

In its latest update of eNEPA, FHWA developed the capability to upload videos to the tool. FHWA should use this feature to develop short training videos that guide users through key actions in the tool, such as setting up an account, creating and using project templates, reviewing documents, and so forth.

Recommendation 3: Increase outreach to resource and regulatory agencies.

FHWA should conduct outreach to select resource and regulatory agencies—namely the Forest Service, Fish and Wildlife Service, Environmental Protection Agency, and Advisory Council of Historic Preservation—to educate these agencies on the benefits of using eNEPA and address any concerns they may have with using the tool. In addition, FHWA should create guidance documents and training videos tailored to agencies that only use the tool intermittently to contribute to document reviews.

Recommendation 4: Prioritize updates to the tool that improve user-friendliness.

While eNEPA 2.0 addressed many limitations of version 1.0, users noted that the tool still has features that are not intuitive, thus impeding overall use of the tool. User acceptance of eNEPA is likely to remain low if users do not perceive the tool as being easy to use. In the short term, FHWA should prioritize updates that improve the tool's user-friendliness rather than adding new functionalities.

FHWA should update the eNEPA user guide to include detailed information on the need to log-in to eNEPA periodically to avoid getting locked out and provide clear guidance and contact information on the eNEPA website for unlocking an account.

Recommendation 5: Continue to collect user feedback and tailor the tool accordingly.

Since the inception of eNEPA, FHWA has solicited feedback from users and made updates and revisions to the tool that address users' needs. FHWA should continue to engage current and prospective eNEPA users through a technical work group to collect their feedback on the current tool, discuss potential new features, and beta-test new functions. FHWA should not only target State DOT users but also engage prospective users from resource agencies to ensure new features and functionalities are designed to address their needs as well. Continuing to collect information on how State DOTs and others are using the tool and responding to user needs will help ensure the tool stays relevant and useful.

# 5.2 Recommendations for Future Developments of FHWA Tools

Recommendation 6: Identify who will provide hosting and maintenance services early in the design phase to ensure compatibility with information-technology (IT) standards and requirements.

During the development of eNEPA and pilot-testing phase, the tool was hosted and maintained externally by the consultant. Prior to deployment, FHWA determined that the consultant's website and database servers did not comply with Federal standards and made a decision to host and maintain the tool in-house. Transferring the tool to FHWA servers caused some technical issues with the functionality of the tool, and modifications to address the bugs in the system were difficult to make.

A project team should consider where a Web-based tool will ultimately be hosted early in the design phase as it is more cost-effective to design a tool to meet IT and security standards from the beginning than to modify it at a later stage.

#### Recommendation 7: Address known issues identified in the testing phase before deployment.

As part of its development process, FHWA engaged several State DOTs to pilot test early iterations of eNEPA. However, the pilot phase was brief and did not provide users with enough time to fully test the tool. Following the national rollout, FHWA sought additional feedback from the pilot-phase participants about their use of the tool. At that time, the users identified a number of challenges with the tool regarding specific functions not working correctly and certain aspects of the tool not aligning with the way individual agencies manage the environmental-review process. As a result, several early eNEPA users had poor experiences with the tool, which made them decide not to use it. Although FHWA addressed most of the early issues with eNEPA 2.0, some users have not re-engaged in eNEPA due to their early experience with the tool.

In the future, before nationally deploying a new tool, FHWA should conduct more thorough testing and prioritize addressing issues that will have negative impacts on user experience. While this approach may delay deployment, it will help ensure early users of a tool have a better experience, which will help increase early adoption of a new tool.

# 6. Conclusions

In 2012, FHWA began to develop a custom Web-based solution to help users improve the quality of interagency collaboration when developing environmental documents and reduce the time it takes to conduct environmental reviews for major projects. When FHWA released eNEPA in 2013, it marketed it as a fully developed tool. However, eNEPA 1.0 had many limitations that impeded users' acceptance of the tool. In 2016, FHWA initiated a rewrite of the tool and addressed many of the tool's initial faults and issues. With the release of eNEPA 2.0 and ongoing and planned updates, FHWA has provided a tool to support users' development of environmental documents.

Findings from this eNEPA evaluation indicate that eNEPA 2.0 has not been in use long enough for users to realize its full benefits. State DOTs have primarily used eNEPA's document-manager and file-sharing functions and have not fully used eNEPA for project reviews, which is one of the primary features that differentiates eNEPA from other document-management systems that State DOTs use. A few current users of eNEPA plan to use eNEPA's project-review feature once their projects get to that stage.

Identifying opportunities and tools to improve the efficiency of the environmental-review process remains a high priority across the transportation field. The new requirement for Federal agencies to process environmental reviews and authorization decisions for major infrastructure projects in a single EIS creates an incentive for State DOTs to use innovative tools, such as eNEPA, to coordinate with resource and regulatory agencies in the environmental-review process.

As with any new technology, eNEPA involves a steep learning curve before it can be effectively and efficiently used. There may be some stumbling blocks along the way as each State DOT figures out how best to use the tool for managing and facilitating their environmental-review process. While eNEPA may not ever be widely used by State DOTs, the more that State DOTs use it and therefore build their comfort with and expertise in using it, the more benefits they are likely to experience.

By focusing its outreach and education on State DOTs that can most benefit from using the tool (i.e., State DOTs that conduct several complex EAs or EISs per year), FHWA can continue to increase the adoption and use of eNEPA. As eNEPA use increases, FHWA should continue to evaluate how it can customize the tool to address user needs.

This report primarily covers the evolution of eNEPA from its conception to the end of 2018. It is recommended that FHWA continue to explore the possibility of future enhancements, customizing the tool to address user needs.

# **Appendix A. Interview Approach**

Between September 2015 and February 2019, the evaluation team conducted indepth, semistructured interviews with FHWA program staff and 13 additional stakeholders, collectively representing 4 FHWA Division Offices and 9 State DOTs.

In 2015, the first year of the evaluation, the evaluation team conducted interviews with five transportation agencies—the Arkansas State Highway and Transportation Department, Arizona Department of Transportation, Maryland State Highway Administration, Washington Department of Transportation, and the Wisconsin Department of Transportation—regarding their experiences using eNEPA. The interview participants included three individuals who piloted eNEPA, as well as two who used eNEPA after it was officially released.

In 2016, HEP initiated updates to eNEPA to address issues with the overall architecture and several specific functions. In anticipation of the relaunch of the improved eNEPA, those State DOTs that were using the tool stopped doing so, and others that expressed interest in the tool decided to wait until the new and improved version is released to begin using it. Because of the lack of use of the tool during 2016, the evaluation team did not conduct interviews with State DOTs during 2016.

Between October and November 2017, the evaluation team conducted interviews with four State DOTs and had email correspondence with two State DOTs. The agencies included those that were interviewed during 2015, as well additional agencies with active projects in eNEPA. In the final year of the evaluation—between October 2018 and February 2019—the evaluation team conducted interviews or had email correspondence with 10 agencies, representing eight States. The interviewees included the agencies that were interviewed during 2015 and 2017, as well as additional agencies that represented eNEPA users and nonusers. See table 5 for a complete list of agencies interviewed. The interviews yielded detailed notes and quotes on the topic areas covered in each interview.

#### Table 5. List of interviewees.

Agency	Interviewee(s)	Date of Interview or Correspondence
Arizona DOT	NEPA Practitioner	October 1, 2015 October 25, 2017* November 6, 2018*
Arkansas FHWA Division Office	Environmental Coordinator	December 19, 2018
Arkansas State Highway and Transportation Department	NEPA Practitioner	October 14, 2015 November 3, 2017 November 15, 2018
Delaware DOT	NEPA Practitioner	November 7, 2018
FHWA Office of Project Development and Environmental Review	Environmental Protection Specialists	September 15, 2015 October 25, 2016 September 27, 2017 October 5, 2018 February 4, 2019 February 25, 2019

Agency	Interviewee(s)	Date of Interview or Correspondence
Indiana DOT	NEPA Practitioner	November 15, 2018
Louisiana Department of Transportation and Development	NEPA Practitioner	November 1, 2017 February 28, 2019
Maryland Department of Transportation State Highway Administration	NEPA Practitioner	October 1, 2015* October 20, 2017* November 1, 2018*
Missouri DOT	NEPA Practitioner	November 2, 2018
North Dakota FHWA Division Office	Environmental Program staff	November 2, 2018*
Washington DOT	NEPA Practitioner	October 27, 2015 November 1, 2017
Washington DOT	Local Programs Office staff	January 5, 2016
Washington FHWA Division Office	Environmental Program staff	January 5, 2016
Wisconsin DOT	NEPA Practitioner	December 15, 2015

\*Corresponded by email.

# **Appendix B. Interview Guides**

Section B.1 provides the interview guide the evaluation team used for conducting interviews with State DOTs that actively use eNEPA, while section B.2 provides the interview guide for State DOTs that do not actively use eNEPA.

### B.1 Interview Guide for eNEPA Users

### Area One: Breadth and Depth of eNEPA Use

- 1. Background info:
  - a. Respondent name:
  - b. Respondent agency:
  - c. Respondent job title/role at agency:
  - d. Respondent role with regards to eNEPA:
- 2. Why did your agency decide to use eNEPA? What problem were you trying to solve?
- 3. Please describe the project(s) that you have entered into eNEPA:
  - a. General project description.
  - b. Class of action.
  - c. What is the current status of the project/what phase is it in within the project development process?

### [FOR EACH PROJECT, REPEAT QUESTIONS 4-6.]

- 4. How have you used the eNEPA tool for this project to date?
  - a. Are you using eNEPA for internal project management or project review?
  - b. Please provide a brief description of how eNEPA has been integrated into your project management processes.
  - c. Have you used eNEPA to coordinate document reviews with the FHWA Division Office?
    - i. If yes, please provide a brief description of how the review process was managed using eNEPA.
    - ii. If no, please provide the primary reasons why not.
  - d. Have you used eNEPA to coordinate document reviews with resource or permitting agencies?
    - i. If yes, please provide a brief description of how the review process was managed using eNEPA.
    - ii. If no, please provide the primary reasons why not?
- 5. What functions do you use in eNEPA?
  - a. Documents.
  - b. Contacts.
  - c. Calendar.
  - d. Meetings.
  - e. Actions.
    - i. Transportation Planning.
    - ii. Environmental Assessment.

- iii. Environmental Impact Statement.
- f. Reviews.
- 6. Are there additional functions that you intend to use in the future?
- 7. Are there any barriers—institutional, technological, etc.—that limit your ability to use certain functions within eNEPA? If so, which eNEPA functions are affected by these barriers?

### Area Two: Usability of eNEPA

- 1. How did you learn to use eNEPA?
  - a. Did you receive any training? If so, please describe.
  - b. Do you refer to any resources to learn how to use eNEPA? If so, please describe.
- 2. How would you describe the user-friendliness of the tool?
- 3. What functions did you find most useful?
- 4. What challenges do you face with using the tool or using specific functions in the tool?
- 5. How would you like to see certain features/functions changed to be more useful?
- 6. Are there additional features/functions that you would like to see added to future versions of eNEPA?
- 7. How does eNEPA align with other internal workflows and systems that are used for the environmental-review process?
- 8. Have you changed any internal workflows and systems that are used for the environmentalreview process as a result of using eNEPA? If so, which workflows/systems have changed? How have they changed?

### Area Three: Environmental-Review Timeline

[ASK THE FOLLOWING QUESTIONS FOR EACH PROJECT IDENTIFIED ABOVE.]

- 1. To what extent has using eNEPA affected the overall environmental-review timeline for the project?
  - a. In your judgment, have the following milestones been (a) accelerated, (b) delayed, or (c) remained about the same due to eNEPA?
    - i. NOI.
    - ii. DEIS.
    - iii. FEIS.
    - iv. ROD.
- 2. What specific aspects of eNEPA have affected the timeline?
- 3. eNEPA allows users to enter due dates for specific activities (i.e., a review due date). Do you use this feature?
  - a. If yes, do you find that people generally accept the due dates assigned to specific tasks?
  - b. Have users met the due dates proposed for the various activities?
  - c. If no, what factors contribute to not meeting the established due dates?

In order to better understand to what extent eNEPA has affected the timeline for the environmentalreview process we are hoping to compare those projects that are in eNEPA to comparable projects within the State. Outside of eNEPA, what information do you track in terms of the timeline for the project-development process/environmental-review process?

d. For EAs: What do you consider the "start" of the process?

4. Do you have a comparable project or set of projects (in terms of scope/complexity) that you would be able to provide information on the length of time it took to complete the environmental-review process, and/or specific milestones within that process?

### Area Four: Interagency Collaboration

[ASK THE FOLLOWING QUESTIONS FOR EACH PROJECT IDENTIFIED ABOVE.]

- 1. Have any resource or permitting agencies used eNEPA as part of your project? If so, which?
- 2. How has using eNEPA affected your coordination with the resource/permitting agencies for this project?
- 3. Has eNEPA changed the way you work with this agency in terms of project review? If so, how?
- 4. One of the goals of eNEPA is to increase transparency in the review process. In your opinion, has eNEPA affected transparency in the environmental-review process?
- 5. One of the goals of eNEPA is to increase accountability in project decisionmaking. In your opinion, has eNEPA affected accountability in the project development or environmental-review process?

### **Additional Questions**

- 1. Do you plan to use eNEPA for future projects? Why or why not?
- 2. What changes would need to be made for you to use eNEPA more/differently?
- 3. What advice would you give to other State transportation agencies that are considering using eNEPA?
- 4. Is there any other information or feedback you would like to provide about eNEPA?

### B.2 Interview Guide for eNEPA Nonusers

- 1. What are the main reasons that your agency has chosen not to use eNEPA at this point in time?
- 2. Do you have any plans to use eNEPA in the future?
- 3. What changes would need to be made for you to use eNEPA?

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