## **Program Evaluation of FHWA Pedestrian and Bicycle Safety Activities**

Federal Highway Administration (FHWA)

## **Final Report**

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## **Executive Summary**

#### Introduction

FHWA's Office of Highway Safety (HSA) initiated a program evaluation by Booz Allen Hamilton to assess the overall effectiveness of the Agency's Pedestrian and Bicycle Safety Program. The evaluation covers pedestrian and bicycle safety activities conducted throughout FHWA headquarters' safety, planning, and research offices and field Resource Center and Division Offices. The evaluation (1) includes a qualitative and quantitative assessment of the effectiveness of FHWA's current program design and delivery and (2) identifies specific program management and performance recommendations to improve program outcomes.

#### **Evaluation Overview**

FHWA's primary customers for the Pedestrian and Bicycle Safety Program are state DOTs and local agencies. The program develops guidance on processes to improve safety planning, develops and tests specific pedestrian and bicycle safety countermeasures and strategies, and provides training and technical assistance. Rather than assessing the effectiveness of individual program activities, this evaluation looks at the overall management processes FHWA uses to identify needs and trends from its primary customers, how best to deliver these services, and the impacts of its activities in reducing pedestrian and bicycle safety fatalities and injuries nationwide.

HSA conducts evaluations of individual programs within its office to identify opportunities to optimize the performance of its activities. The results of this evaluation of pedestrian and bicycle safety activities may be used by FHWA management to support decision making among the broad range of priorities and programs the agency administers. FHWA may use the findings and recommendations from this evaluation to select a set of short- and long-term actions to improve the management of the Pedestrian and Bicycle Safety Program.

#### Methodology

To assess FHWA's Pedestrian and Bicycle Safety Program, Booz Allen developed a four-step methodology, depicted in Figure 1.



#### Figure 1: Evaluation Methodology Overview

HSA managed the project and established an Evaluation Working Group (EWG) with representatives from HSA, the Office of Planning and Environment (HEP), the Resource Center, and Division Offices to provide oversight and feedback throughout the evaluation process. Booz Allen worked with the EWG to refine the study plan, reviewed documents and data, and then conducted 35 interviews with internal and external partners and stakeholders. Based on the analysis of information and feedback from the EWG members, Booz Allen prepared a Mid-Point Report that summarized initial findings and potential recommendations. The EWG also reviewed and commented on the Draft Final Report for this program evaluation. The EWG then met to discuss and prioritize the recommendations and potential action items. This final report reflects comments, discussion, and priorities from the EWG during the evaluation and encompasses all evaluation components including program strengths, challenges, opportunities for improvement, recommendations, data analysis, the current and future state logic models, the current and future state program management process maps, and a list of proposed action items.

A key step of the program evaluation was to capture an accurate picture of FHWA's current Pedestrian and Bicycle Safety Program activities and decision-making processes. To complete this step, Booz Allen reviewed program documents, analyzed pedestrian and bicycle data, and conducted interviews with federal, state, and local transportation agency staff involved in pedestrian and bicycle safety activities as well as pedestrian and bicycle safety advocates.

#### Baseline Program Assessment Includes:

- ✤ Logic Model
- Program Management Process Map
- ✤ Analysis of Available Data

#### Overview of Findings, Recommendations, and Action Items

The evaluation demonstrates that FHWA is a national leader in promoting and guiding pedestrian and bicycle safety activities of state and local transportation agencies. State and local agencies are FHWA's primary customers. FHWA conducts activities in support of state and local pedestrian and bicycle safety including collecting and analyzing data, conducting research, developing and evaluating countermeasures, and providing training and technical assistance. FHWA promotes a comprehensive 4 E's (engineering, education, enforcement, emergency services) approach to improving pedestrian and bicycle safety. The Agency focuses most of its pedestrian and bicycle safety efforts on engineering solutions and promotes pedestrian and bicycle facilities as a key strategy to improve safety. This focus on facilities to improve safety creates an opportunity to better coordinate, partner, and leverage the Agency's planning, operations, and infrastructure functions to enhance safety. In recent years, analysis of crash data has shown a nationwide reduction in pedestrian and bicycle facilities and injuries even as walking and biking rates continue to increase. FHWA's Pedestrian and Bicycle Safety Program has produced and evaluated countermeasures, strategies, activities, and training and safety funding.

It is important to note that FHWA only has direct control of the training, technical assistance, oversight, and guidance it provides to state and local agencies. State DOTs and local agencies follow transportation planning process prescribed by FHWA, but they establish their own priorities and determine the specific program of projects to be funded. FHWA is also a key actor in the complex *network* of semi autonomous organizations that impact pedestrian and bicycle safety. This network includes federal, state, and local agencies; nongovernmental organizations (NGOs); business and economic development; individuals; and special interest groups. Functioning effectively in this complex requirement presents dual challenges for FHWA's management. First, it must optimize the effectiveness of its own pedestrian and bicycle safety activities and resources. Second, it must manage its program so it is an effective and influential partner within the complex network of organizations involved in the safe accommodation of pedestrian and bicycles in transportation systems. The recommendations and action items in this evaluation focus on FHWA program activities in which the Agency has direct management control. The recommendations also increase the effectiveness of the

Agency's leadership role in the network of pedestrian and bicycle to promote pedestrian and bicyclist safety nationwide.

While FHWA's Pedestrian and Bicycle Safety Program has resulted in a wealth of countermeasures, strategies, training, and safety funding and activities available to every state, more can be done to increase pedestrian and bicyclist safety. Challenges to address to improve the program include the following:

- There is a lack of broad support for safely accommodating pedestrians and bicycles in some Federal, state, and local transportation agencies.
- FHWA recommends specific policies and steps for state and local agencies to enhance pedestrian and bicycle safety and should work to fully implement those changes within FHWA.
- Safe accommodation of pedestrians and bicyclists is not fully incorporated as an integral part of each of FHWA's core programs.
- Some State DOTs do not have comprehensive pedestrian and bicycle safety programs.
- There is insufficient exposure and facility inventory data to effectively support decision making in the Pedestrian and Bicycle Safety Program.
- There is no institutionalized and ongoing process for FHWA to collect feedback from states and local agencies on pedestrian and bicycle safety issues, activities, deployment, or results.

#### Conclusion

With the Department's and Administration's focus and funding for livability initiatives, FHWA has a unique opportunity to strengthen its pedestrian and bicycle activities. Transportation is evolving to be seen not only as a tool to increase mobility but also as a key strategy to support livability goals, including economic development and community, health, and safety. With these policy priorities, FHWA's Pedestrian and Bicycle Safety Program is well positioned to play a central role in the emerging vision for multimodal transportation systems that fully accommodate all transportation users.

The study finds enhanced program management strategies will improve the effectiveness of the Pedestrian and Bicycle Safety Program. Potential outcomes of an enhanced program include:

- Leading fundamental change in the transportation industry toward equal consideration for safe access for pedestrian and biking in the transportation system;
- Better targeting FHWA resources and activities to help meet the current and emerging needs of states and local agencies on the front line of pedestrian and bicycle safety;
- Leveraging FHWA expertise throughout its core programs to help meet pedestrian and bicycle goals;
- Improving performance data and customer feedback to guide management decisions; and
- Fostering highly effective state and local programs which safely accommodate pedestrians and bicyclist throughout transportation.

The study outlined six recommendations with 15 action items to build on the strengths of the current program while positioning the program for the future. Table 1 summarizes the findings of the evaluation, recommendations to strengthen the program, and a list of proposed action

items for the Agency to consider. The table also includes the EWG's prioritization of the action items. "Quick Wins" are those items that would be easiest to implement with existing resources. "Highest Impacts" are those items that would be more difficult and/or require more resources to implement but would have the most impact on safety. Each of the action items was selected by one or more of the EWG members as a Quick Win or High Impact. The chart compiles the EWG's assessment into high, medium, and low priorities for each of these categories. The Booz Allen team will present the findings, recommendations, and potential action items from the evaluation to senior management in HSA for their consideration.

Summary of Pe Finding	Evaluatio Gr Prio	n Working oup prities		
Findings	Recommendations	15 Potential Action Items	Quick Wins	Highest Impact
1. Focus Efforts to F	oster a Pedestrian and B	icycle Safety Culture		
There is a lack of broad support for pedestrian and bicycle safety activities in some	Foster a pedestrian and bicycle safety culture within FHWA, state, and local transportation	1. Develop and deliver awareness training for transportation program managers, engineers, and specialists.	HIGH	MEDIUM
transportation agencies.	agencies.	2. Implement changes in standard operating procedures, guidance, and manuals.	MEDIUM	HIGH
		<b>3.</b> Establish accountability of transportation professionals for results.	LOW	LOW
2. Implement Curre	nt Policies			
FHWA recommends specific policies and steps for state and local agencies to enhance pedestrian and bicycle safety but has not implemented those changes within FHWA.	Implement FHWA and DOT policy recommendations to integrate pedestrian and bicycle safety activities throughout FHWA.	4 Develop an agency-wide action plan to implement current DOT pedestrian and bicycle policy guidance within FHWA to support its safety program.	MEDIUM	MEDIUM
3. Mainstream Pede	strian and Bicycle Progra	am in FHWA	L	
Pedestrian and bicycle safety is not incorporated as part of each of FHWA's core programs.	Mainstream and manage pedestrian and bicycle safety activities among the safety, planning, research, operations, infrastructure, and Division Offices in FHWA as a single program.	5. Establish a matrix group within FHWA with representatives from safety, planning, environment, operations, infrastructure, Civil Rights, Federal Lands, and the field to oversee the Pedestrian and Bicycle Safety Program.	HIGH	HIGH
		<b>6.</b> Develop a detailed action plan to fully integrate pedestrian and bicycle	LOW	HIGH

 Table 1: Summary of Pedestrian and Bicycle Safety Program Evaluation

 Findings, Recommendations, and Action Items

Summary of Pedestrian and Bicycle Safety Program Evaluation Findings, Recommendations, and Action Items					on Working coup prities
Findings	Recommendations	-	15 Potential Action Items	Quick Wins	Highest Impact
			safety and facilities programs throughout its safety, planning, operations, infrastructure, and field programs.		
4. Encourage Effect	ive State and Local Progr	am	S		
Some state DOTs do not have a comprehensive Pedestrian and Bicycle Safety Program.	Promote and track effective Pedestrian and Bicycle Safety Program management strategies by state and local agencies.	7.	Develop a Capability Maturity Model (CMM) approach to guide, monitor, and measure state and local agency progress toward a comprehensive Pedestrian and Bicycle Safety Program. Demonstrate the benefits	LOW HIGH	MEDIUM
		9.	of proactive, system-wide pedestrian and bicycle safety improvements. Evaluate current	- nor i	, and the second second
			guidelines and procedures for the Divisions' review of, comment about, and report on the content of their state's SHSP and identifies opportunities to collect program information as part of this review	LOW	LOW
		10.	Improve the effectiveness of State Bicycle and Pedestrian Coordinators by establishing two-way communication among Division staff and their Coordinators to provide support and share information on state and local pedestrian and bicycle safety initiatives.	HIGH	LOW

Introduction

Summary of Pedestrian and Bicycle Safety Program Evaluation Findings, Recommendations, and Action Items					on Working coup prities
Findings	Recommendations		15 Potential Action Items	Quick Wins	Highest Impact
5. Collect Exposure	and Program Data				
There is insufficient exposure and facility inventory data to effectively manage the Pedestrian and Bicycle Safety Program.	Address safety data limitations to support management and evaluation of the Pedestrian and Bicycle Safety Program at the federal, state, and local levels.	11.	In developing the approach and scope for the planned studies to improve pedestrian and bicycle safety data, FHWA should partner with NHTSA to evaluate the FARS and identify training, coding, and other data issues to enhance pedestrian and bicycle crash reporting, FHWA should specifically include exploration and development of program management data that will also help FHWA manage its Pedestrian and Bicycle Safety Program. Share best practices and explore potential incentives to encourage state and local agencies to collect information on the numbers of pedestrians and bicyclist and the amount and condition of pedestrian and bicycle facilities.	LOW	HIGH
6. Establish Feedba	ck Loops				1
There is no institutionalized and ongoing process for FHWA to collect feedback from states and	Create feedback loops in FHWA's management of its Pedestrian and Bicycle Safety Programs, and	13.	Compile currently available data and create periodic management reports on to support program decision making	HIGH	MEDIUM
local agencies and pedestrian and bicycle safety issues, activities, deployment, or	data to help guide decision making.	14.	Establish mechanism to coordinate with Division Office staff on state DOT and local pedestrian and safety issues regularly	LOW	LOW
results.		15.	As part of the training	HIGH	MEDIUM

Summary of Pe Findinş	Evaluatio Gr Prio	on Working coup prities		
Findings	Recommendations 15 Potential Action Items		Quick Wins	Highest Impact
		assessment by students in Resource Center and NHI courses on pedestrian and bicycle safety, include a follow-up self- assessment a year later from the students on impacts, changes, and benefits from the training.		

## 1.0 Introduction

FHWA's Office of Highway Safety (HSA) initiated a program evaluation by Booz Allen Hamilton to assess the overall effectiveness of the Agency's Pedestrian and Bicycle Safety Program. The evaluation covers the pedestrian and bicycle safety activities conducted throughout FHWA's headquarters safety, planning, and research offices and field Resource Center and Division Offices. The evaluation (1) includes a qualitative and quantitative assessment of the effectiveness of FHWA's current program design and delivery and (2) identifies specific program management and performance recommendations to improve program outcomes.

FHWA's primary customers for the Pedestrian and Bicycle Safety Program are State DOTs and local agencies. The program develops guidance on processes to improve safety planning, develops and tests specific pedestrian and bicycle safety countermeasures and strategies, and provides training and technical assistance. Rather than assessing the effectiveness of individual program activities, this evaluation looks at the overall management processes FHWA uses to identify needs and trends from its primary customers, how best to deliver these services, and the impacts of its activities to improve the effectiveness in reducing pedestrian and bicycle safety fatalities and injuries nationwide. FHWA may use the findings and recommendations from this evaluation to select a set of short- and long-term actions to improve the management of the Pedestrian and Bicycle Safety Program.

This program evaluation provides HSA with specific analysis, recommendations, and action items to consider in the overall management of its larger safety program activities. The evaluation assesses how well the Agency's activities to safely accommodate pedestrian and bicycles are achieving its objectives and identifies opportunities to improve the management of the program. The results of this evaluation may be used to support FHWA decision making among the broad range of priorities and programs the agency administers. Management decisions to improve pedestrian and bicycle safety may also support other Agency initiatives in mobility, congestion, accessibility, and productivity.

This report documents the results of the program evaluation, including the following sections:

- **Section 2.0 Methodology:** Describes the four-step approach used to conduct the Pedestrian and Bicycle Safety Program evaluation.
- Section 3.0 Baseline Assessment of Current Program: Presents a brief overview of the current Pedestrian and Bicycle Safety Program environment through the use of a logic model, program management process description, and quantitative data analysis. For a more thorough examination of the baseline assessment, refer to the additional documentation provided in the appendices of this report.
- Section 4.0 Findings and Recommendations: Identifies strengths, challenges, recommendations, and action steps to enhance the current program.
- Section 5.0 Conclusion and Next Steps: Provides a summary of the strengths and challenges impacting the Pedestrian and Bicycle Safety Program and recommendations for program improvement.
- **Appendices**: The appendices include detailed information on the current state logic model and program management process map. They also contain several supplemental

documents, including interview list and protocols, and recommendations to improve the evaluation process.

## 2.0 Methodology

To assess FHWA's Pedestrian and Bicycle Safety Program, Booz Allen developed a four-step methodology. The following section describes the steps identified in Figure 2.



#### Figure 2: Program Evaluation Methodology

- **1. Project Planning:** In the first step of the study, Booz Allen worked with FHWA to review and validate the objectives and requirements for the program evaluation. HSA managed the project and established an Evaluation Working Group (EWG) with representatives from HSA, the Office of Planning and Environment (HEP), the Resource Center, and Division Offices to provide oversight and feedback throughout the evaluation process. With input from the EWG, Booz Allen developed a work plan to guide the project, which included the background, purpose, objectives, and estimated time line of the evaluation as well as descriptions of key activities and deliverables.
- 2 **Baseline Information and Logic Model:** Booz Allen reviewed program documentation and conducted stakeholder interviews to gather information on current pedestrian and bicycle safety activities, resources, outputs, outcomes, and the bicycle and pedestrian safety program management processes. The team collected both anecdotal qualitative information on the current program structure, countermeasures, state priorities, and projects, as well as available quantitative data on state spending, fatality rates, and training.

Booz Allen interviewed 35 internal and external pedestrian and bicycle safety stakeholders. Interviewees included representatives from FHWA Headquarters, Division Offices, Resource Center, Departmental modes, state and local transportation agencies, and industry stakeholders. Stakeholders were identified through document review and in collaboration with the EWG. Table 2 provides an overview of the stakeholder organizations interviewed; Appendix A (see Section 6.1) lists the individual stakeholders interviewed.

Ex	ternal Stakeholders	Internal Stakeholders			
•	<ul> <li>Department of Transportation</li> <li>Federal Transit Administration (FTA)</li> <li>National Highway Traffic Safety Administration (NHTSA)</li> </ul>	•	<ul> <li>FHWA Headquarters</li> <li>Office of Safety (HSA)</li> <li>Office of Planning, Environment, and Realty (HEP)</li> </ul>		
•	National Highway Institute (NHI)		- Office of Infrastructure (HPI)		
•	Bicycle and Pedestrian Experts and Industry		- Office of Operations (HOP)		
	Groups		- Office of Research, Development, and		
	<ul> <li>National Center for Biking and Walking</li> </ul>		Technology (RD&T)		
	<ul> <li>University of North Carolina</li> </ul>	٠	FHWA Resource Center		
•	State and Local Transportation Agencies	•	FHWA Division Offices		
	- California DOT		- California		
	<ul> <li>Kentucky Transportation Cabinet</li> </ul>		- Ohio		
	<ul> <li>Las Vegas Metro Area MPO</li> </ul>		- Oregon		
	- Ohio DOT		– Texas		
	- Oregon DOT				

# Table 2: FHWA Pedestrian and Bicycle Safety ProgramStakeholder Organizations Interviewed

Booz Allen developed interview protocols (see Appendix A – Section 6.2) for internal stakeholders (i.e., FHWA personnel) and external stakeholders (i.e., DOT personnel, industry groups, and state and local transportation agencies).

Utilizing the information collected, Booz Allen developed a current state logic model (see Section 3.1), which included Pedestrian and Bicycle Safety Program purposes, resources, activities, available measured outputs, and intended outcomes/impacts. A current state pedestrian and bicycle safety activities program management process map (see Section 3.3) was also developed. The map includes key stakeholders and their roles and responsibilities throughout the three phases of the program management lifecycle: planning, implementation, and evaluation.

**3.** Evaluation and Analysis: Based on the information gathered during the interview process, document review, and data collection, Booz Allen developed a comprehensive profile of the current program, including strengths, challenges, opportunities for improvement, and an analysis of the effectiveness of the current program given available data. Additionally, findings were used to address current gaps and create a framework for the future state of the program including a future state logic model (see Figure 7) and future state program management process map (see Figure 9 and Figure 10).

Using this information, Booz Allen developed a Mid-Point Report with initial findings and potential recommendations and preliminary action items. The report was presented to the EWG for review and feedback.

4. **Report Findings and Recommendations:** Based on the feedback from the Mid-Point Report by the EWG, Booz Allen developed recommendations that build on the strengths of the current program while positioning the program for the future. A Draft Final Report was presented to the EWG for their review and comment. The EWG then met to discuss resolution of their comments and prioritize the action items for the Final Report and a presentation to management. This final report encompasses all evaluation components, including program strengths, challenges, opportunities for improvement, recommendations, data analysis, the current and future state logic models, and the current and future state program management process maps.

Logic Model

**Baseline Program Assessment** 

Includes:

Program Management

Analysis of Available Data

Process Map

## 3.0 Baseline Assessment of Current Program

A key step of the program evaluation was to capture an accurate picture of FHWA's current Pedestrian and Bicycle Safety Program activities and decision-making processes. To complete this step, Booz Allen reviewed program documents, analyzed pedestrian and bicycle data, and conducted interviews with Federal, state, and local transportation agency staff involved in pedestrian and bicycle safety activities as well as pedestrian and bicycle safety advocates.

The baseline program description contained in this report includes a current state logic model, a current state program management process map, and an analysis of available safety data. The detailed documentation on this analysis is included in the Appendices to this report. The following sections summarize the description of the current program.

#### 3.1 FHWA's Role in Pedestrian and Bicycle Safety

The FHWA only has direct control of the training, technical assistance, oversight, and guidance it provides to state and local agencies. The Agency is also a key actor in a complex *network* of semi autonomous organizations that impact pedestrian and bicycle safety. State DOTs and local agencies follow transportation planning process prescribed by FHWA, but they establish their own priorities and determine the specific program of projects to be funded. FHWA's management challenge is twofold: First, it must optimize the effectiveness of its own pedestrian and bicycle safety activities and resources. Second, it must manage its program so it an effective and influential partner within the complex network interest groups involved in the safe accommodation of pedestrian and bicycles in transportation systems.

The recommendations and action items in this evaluation focus on FHWA program activities in which the Agency has direct management control. In addition, the specific recommendations to increase the effectiveness of the Agency's management of its Pedestrian and Bicycle Safety Program will increase the impact of the Agency within the complex network of pedestrian and bicycle organizations.

#### 3.2 Current Program Logic Model



Logic models are important tools that can help an agency clarify linkages among program components, focus on outcomes, and plan appropriate data collection and analysis. FHWA's Pedestrian and Bicycle Safety Program logic model enables the Agency to describe the program's components and desired results, and explain the strategy, or logic, by which the

program is expected to achieve its goals. The logic model is used to formulate new and validate existing measures of program success.

The logic model for the current FHWA Pedestrian and Bicycle Safety Program is presented in Figure 3. Detailed descriptions of each of the elements of the logic model are includes in Appendix B (see Section 7.0). The logic model provides several important observations:

- State and local agencies are FHWA's primary customers: FHWA oversees specific requirements for what must be included in the transportation planning process for federally funded projects. State DOTs and local transportation agencies determine their own transportation priorities and specific projects.
- **Complex network of actors:** FHWA functions as a key actor in a complex network of semi autonomous organizations involved in pedestrian and bicycle safety. FHWA directs its own staff and resources and requires planning processes by state and local agencies, but does not mandate specific activities by state and local agencies.
- Focus Approach to Safety: The program is shaped by FHWA's Focused Approach to Pedestrian Safety. This HSA program concentrates funding, training, and technical assistance in states and cities with the highest fatality rates.
- **Department-wide coordination:** Pedestrian and bicycle accommodation and safety initiatives are actively coordinated within FHWA and USDOT through established working groups.
- **Participation of core FHWA programs:** FHWA's offices of safety, research, and planning have several staff dedicated to pedestrian and bicycle accommodation and safety. The offices of infrastructure, operations, and Civil Rights are responsible for pedestrian and safety design, the Manual of Uniform Traffic Control Devices (MUTCD), and accessibility for people with disabilities. These offices have some coordination with HSA but are generally not involved in the program management of HSA, HEP, or RD&T pedestrian and bicycle safety program activities.
- Federal leverage of state and local activities: The majority of highway funding comes from state and local government funds. The FHWA 2008 Conditions and Performance Report shows that the Federal government provided 22.6 percent of these funds. While the majority of highway projects may not include any Federal funding, through planning and programming oversight responsibilities; policy guidance; technical assistance; and data analyses, training, and countermeasures, FHWA works to influence state and local agencies activities that promote pedestrian and bicycle safety.

The logic model describes the program by five major categories:

**Program Purpose:** A summary of the mission and objectives for the program. The program may have several objectives defined through legislation, regulations, guidance, strategic planning, and program management.

**Resources:** The staffing, funding, partner organizations, and programs that help to carry out the program purpose.

Activities: Those tasks the program staff conducts to accomplish its mission.

**Available Measured Outputs:** Data that is currently collected to quantify the amounts of program materials produced such as the number of training courses or brochures.

**Intended Outcomes/Impacts:** The ultimate results of program activities, such as reducing fatalities and injuries.

Program Purpose		Resources	Activities	Available Measured Outputs	Intended Outcomes/Impacts
Current Program	<ul> <li>Promote comprehensive safety programs for pedestrian and bicycle safety</li> <li>Support state and local agency activities to reduce pedestrian and bicycle fatalities and injuries</li> <li>Promote livable communities through safe pedestrian and bicycle facilities and activities</li> <li>Promote safety for all pedestrians and bicyclists, including people with disabilities, older adults, children, and students</li> </ul>	<ul> <li>FHWA HQ offices: <ul> <li>HSA</li> <li>RD&amp;T</li> <li>HEP</li> <li>NHI</li> </ul> </li> <li>FHWA Field Offices <ul> <li>Resource Center</li> <li>Division Offices</li> </ul> </li> <li>USDOT coordinating committees</li> <li>State DOTs and local transportation agencies</li> <li>State and local funds</li> <li>Federal-aid highway program funds</li> <li>Research and program funds</li> <li>Research and program funds</li> <li>NCHRP</li> <li>PBIC outreach and training</li> <li>Expert contract support</li> <li>NHTSA HQ &amp; field staff</li> <li>FTA HQ</li> <li>Safety NGOs</li> </ul>	<ul> <li>Implement laws through regulations, guidance, and programs</li> <li>Strategic and budgetary planning</li> <li>Provide guidance for state and local planning (e.g., STIP, TIP)</li> <li>Problem identification and assessment</li> <li>Analysis and decision- making tools</li> <li>Identify, develop, and deploy effective countermeasures</li> <li>Develop conferences, classes, webinars, workshops, and materials to deliver and promote products</li> <li>Publish materials and research online</li> </ul>	<ul> <li># of pedestrian and bicycle fatalities and injuries</li> <li>% of Roadmap activities completed on time and within budget</li> <li># of states &amp; local agencies with Pedestrian Safety Plans</li> <li># of pedestrian and bicycle safety activities in each state</li> <li>Total funds obligated by states for pedestrian and bicycle safety activities</li> <li>Pedestrian and bicycle safety training (# of classes, people, states, student satisfaction)</li> <li># of FHWA Safety and PBIC website hits</li> <li># of printed publication orders</li> </ul>	<ul> <li>Appropriate Federal, state, and local agency staff have the tools, knowledge, and resources to address pedestrian and bicycle safety issues</li> <li>State and local agencies have effective pedestrian and bicycle planning processes</li> <li>Pedestrian and bicycle fatalities and injuries are reduced in each state and nationwide</li> <li>Increased awareness of pedestrian and bicycle safety issues</li> </ul>

#### Figure 3: Current Program Logic Model

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#### rrent Program Management Process Map

Using the data collected through stakeholder interviews and document review, a Current Pedestrian and Bicycle Safety Activities Program Management Process Map was developed. The map is a representation of the ongoing working relationships, approvals, feedback, and coordination occurring among key stakeholders of the Pedestrian and Bicycle Safety Program. It includes the major steps involved in decision making and the links between FHWA Headquarters, Resource Center, and Division Offices, as well as with NHTSA, State DOTs, and local metropolitan planning organizations (MPOs). Other offices within FHWA with responsibilities in pedestrian and bicycle safety include Safe Routes to School (SRTS) in Safety, Civil Rights for implementation of the Americans with Disabilities Act (ADA) requirements, infrastructure for design oversight, and Operations for the MUTCD. The evaluation did not identify regular, ongoing coordination processes with these offices as part of the process mapping for the program, and these offices are not included in the process map. The process map deconstructs the pedestrian and bicycle process flow to provide a comprehensive picture of activities. This helps identify gaps, redundancies, and opportunities for improvement within the process. With the map, one can trace the process and observe the division of roles and responsibilities and interactions among Headquarters offices, Field offices, and the various other stakeholders from start to finish. Appendix C (see Section 8.1) contains a process map that explains the Pedestrian and Bicycle Safety Program's current state.

The process mapping process provides some important observations about the Pedestrian and Bicycle Safety Program:

- **State and local customer focus:** FHWA meets its mission to improve pedestrian and bicycle safety by supporting and enhancing state and local activities. FHWA headquarters offices appear to be isolated from much direct contact with their customers. Headquarters webinars are a good opportunity for FHWA to provide information to state and local staff, but the communication is generally one way from FHWA down to the state and local staffs, with little input or exchange among their customers.
- **Feedback loops from state and local agencies:** State and local agencies follow required transportation and safety planning activities to help set needs, priorities, and identify specific projects. Very little of the information from the state and local processes is compiled or analyzed to guide FHWA program decisions.
- **Feedback loops within FHWA:** The Division Offices have direct contact with state and local agencies and staff working on pedestrian and bicycle safety issues. The Division Offices also review and approve key planning and environmental processes. Information, issues, and best practices stay within the Division, and are not routinely shared to improve the Pedestrian and Bicycle Safety Program throughout the Agency.

## 3.3 Analysis of Available Data

The evaluation of FHWA's Pedestrian and Bicycle Safety Program includes an assessment of available safety, training, and website data. The purpose of this data analysis is to explore opportunities to use available data to support the management and evaluation of FHWA's pedestrian and bicycle safety activities. There are significant deficiencies in the quality of the pedestrian and bicycle program data including the lack of exposure data and inventories of pedestrian and bicycle facilities. HSA discusses the data limitations in its Roadmap narrative

and in the draft pedestrian strategic plan and has identified projects to better estimate and model this data. For this evaluation, Booz Allen explored several opportunities to use the limited, but currently available, data FHWA could use to help guide management of its Pedestrian and Bicycle Safety Program. While the current, limited data cannot support conclusive decisions about the program, the following section gives examples of the types of program management information that could be done when the quality of the data improves.

### 3.3.1 Safety Data

Safety data analysis was conducted on currently available, nationwide data – FARS fatality data and Financial Management Information System (FMIS) data on FHWA obligations for pedestrian and bicycle projects. Comparisons were drawn between Focus and Non-Focus States' spending and fatality reductions.

Several recent studies reported significant reductions in national pedestrian and bicycle fatalities and injuries. These studies include NHTSA reports, FHWA's National Bicycling and Walking Study: 15-Year State Report and the Volpe evaluation of HSA's Focused Approach to Safety.

Based on the available data, several questions were explored in the analysis:

#### FHWA Meets Goals for Increased Pedestrian and Bicycle Safety

"...it is initially apparent that the goal of decreasing pedestrian and bicyclist injuries and fatalities by 10 percent has been surpassed. The number of pedestrians and bicyclists killed has decreased from 6,414 to 5,094 since 1995, representing a 20.6 percent decline. Similarly, the 121,000 estimated pedestrian and bicyclist injuries in 2008 represents a 16.5 percent decrease from the 145,000 estimated injured in 1995."

> The National Bicycle and Walking Study: 15-Year Report, May 2010

- Does an increase of FHWA funding for pedestrian and bicyclist safety correlate to declines in fatality numbers and rates?
- Since the inception of the Focus State Approach, have fatality numbers and rates in Focus States declined more than Non-Focus States?
- Could Return-on-Investment (ROI) analysis be a useful tool for states to assess their bicycle and pedestrian safety programs and for FHWA to assess its national programs?

While the quality of the data is not sufficient to draw conclusions, the analysis demonstrates that with improvements in coding, reporting, and monitoring of FMIS data and analysis of pedestrian and bicycle safety activities from SHSPs and other state plans, FHWA would be able to use this information to support management and evaluation of its pedestrian and bicycle safety activities. These changes could be made in the short term by FHWA but would require training and commitment from Division staff to provide this information. In the longer term, collecting pedestrian and bicyclist exposure data and facilities inventory data would allow more robust analysis of the Pedestrian and Bicycle Safety Program. Appendix D (see Section 9.0) includes a description of the data analysis.

#### 3.3.2 Training Data

Pedestrian and bicycle safety training data was collected from FHWA's Resource Center and the NHI. The purpose of the data analysis was to draw conclusions on the effect of training on pedestrian and bicycle safety and the management of these resources. The data shows that the

free training provided by the Resource Center to the Focus States resulted in a dramatic increase in training on pedestrian facility design, planning, and safety – NHI delivered 14 pedestrian facility design courses while the Resource Center delivered 163 pedestrian facility design, planning, action plan development courses, and other technical assistance contacts. Table 3 compares the number of pedestrian and bicycle training courses delivered by NHI and the Resource Center from FY 2006–2010.

FHWA Pedestrian and Bicycle Training Courses FY 2006–2010					
Pedestrian Bicycle Facility Design Total					
NHI	14	18	32		
Resource Center	153*	0	163		
Total	167	18	195		

Table 3: FHWA Pedestrian and	Bicycle	Training	<b>Courses</b>	FY 2006–2010
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\*This total includes 8 "other" and 2 "technical assistance" contacts reported by the Resource Center.

While the information collected and amount of the data is not sufficient to draw conclusions about the effective use of its training resources, more information could be collected from these efforts and routinely shared with FHWA headquarters and Division managers to assist in the management of their pedestrian and bicycle safety activities.

Program managers arranging these courses should expand the data collected to demonstrate the effectiveness of their courses. Examples of the kinds of program management information program managers would find useful include the following:

- Twelve courses on Pedestrian Safety Action Plans were delivered over the last five years. How many of these states developed action plans?
- The number of courses delivered in Focus States over the last five years ranges from one course to 34 courses. Did the number of courses and/or participants impact the number of pedestrian safety activities or fatality numbers?
- Did the participants implement any pedestrian or bicycle safety activities as a result of the course? For example, just as course participants complete a course evaluation at the end of a course, they can also complete a second course evaluation one year later. In addition, State Pedestrian and Bicycle Coordinators and Division pedestrian and bicycle contacts could use lists of course participants and agencies to follow up and promote new technologies and countermeasures.

#### 3.3.3 Website Data

Website statistics were collected for FHWA's Safety website<sup>1</sup> and the PBIC website.<sup>2</sup> The purpose of the data analysis was to evaluate how periodic reports on the numbers of people using the websites can be used to help assess how best to manage these resources. Upon review of the reports, it is evident that both websites receive a significant amount of traffic. Over three months, the PBIC website received almost 30,000 visits and over one month, the entire FHWA

<sup>&</sup>lt;sup>1</sup> http://safety.fhwa.dot.gov/ped\_bike/

<sup>&</sup>lt;sup>2</sup> http://www.walkinginfo.org/

safety page received over one million visits.<sup>3</sup> Information on just the pedestrian and bicycle safety page within the FHWA safety page was not provided.

The number of hits indicates that the websites are important tools in increasing awareness and education around pedestrian and bicycle safety. However, the reporting period and report content is not standard across websites (see Table 4). Data is pulled directly from the websites and placed into the reports without further analysis. These reporting characteristics makes further data analysis by the Booz Allen team difficult and comparisons between website hits infeasible without additional information. It is unclear, based on reviewing the data and stakeholder interviews, whether the information in these reports is routinely used to guide management and funding decisions. Clearly, the websites are used by many people to find pedestrian and bicycle information. In some cases, similar information is provided or is linked between the sites. Information on changes in website hits and visitors by period and standard reporting across websites would allow for reports to be used more effectively as management tools in decision making and to identify ways to better meet the needs of the people using these sites.

	<b>PBIC Website</b> <sup>4</sup>		FHWA Safety Website
	(Reported on a Quarterly Basis)		(Reported in a Monthly Basis)
٠	Entire Site	•	Entire Site
	o Site visits		<ul> <li>Total hits and pages viewed</li> </ul>
	<ul> <li>Unique site visitors</li> </ul>		<ul> <li>Daily hits and pages viewed</li> </ul>
	<ul> <li>Pages viewed by visitors</li> </ul>		<ul> <li>Average hits and pages viewed by visitor</li> </ul>
٠	Library Pages Website		<ul> <li>Total visitors</li> </ul>
	<ul> <li>Unique site visitors</li> </ul>		<ul> <li>Page views and visitors by hour</li> </ul>
	<ul> <li>Five most frequently accessed library</li> </ul>		<ul> <li>Page views and visitors by day</li> </ul>
	resources		<ul> <li>Most popular pages by views and visitors</li> </ul>
٠	FAQ Pages Website		<ul> <li>Least popular pages by views and visitors</li> </ul>
	<ul> <li>Unique site visitors</li> </ul>		<ul> <li>Most downloaded files</li> </ul>
	<ul> <li>Five most frequently accessed FAQs</li> </ul>		

#### Table 4: Website Statistics (Data Reported)

<sup>&</sup>lt;sup>3</sup> PBIC website received over 29,503 visits from 23,788 unique visitors between January 1 and March 31, 2010. The FHWA Safety website received 1,089,554 hits from 78,709 visitors during the month of August 2010 (encompasses all aspects of safety covered by the Office of Safety).

<sup>&</sup>lt;sup>4</sup> Provided by FHWA during evaluation time frame; may be additional information available upon further review.

## 4.0 Findings and Recommendations

FHWA, in conjunction with NHTSA, leads Federal initiatives to promote and guide pedestrian and bicycle safety activities of state and local transportation agencies. State and local agencies are FHWA's primary customers. FHWA conducts activities in support of state and local pedestrian and bicycle safety including collecting and analyzing data, conducting research, developing and evaluating countermeasures, and providing training and technical assistance. FHWA promotes a comprehensive, 4 E's (engineering, education, enforcement, emergency services) approach to improving pedestrian and bicycle safety. The Agency focuses most of its pedestrian and bicycle safety efforts on engineering solutions and promotes pedestrian and bicycle facilities as a key strategy to improve safety. This focus on facilities to improve safety creates an opportunity to better leverage, coordinate, and partner with the Agency's planning, operations, and infrastructure functions to enhance safety.

In recent years, analysis of crash data has shown a nationwide reduction in pedestrian and bicycle fatalities and injuries even as walking and biking rates continue to increase. While FHWA's Pedestrian and Bicycle Safety Program has resulted in a wealth of countermeasures, strategies, activities, and training and safety funding, this evaluation found that strengthening the management of FHWA's program will help enhance pedestrian and bicyclist safety nationwide.

Table 5: Findings, Recommendations, and Action Items					
Summary of Pedestrian and Bicycle Safety Program Evaluation Findings, Recommendations, and Action Items					
Findings	Recommendations	Action Items			
1. Focus Efforts to Foster a	1. Focus Efforts to Foster a Pedestrian and Bicycle Safety Culture				
There is a lack of broad support for pedestrian and bicycle activities in some transportation agencies, 		<ol> <li>Develop and deliver awareness training for transportation program managers, engineers, and specialists.</li> <li>Implement changes in standard operating procedures, guidance, and manuals.</li> <li>Establish accountability of transportation professionals for results.</li> </ol>			
2. Implement Current Pol	icies				
FHWA recommends specific policies and steps for state and local agencies to enhance pedestrian and bicycle safety but has not implemented those changes within FHWA.	Implement FHWA and DOT policy recommendations to integrate pedestrian and bicycle safety activities throughout FHWA.	<ol> <li>Develop an agency-wide action plan to implement current DOT pedestrian and bicycle policy guidance within FHWA to support its safety program.</li> </ol>			

Table 5 summarizes the findings of the evaluation and recommendations to strengthen the program, as well as providing list of proposed action items.

Summary of Pedestrian and Bicycle Safety Program Evaluation Findings, Recommendations, and Action Items				
Findings	Recommendations	Action Items		
3. Mainstream Pedestrian	and Bicycle Program in FHWA	<b>X</b>		
Pedestrian and bicycle safety is not incorporated as part of each of FHWA's core programs.	Mainstream and manage pedestrian and bicycle safety activities among the safety, planning, research, operations, infrastructure, and Division Offices in FHWA as a single program.	<ol> <li>5. Establish a matrix group within FHWA with representatives from safety, planning, environment, operations, and infrastructure to oversee the Pedestrian and Bicycle Safety Program.</li> <li>6. Develop a detailed action plan to fully integrate pedestrian and bicycle safety and facilities programs throughout its safety, planning, operations, infrastructure, and field programs.</li> </ol>		
4. Encourage Effective Sta	te and Local Programs	·		
Some State DOTs do not have a comprehensive Pedestrian and Bicycle Safety Program.	Promote and track effective Pedestrian and Bicycle Safety Program management strategies by state and local agencies.	<ol> <li>Develop a Capability Maturity Model (CMM) approach to guide, monitor, and measure state and local agency progress toward a comprehensive Pedestrian and Bicycle Safety Program.</li> <li>Demonstrate the benefits of proactive, system-wide pedestrian and bicycle safety improvements.</li> <li>Evaluate current guidelines and procedures for the Divisions' review of, comment on, and report on the content of their state's SHSP and identifies opportunities to collect program information as part of this review.</li> <li>Improve the effectiveness of State Bicycle and Pedestrian Coordinators by establishing two-way communication among Division staff and their Coordinators to provide support and share information on state and local pedestrian and bicycle safety initiatives.</li> </ol>		
5. Collect Exposure and Pr	rogram Data			
There is insufficient exposure and facility inventory data to effectively manage the Pedestrian and Bicycle Safety Program.	Address safety data limitations to support management and evaluation of the Pedestrian and Bicycle Safety Program at the federal, state, and local levels.	11. In developing the approach and scope for the planned studies to improve pedestrian and bicycle safety data, FHWA should partner with NHTSA to evaluate the FARS and identify training, coding, and other data issues to enhance pedestrian and bicycle crash reporting, FHWA should specifically include exploration and development of program management data that will also help FHWA manage its Pedestrian and Bicycle Safety Program.		

Summary of Pedestrian and Bicycle Safety Program Evaluation Findings, Recommendations, and Action Items				
Findings	Recommendations	Action Items		
		12. Share best practices and explore potential incentives to encourage state and local agencies to collect information on the numbers of pedestrians and bicyclists and the amount and condition of pedestrian and bicycle facilities.		
6. Establish Feedback Loops				
There is no institutionalized and ongoing process for FHWA to collect feedback from states and local agencies on pedestrian and bicycle safety issues, activities, deployment, or results.	Create feedback loops in FHWA's management of its Pedestrian and Bicycle Safety Programs, and use program output data to help guide decision making.	<ol> <li>Compile currently available data and create periodic management reports on to support program decision making.</li> <li>Establish mechanism to coordinate with Division Office staff on state DOT and local pedestrian and safety issues on a regular basis.</li> <li>As part of the training assessment by students in Resource Center and NHI courses on pedestrian and bicycle safety, include a follow-up self-assessment a year later from the students on impacts, changes, and benefits from the training.</li> </ol>		

This section includes strengths, challenges, and opportunities for improvement identified during the evaluation phase of this program assessment. The section also contains recommendations and initial action steps that build on the strengths of the current program while positioning the program for future success.

#### 4.1 Program Management Lifecycle

Pedestrian and Bicycle Safety Program activities are generally conducted across five organizational elements within FHWA. Efforts are led by the HSA, in conjunction with HEP, RD&T, the FHWA Resource Center, and the Division Offices. This division of responsibilities allows FHWA to tap the expertise and specific roles of its Headquarters and field offices and allows these groups work together to determine program priorities and activities.

Although Pedestrian and Bicycle Safety Program responsibilities are divided among many offices, it is considered one program with an agency-wide mission and goals by its primary customers, the state and local agencies. The challenge is to bring all of the activities conducted throughout FHWA into a cohesive, unified program to best support state and local transportation agencies. For example, a local engineer designing pedestrian access into a highway project may have to know to look for guidance under safety, planning, SRTS, ADA, and MUTCD to ensure she has the current resources to safely accommodate pedestrians. Therefore, rather than evaluating the pedestrian and bicycle safety activities of the different offices in isolation, Booz Allen overlaid the program management lifecycle to structure the evaluation and assess the activities and relationships as a unified program.

The three key phases of a program management lifecycle are illustrated in Figure 4. The lifecycle begins when program initiatives and strategies are planned and developed. The implementation phase includes deployment of specific initiatives, projects, or countermeasures. After implementation, data and feedback are collected and evaluated to improve future program activities. The program management lifecycle provides a model to assess how well a program functions during each phase. For example, a program may use an extensive planning process that results in a comprehensive planning document. Unless the program also includes activities to ensure the plan is implemented and the results evaluated, it may only result in a plan that sits on the shelf and does not cause any change.

#### Figure 4: Program Management Lifecycle



### Program Management Phases

- <u>Planning and Development:</u> Coordination and collaboration among stakeholders regarding safety problem identification, strategies, resources, and priorities to achieve a safer pedestrian and bicycle environment.
- <u>Implementation</u>: Effective implementation of pedestrian and bicycle safety activities, training, and technical assistance.
- <u>Evaluation</u>: Institutionalized and ongoing methods to measure the effectiveness of programs and activities to enhance the pedestrian and bicycle safety program.

The findings and recommendations below follow the three phases of the program management lifecycle: Program Planning and Development, Implementation, and Evaluation. Each section begins with findings and includes examples of strengths and challenges to support the findings. After the findings, each section includes recommendations and specific action steps to guide implementation of the recommendation. These findings and recommendations were developed based on review and assessment of program documents and a series of interviews with Federal, state, and local transportation professionals working in Pedestrian and Bicycle Safety Programs.

## 4.2 Enhancing FHWA's Role in the Network of Pedestrian and Bicycle Organizations

In addition to optimizing the effectiveness of its own pedestrian and bicycle safety activities, FHWA must function as an effective and influential leader within the network of Federal, state, and local agencies; NGOs; businesses; and individuals with an interest in the safe accommodation of pedestrians and bicycles within the transportation system. FHWA does not direct states and local agencies to address specific safety issues. Its staff function much like diplomats to support, persuade, and influence its partners within the network to take action to promote safety. The attributes of effective and influential network leaders are listed below and illustrate how strengthening the management of its Pedestrian and Bicycle Safety Program position FHWA to work more effectively within the network to meet its safety goals.

#### Improving the management of FHWA's Pedestrian and Bicycle Safety Program strengthens its effectiveness in the NETWORK and improves safety outcomes

#### Attributes of effective and influential NETWORK leaders:

- ✓ Build partnerships: Develop deep understanding of different priorities , capabilities, and internal dynamics of its partners
- ✓ Provide strategic leadership: Expand program focus from tactical project oriented management to helping guide strategic vision and building on common goals among partners
- Add value: Develop extensive programmatic knowledge and expertise
- ✓ Build trust: Approach problem solving as highly collaborative rather than directive
- ✓ Support collaboration: Organize, leverage, integrate, coordinate resources
- ✓ Foster innovation: Support development and deployment of effective tools and strategies

#### **Evaluation Recommendations:**

- 1. Foster a Pedestrian and Bicycle Safety Culture
- 2. Implement current policies
- 3. Mainstream Pedestrian and Bicycle Safety Program in FHWA
- 4. Encourage effective state and local programs
- 5. Collect exposure and program data
- 6. Establish feedback loops and communications

#### 4.3 Focus Efforts to Foster a Pedestrian and Bicycle Safety Culture

The first phase of the program management lifecycle addresses how well FHWA plans and develops its Pedestrian and Bicycle Safety Program.

FHWA legislation, regulations, and policy guidance have called for pedestrian and bicycle activities, including safety, to be addressed throughout transportation planning and programming. FHWA guidance requires pedestrian and bicycle accommodation be considered in the transportation planning process. In addition, pedestrian and bicycle facilities and activities are eligible for FHWA funding. For example, the Transportation Enhancements program specifically identifies "Provision of pedestrian and bicycle safety and education activities" as one of its 12 eligible categories.

Key strategies in safety that FHWA uses to accomplish this mandate are encouraging states to include pedestrian and bicycle safety activities in their SHSPs and to encourage states and cities with the highest risks for pedestrian fatalities to develop Pedestrian Safety Action Plans. Interviews with federal, state, and local practitioners in pedestrian and bicycle safety found that transportation professionals working in pedestrian and bicycle safety are committed advocates working to integrate pedestrian and bicycle facilities throughout the transportation system. However, the interviewees also reported that FHWA, State DOT, and local transportation professionals work impacts pedestrians and bicyclists are often unaware of – or may not

support – pedestrian and bicycle safety initiatives and policies. Table 6 highlights these findings.

Focus Efforts to Foster a Pedestrian and Bicycle Safety Culture				
Finding: There is a lack of broad support for safely accommodating pedestrian and bicycle activities in some federal, state, and local transportation agencies.				
Strengths	Challenges			
<ul> <li>FHWA bicycle and pedestrian programs, funding, technical assistance, and training are instrumental in supporting state and local pedestrian and bicycle safety activities.</li> <li>Secretary LaHood's Livability Initiative has increased state and local attention to pedestrian and bicycle safety and facilities.</li> <li>FHWA provides training on developing a Pedestrian Safety Action Plan to Focus States.</li> <li>FHWA's free training, technical assistance, and bimonthly webinars for Focus States and Cities are valued by attendees for understanding and promoting pedestrian and bicycle safety issues.</li> <li>FHWA Safety website and the PBIC websites and other outreach efforts contain a wealth of information and are viewed as useful by their users.</li> <li>FHWA's pedestrian and bicycle courses are generally 2–3 day technical courses geared for professionals working in pedestrian and bicycle design courses report having basic to advanced knowledge of the area before the course.</li> </ul>	<ul> <li>Some FHWA field staff and State DOT officials whose work directly impacts pedestrian and bicycle safety may not have experience, awareness, and/or training in pedestrian and bicycle safety requirements, benefits, and activities and do not have access to high-level awareness training.</li> <li>FHWA's bicycle and pedestrian safety training materials/course content often focuses on transportation factors and strategies and does not include land use, economic development, social, and community factors.</li> <li>While FHWA has developed curriculum and information, university transportation programs generally do not often include pedestrian and bicycle safety issues in highway planning and engineering courses.</li> </ul>			

#### Table 6: Program Planning and Development Strengths and Challenges

<u>Recommendation 1</u>: Focus efforts to foster a pedestrian and bicycle safety culture within FHWA, state, and local transportation agencies.

FHWA should work to focus its efforts to foster a culture in Federal, state, and local transportation agencies that embraces the safe accommodation of pedestrians and bicyclists as an essential factor in a comprehensive transportation system. Implementing this type of cultural change in agencies requires (1) training and awareness of management, engineers, and specialists; (2) changes in standard operating procedures, guidance, and manuals; and (3) accountability of transportation professionals for results. FHWA is a thought leader among State DOTs and local agencies and can have a powerful impact through leading by example.

#### Action steps to implement this recommendation include:

1. Develop and deliver awareness training for transportation program managers, engineers, and specialists: This training would be developed for Federal, state, and local transportation agency staff, managers, and executives in core functions (e.g., engineering, planning, environment, operations, infrastructure, and safety) whose work impacts pedestrians and bicyclists. The current courses offered by NHI and the Resource Center are in-depth courses on design, engineering, and planning for professionals with front-line responsibilities in pedestrian and bicycle accommodation and safety. Very focused and brief high-level awareness training for other transportation professionals would be focused on policies, requirements, and effective strategies. As part of the development of the training, major barriers to increasing pedestrian and bicycle facilities at the state and local levels should be identified and specific training strategies to address those barriers developed. These may include, for example, concerns that dedicating lane miles for bicycles reduces a state's formula allocation or that increased walking and biking in a region would lead to higher fatality rates. In addition, awareness training should include pedestrian and bicycle safety policies, funding, and requirements as well as the economic, social, and community benefits of pedestrian and bicycle accommodation practices.

For FHWA executives and managers, the training could be a 1–2 hour presentation or resource materials, procedures, and checklists on the policies on pedestrian and bicycle safety and planning, programming, and oversight requirements for their offices. This training could be videotaped and provided online. Training for others would be tailored to their role, such as reviewing plans and documents. Other audiences for awareness training could include Federal staff in other DOT agencies such as FTA, FRA, and NHTSA, as well as EPA, HUD, and HHS. At the state and local levels, the audience would include appropriate transportation professionals in State DOT and regional and local transportation agencies. This effort should also include a comprehensive outreach program for professors and deans of transportation programs to integrate pedestrian and bicycle accommodation and safety as well as the economic, social, communal, health, and livability benefits of including walking and biking as a core element of transportation.

- 2. Implement changes in standard operating procedures, guidance, and manuals: Review and update agency procedures, checklists, guidance, and manuals to fully integrate pedestrian and bicycle safety throughout transportation planning and programming. This action step is covered more fully under the program implementation recommendations below.
- **3.** Establish accountability of transportation professionals for results: Include specific outcomes such as completing awareness training, updating office procedures, and tracking and reporting on pedestrian and bicycle safety in employees' annual performance plans for appropriate engineering, planning, and program management positions throughout FHWA headquarters and field offices. FHWA could provide examples of their own procedures and encourage state and local agencies to establish similar accountability measures in their agencies.

#### 4.4 Implement Current Policies

The program implementation phase includes the deployment of program activities, training, and countermeasures to state and local agencies.

USDOT and FHWA legislation, policy, and guidance provide clear guidance on steps to fully integrate safe and convenient walking and biking facilities throughout the transportation system. Secretary LaHood's policy statement in March 2010 states, "Every transportation

agency, including DOT, has the responsibility to improve conditions and opportunities for walking and bicycling and to integrate walking and bicycling into their transportation systems." This policy statement encourages transportation agencies, including the USDOT and state and local agencies, to adopt a range of actions to meet this responsibility (see discussion box).

In its 2000 design guidance, regarding pedestrian and bicycles, FHWA said, "While these sections [in the legislation] stop short of requiring specific bicycle and pedestrian accommodation in every transportation project, Congress clearly intends for bicyclists and pedestrians to have safe, convenient access to the transportation system and sees every transportation improvement as an opportunity to enhance the safety and convenience of the two modes due consideration of bicycle and pedestrian needs should include, at a minimum, a presumption that bicyclists and pedestrians will be

#### USDOT policy on pedestrians and bicyclists encourages transportation agency actions to promote bicycle and pedestrian accommodation by:

- Considering walking and bicycling as equals with other transportation modes
- Ensuring that there are transportation choices for people of all ages and abilities, especially children
- Going beyond minimum design standards
- Integrating bicyclist and pedestrian accommodations on new, rehabilitated, and limited-access bridges
- Collecting data on walking and biking trips
- Setting mode share targets for walking and bicycling and tracking them over time
- Removing snow from sidewalks and shareduse paths
- Improving nonmotorized facilities during maintenance projects

USDOT Policy Statement on Bicycle and Pedestrian Accommodation, March 11, 2010

accommodated in the design of new and improved transportation facilities. In the planning, design, and operation of transportation facilities, bicyclists and pedestrians should be included as a matter of routine, and the decision to not accommodate them should be the exception rather than the rule. There must be exceptional circumstances for denying bicycle and pedestrian access either by prohibition or by designing highways that are incompatible with safe, convenient walking and bicycling."<sup>5</sup>

To integrate pedestrian and bicycle accommodation and safety throughout the transportation systems, the policy guidance encourages state and local agencies to:

• Rewrite the manuals as a policy approach to safely accommodate pedestrians and bicyclists within the transportation system;

<sup>&</sup>lt;sup>5</sup> FHWA Guidance February 2000 FHWA Guidance: Accommodating Bicycle and Pedestrian Travel: A Recommended Approach (Updated October 22, 2008)

- Apply engineering judgment to roadway design to incorporate walking and biking rather than applying typical sections to all roads without regard to travel speeds, adjacent land use, and other critical factors; and
- Initiate an intensive re-education of transportation planners and engineers to make them conversant with pedestrian and bicycle information and requirements and that training be made available, if not required, for agency traffic engineers and consultants working in this field.

While FHWA has developed extensive resources on pedestrian and bicycle safety and the effectiveness and benefits of many pedestrian and bicycle countermeasures and strategies have been well demonstrated and documented, FHWA may not have fully incorporated these policy recommendations and strategies into its programs to the extent envisioned. The evaluation team scanned a number of FHWA guidance documents to determine the extent to which pedestrian and bicycle safety was incorporated as a core function. In some instances, pedestrian and bicycle safety was included in a separate chapter, an appendix, or separate report. For example, the March 2008 Federal Lands Highway Project Development and Design Manual for Federal Lands Highways (FLH) mentions pedestrians and bicyclists in the discussion of context-sensitive design and refers designers to other sources for information on accommodating pedestrians and bicyclists. However, in an example of how to present the justification for an alternative design of a park road that bordered residences, commercial property, and a historic mine site, the cross-section includes no accommodation for pedestrians and the rationale for not including them in the design is not given (see page 6-62, http://flh.fhwa.dot.gov/resources/manuals/pddm/Chapter\_04.pdf). FHWA's year 2000 policy guidance on pedestrian and bicycles recommends that state and local agencies "rewrite the manuals as a policy approach" and "incorporate walking and biking rather than applying typical sections to all roads." Fully integrating safe accommodation of pedestrians and bicyclists "as equals with other transportation modes" in this FLH manual is an example of how FHWA could model proactive policies and guidance for its partners and stakeholders. Table 7 shows the strengths and challenges of these program implementations.

	Implement Current Policies			
Finding: FHWA recommends specific policies and steps for state and local agencies to enhance pedestrian and bicycle safety but has not implemented those changes within FHWA.				
	Strengths		Challenges	
•	USDOT issued policy guidance in March 2010 to encourage agencies to promote safe pedestrian and bicycle accommodations. FHWA issued design guidance in 2000 for pedestrians and bicycles to integrate pedestrian and bicycle accommodation throughout transportation planning and programming processes. FHWA promotes a comprehensive 4 E's approach (engineering, education, enforcement, and emergency response) for state and local Pedestrian and Bicycle Safety Programs. FHWA's activities focus on	<ul> <li>F</li> <li>S</li> <li>a</li> <li>S</li> <li>t</li> <li>a</li> <li>r</li> </ul>	FHWA requirements call for pedestrian and bicycle safety issues to be addressed during state and local project review processes, if appropriate, but these issues are often dismissed as not applicable. Standard operating procedures and processes in the Division Offices for addressing pedestrian and bicycle safety requirements in reviews of blans, projects, and environmental documents may be out of date and rarely used.	

#### Table 7: Program Implementation Strengths and Challenges

Implement Current Policies			
Finding: FHWA recommends specific policies and steps for state and local agencies to enhance pedestrian and bicycle safety but has not implemented those changes within FHWA.			
Strengths	Challenges		
<ul> <li>engineering solutions.</li> <li>FHWA participates in working groups that include pedestrian and bicycle issues including FHWA (HSA, HEP, RD&amp;T, Resource Center), NHTSA, FTA, Office of the Secretary of Transportation (OST), EPA, and HUD.</li> </ul>			

# <u>Recommendation 2</u>: Implement FHWA and DOT policy recommendations to integrate pedestrian and bicycle safety activities throughout FHWA.

The current policies and guidance on pedestrian and bicycle accommodation recommend a range of actions for state and local agencies that will have a direct impact on safety. These actions should also be adopted by FHWA to strengthen its own Pedestrian and Bicycle Safety Program and set a leadership example for state and local agencies. Currently, pedestrian and bicyclist safety policies, guidance, and activities are not well integrated into FHWA's program procedures for the infrastructure, operations, and environmental reviews programs.

By incorporating pedestrians and bicyclists in the transportation system, FHWA may help make significant improvements in the livability, sustainability, economic, and health benefits of the highway system. This may require addressing long-held standards. For example, planners often design walkways to accommodate pedestrians within about one quarter mile from a destination. This may be a 10-minute walk when HHS recommends people walk briskly for 2.5 hours a week. By making it safe for pedestrians to walk 30-45 minutes to a destination (or bicyclist to travel 3–5 miles), the highway system can reduce congestion, improve access, and improve the health of people in the community. A recent study compared mode share for bicyclists for the Netherlands (27%), Denmark (18%), and Germany (10%) with the United States (1%).<sup>6</sup> The countries with the highest mode share for bicycles provided dedicated facilities for bicyclists as part of the highway system. Likewise, increasing mode share for bicyclists in urban and suburban communities could have significant impacts on highway congestion as well as public health.

#### An Action Step to implement this recommendation includes:

1. Develop an agency-wide action plan to implement current DOT pedestrian and bicycle policy guidance within FHWA to support its safety program. The action plan would identify changes to internal FHWA procedures and guidance on oversight of pedestrian and bicycle activities. The Divisions are currently developing and updating procedures used by their staffs to administer office and oversight procedures uniformly. Consistent with the Department's policies, the default choice is the assumption that pedestrians and bicyclists

<sup>&</sup>lt;sup>6</sup>" At the Frontiers of Cycling: Policy Innovations in the Netherlands, Denmark, and Germany," by John Pucher and Ralph Buehler, Bloustein School of Planning and Public Policy, Rutgers University, November 18, 2007

are included in all transportation projects rather than assuming pedestrians and bicyclists are excluded except in specific situations. This action plan could include, for example, integrating pedestrian and bicycle policies, guidance, and requirements into checklists and procedures for Division review and approval of planning, design, and environmental reviews. The FHWA action plan should also leverage existing intermodal forums to develop common goals, priorities, and clear linkages with other DOT modes to support implementation of DOT and FHWA policies on pedestrian and bicycle safety.

#### 4.5 Mainstream Pedestrian and Bicycle Programs in FHWA

The FHWA Pedestrian and Bicycle Safety Program has developed and demonstrated a wide range of strategies, countermeasures, and case studies to safely accommodate pedestrians and bicyclists in the roadway system. There is broad, longstanding consensus among transportation professionals on the standards for pedestrian and bicycle safety design and countermeasures. However, pedestrian and bicycle safety is often stovepiped in FHWA and assigned to a safety engineer or specialist as a collateral duty. Pedestrian and bicycle safety is often out of the mainstream programs; it may not be routinely considered by planners, engineers, and specialists in planning, infrastructure, operations, or environmental activities. Table 8 overviews the strengths and challenges of program implementation.

#### Table 8: Program Implementation Strengths and Challenges

<u>Recommendation 3</u>: Mainstream and manage pedestrian and bicycle safety activities among the safety, planning, research, operations, infrastructure, and Division Offices in FHWA as a single program.

To meet its broad responsibilities of pedestrian and bicycle safety under current Department policies, FHWA needs to mainstream pedestrian and bicycle activities and leverage staff expertise and program resources in its planning, operations, infrastructure, and environment. It should also include coordination and leverage with other directly related programs such as SRTS and ADA compliance. A matrix-type management approach could bring managers together to set common objectives and strategies for pedestrian and bicycle safety and integrate and coordinate roles and responsibilities for key FHWA processes (e.g., planning, engineering, and environmental reviews; eligibility requirements). The result would be the integration and institutionalization of safety outcomes across FHWA and would not require any organizational changes within the Agency.

#### Action steps to implement this recommendation include the following:

- 1. Establish a matrix group within FHWA with representatives from safety, planning, environment, operations, and infrastructure to oversee the Pedestrian and Bicycle Safety Program. This oversight group would have a clear charter to integrate pedestrian and bicycle safety practices throughout the each of the core programs in FHWA. Rather than a group that only shares information on activities within the separate offices and programs, this group would actively manage the Pedestrian and Bicycle Safety Program and set goals and objectives, assign responsibilities and schedules, and receive reports on performance from various offices.
- 2. Develop a detailed action plan to fully integrate pedestrian and bicycle safety and facilities programs throughout its safety, planning, operations, infrastructure, and field programs. The action plan could include, for example, expanded participation in Pedestrian and Bicycle Safety Roadmap development activities to include representatives from the Offices of Operations and Infrastructure. Reciprocal program development coordination would be made among Operations, Infrastructure, and Planning and Environment. As part of the plan, FHWA should identify tools and technologies such as SharePoint to facilitate and enable the sharing of pedestrian and bicycle safety information, plans, research, and evaluation among FHWA offices. In addition, FHWA could combine and facilitate the seamless flow of information among its current pedestrian and bicycle websites, which are managed by the Offices of Planning and Safety, and PBIC. The resources on the websites should be designed to help support professionals who are new to pedestrian and bicycle activities. State and local staffs may prefer to reference the most current FHWA guidance and materials. In some cases, it is difficult to find the most current or controlling guidance, and the user may have to look at several websites within FHWA.

#### 4.6 Encourage Effective State and Local Programs

The more effectively the state and local agencies manage their pedestrian and bicycle safety resources and programs, the more effective FHWA will be in reducing pedestrian and bicycle fatalities and injuries. This includes supporting State Bicycle and Pedestrian Coordinators

nationwide to improve Coordinators' effectiveness in supporting and managing the Pedestrian and Bicycle Safety Program at the state and local levels.

A key pedestrian and bicycle safety strategy for FHWA is to ensure states and local agencies have robust safety planning processes, identify high-risk locations, and apply effective countermeasures. While the regulations require Divisions to approve the process the states use to develop their SHSP, they do not require states to report on the implementation of SHSP activities. FHWA provides little guidance to its Division staff on their role in technical assistance, training, and compiling information to strengthen the states' management of these activities. In addition, focusing on site-specific problem identification and countermeasures may be a more reactive strategy that addresses problems after there have been fatalities and injuries. A proactive, systems-wide approach for state and local agencies would include deploying pedestrian and bicycle safety strategies throughout their jurisdiction. This could include, for example, deploying countdown signals at all intersections with a certain level of pedestrian and/or vehicular traffic.

	Encourage Effective State and Local Programs			
Fir	Finding: Some State DOTs do not have a comprehensive Pedestrian and Bicycle Safety Program.			
	Strengths	Challenges		
•	FHWA's Pedestrian and Bicycle Safety Programs focus on ensuring State DOTs have developed highway safety planning processes (SHSP and Pedestrian Safety Action Plans) and training. FHWA recently completed the SHSP Implementation Process Model Interactive CD and SHSP IPM: The Essential Eight – Fundamental Elements and Effective Steps for SHSP Implementation to provide more guidance to states on effective implementation of their SHSP.	<ul> <li>State DOTs are required to prepare multiple plans for different programs that may impact pedestrian and bicycle safety including STIP, TIP, SHSP, Highway Safety Plan (HSP) (for NHTSA), and ADA self-evaluation and transition plan.</li> <li>There is little FHWA follow-up and technical assistance on state and local implementation and analysis of pedestrian and bicycle safety elements in required safety plans.</li> <li>HSA countermeasures often focus on safety improvements for specific problem locations rather than system-wide proactive safety improvements. (e.g., PedSafe tool, the annual 5% report under HSIP).</li> <li>Plans and information that is provided to FHWA such as the SHSP, Pedestrian Action Plans, STIPs and TIPs, and FMIS data on specific projects, are not used to help evaluate and improve state and local agencies' management of the Pedestrian and Bicycle Safety Program.</li> <li>State Pedestrian and Bicycle safety as a collateral duty and may not have the level of support necessary to effectively manage program implementation.</li> </ul>		

#### Table 9: Program Implementation Strengths and Challenges

<u>Recommendation 4</u>: Promote and track effective Pedestrian and Bicycle Safety Program management strategies by state and local agencies.
FHWA should broaden the scope of its pedestrian and bicycle safety activities to promote effective, proactive program management of its Pedestrian and Bicycle Safety Program by state and local agencies. In its technical assistance and training role, FHWA can provide a model that builds on the guidance provided in the SHSP Implementation Process Model and provides a framework and self-evaluation of state and local Pedestrian and Bicycle Safety Program management. One approach to do this would be a Capability Maturity Models (CMMs) that would define and measure the management of an agency's program. CMMs have been used in many government programs to effectively asses, track, and measure deployment and implementation of programs. A CMM could be developed to measure and track states' abilities to effectively manage Pedestrian and Bicycle Safety Program activities. This could help FHWA identify states and local agencies that may need assistance. An illustrative example of a CMM for state and local Pedestrian and Bicycle Safety Program management is included as Figure 5. State and local agencies could use the CMM to evaluate their own programs. The CMM would provide a clear path to the changes that they would need to make to improve their management practices. A pilot test and evaluation could demonstrate that states that achieved higher levels on the CMM have lower pedestrian and bicycle fatalities and injuries.

#### Figure 5: Example Capability Maturity Model

# Pedestrian and Bicycle Safety Program Capability Maturity Model for State and Local Transportation Agencies



#### Action steps to implement this recommendation include the following:

- 1. Develop a CMM system to guide, monitor, and measure state and local agency progress toward a comprehensive Pedestrian and Bicycle Safety Program. This could be used by state and local agencies as a self-evaluation tool to determine their current level of program management and help identify specific steps to improve the management of their Pedestrian and Bicycle Safety Program.
- 2. Demonstrate the benefits of proactive, system-wide pedestrian and bicycle safety improvements. Conduct case studies or pilot programs to demonstrate and quantify impacts.
- 3. Evaluate current guidelines and procedures for the Divisions' review of, comment about, and report on the content of their state's SHSP, and identify opportunities to collect program information as part of this review. Develop standardized management reports that Division staff could use for each state using FARS, SHSPs, STIP, TIP, Action Plans, and FMIS data on pedestrian and bicycle activities to monitor and track implementation and management practices. Rather than being seen as an additional duty for Division staff, this would be a way to streamline and standardize their review and documentation of their state's pedestrian and bicycle safety activities.
- 4. Improve the effectiveness of State Bicycle and Pedestrian Coordinators by establishing two-way communication among Division staff and their Coordinators to provide support and share information on state and local pedestrian and bicycle safety initiatives. The role of State Bicycle and Pedestrian Coordinators varies among states, depending on the collateral duties, expertise, and management support. In each, Coordinators are the primary point of contact for FHWA Division staff on pedestrian and bicycle issues. The communication and coordination with the State Coordinators could be developed to provide tailored technical assistance to the state and local agencies as well as a key source of information on customer needs to help guide program development at headquarters and Resource Center.

# 4.7 Collect Exposure and Program Data

Over the last five years there have been significant reductions in pedestrian and bicycle fatalities nationwide. However, much of the safety data to support program evaluation and decision making is flawed or unavailable (e.g., exposure data, facilities inventories, nonroadway crashes). FHWA has planned a number of studies to help address these data issue shortcomings through its Roadmap process and recently completed a Pedestrian Safety Program Strategic Plan to help address these data problems (see Table 10).

	Collect Exposure and Program Data					
Fir	Finding: There is insufficient exposure and facility inventory data to effectively manage Pedestrian					
and Bicycle Safety Program.						
	Strengths Challenges					
The HSA and HRT Roadmap and the draft     Exposure data on the amount of walking a						
	strategic plan for the pedestrian safety		biking is generally not available.			
program include projects to explore		•	NHTSA and FHWA estimate the rates of			
	alternatives to measure pedestrian exposure		pedestrian and bicycle fatalities and injuries			
	to risk.		based on the number per 100,000 population,			

#### Table 10: Program Evaluation Strengths and Challenges

<ul> <li>FHWA's provide technica the high</li> <li>Volpe an improve states in initiative</li> <li>HSA foo pedestri higher f</li> </ul>	s Focused Approach to Safety s free pedestrian training and l assistance to states and cities with est pedestrian fatalities. halysis found significant ements in pedestrian safety among the the Focused Approach to Safety e. ruses additional resources on an issues as pedestrians typically have atality rates than bicyclists.	•	<ul> <li>which does not address key factors such as density, climate, facilities.</li> <li>Most state and local transportation agencies do not report or monitor the availability and condition of pedestrian and bicycle facilities such as sidewalks, paths, striping, signals, and signage.</li> <li>While the AASHTO guidance for bicycle facility designs is currently being updated, it had not been updated since 1999 and engineers were be reluctant to use dated resources.</li> </ul>
<ul> <li>PBIC co agencies</li> <li>exposur</li> </ul>	an issues as pedestrians typically have atality rates than bicyclists. mpiled case studies of state and local with best practices in collecting e and/or facilities data.		reluctant to use dated resources.

<u>Recommendation 5</u>: Address safety data limitations to support management and evaluation of the Pedestrian and Bicycle Safety Program at the Federal, state, and local levels.

FHWA should continue to work with its partners to address pedestrian and bicycle data issues and opportunities through its research and program development activities identified in the Roadmap and in the draft Pedestrian Safety Program Strategic Plan.

Action steps to implement this recommendation include the following:

- 1. In developing the approach and scope for the planned studies to improve pedestrian and bicycle safety data, FHWA should partner with NHTSA to evaluate the FARS and identify training, coding, and other data issues to enhance pedestrian and bicycle crash reporting. FHWA should specifically include exploration and development of program management data that will also help FHWA manage its Pedestrian and Bicycle Safety Program.
- 2. Share best practices and explore potential incentives to encourage state and local agencies to collect information on the numbers of pedestrians and bicyclists and the amount and condition of pedestrian and bicycle facilities. A number of state and local agencies conduct surveys to collect information on pedestrian and bicycle exposure and facilities. While FHWA does not have a legislative mandate to collect this information, in its leadership role among pedestrian and bicycle stakeholders, the Agency could work to develop model data collection standards for this data. States and MPOs could use these model standards to benchmark their activities to other areas. FHWA could use this data to help measure the effectiveness of activities in these areas and this database could serve as a basis for expanding data collection in the future.

#### 4.8 Establish Feedback Loops

FHWA achieves its pedestrian and bicycle safety goals by supporting activities by state and local transportation agencies. These state and local agencies are FHWA's primary "customers," but FHWA headquarters offices have only ad hoc contacts and information on the needs, concerns, successes, and priorities of these agencies. In 2010 HSA and RD&T completed a

strategic planning effort to set research and program priorities for the next 15 years. This is a valuable, one-time effort and includes inputs from a range of partners and customers.

While several FHWA offices collect program output information on the number of training courses delivered, website contacts, and State DOTs submitting copies of SHSPs, this program data generally is not used to support management of the Pedestrian and Bicycle Safety Program. HSA is developing a database of information on the SHSPs and HSIPs that would include searchable information. Table 11 details the strengths and challenges of FHWA program evaluation.

	Establish Feedback Loops						
Fir	Finding: There is no institutionalized and ongoing process for FHWA to collect feedback from states						
an	and local agencies on pedestrian and bicycle safety issues, activities, deployment, or results.						
	Strengths	Challenges					
•	FHWA staff maintains contacts with a motivated cohort of pedestrian and bicycle safety and planning advocates nationwide. FHWA's HSA is leading the development of a Pedestrian Strategic Plan with key partners and stakeholders to guide the development of research and countermeasures over the next 15 years. HEP compiles estimates of FHWA funding	<ul> <li>Although several states are conducting pedestrian and/or bicycle safety activities, there are few states that require program outputs and outcome measures to evaluate their programs.</li> <li>Pedestrian and bicycle safety initiatives from the SHSPs have not been compiled or analyzed by FHWA to support management of the Pedestrian and Bicycle Safety Program.</li> <li>Pedestrian and bicycle projects are not coded</li> </ul>					
	from FMIS data for pedestrian and bicycle activities for each state.	uniformly in FMIS.					
•	Specific performance measures for pedestrian and bicycle safety are included in Section IV: Performance Budget of the FY 2011 FHWA Budget submission to Congress. HSA and RD&T conduct and evaluate the effectiveness of individual safety countermeasures						
•	HSA is developing a searchable database that includes information from SHSPs and HSIPs. HSA's Integration, Analysis, and Evaluation						
•	Team is initiating program evaluations. HSA collects training and website traffic data to track satisfaction and awareness levels, respectively.						

# Table 11: Program Evaluation Strengths and Challenges

<u>Recommendation 6</u>: Create feedback loops in FHWA's management of its Pedestrian and Bicycle Safety Programs, and use program output data to help guide decision making.

FHWA should institutionalize business processes to collect program feedback from primary customers and compile and analyze available program data to support decision making to

continually improve safety activities. Much of this information can be gathered by Division Offices as part of their current oversight and review requirements.

#### Action steps to implement this recommendation include the following:

- 1. Compile currently available data and create periodic management reports to support program decision making. This would include, for example, pedestrian and bicycle information to compare the number of website visits for the different websites and different pages, the number and type of training provided on pedestrian and bicycle safety, the number and location of Pedestrian Action Plans, the number of states with pedestrian and bicycle safety activities included in their SHSP and/or STIP. This information could be routinely collected by the pedestrian and bicycle point of contact in each Division as they review required documents. HSA should compile and analyze this information and develop tailored management reports for specific program managers and share this with their Division counterparts.
- 2. Establish mechanisms to coordinate with Division Office staff on State DOT and local pedestrian safety issues on a regular basis. Compile and analyze the data to identify trends, issues, and program improvements. This information could be included on a shared website, such as iShare or a community of practice.
- 3. As part of the training assessment by students in Resource Center and NHI courses on pedestrian and bicycle safety, include a follow-up self-assessment a year later from the students on impacts, changes, and benefits from the training. A similar approach has been used successfully by the Office of Operations in FHWA. This information would be very valuable to refine and update the course material and identify new courses and resource materials that are needed by FHWA's" frontline customers."

# 5.0 Conclusion and Next Steps

While FHWA's Pedestrian and Bicycle Safety Program has resulted in a wealth of countermeasures, strategies, training, and safety funding and activities in every state, more can be done to increase pedestrian and bicyclist safety. With the Department's and Administration's focus and funding for livability initiatives, FHWA has a unique opportunity to strengthen its pedestrian and bicycle activities. Transportation is evolving to be seen not only as a tool to increase mobility but also as a key strategy to support livability goals, including economic development and community, health, and safety. Increasing pedestrian and bicycle accommodation and safety play a central role in the emerging vision for multimodal transportation networks.

The study outlines several recommendations to build on the strengths of the current program while positioning the program for the future.

- 1. Focus efforts to foster a Pedestrian and Bicycle Safety Culture: FHWA is a national leader in pedestrian and bicycle safety programs. However, some transportation professionals are unaware of or may not support pedestrian and bicycle safety initiatives and policies. To expand and advance the culture of transportation agencies, FHWA should take a coordinated approach to increase the awareness of transportation professionals, change program procedures and requirements to reflect these new requirements, and hold individuals accountable for changes in practices.
- 2. Implement Current Policies: Current USDOT and FHWA policies and guidance on pedestrian and bicycle accommodation recommend a range of actions for state and local agencies that will have a direct impact on safety. These actions should also be adopted by FHWA to strengthen its own Pedestrian and Bicycle Safety Program and serve as a model for state and local agencies.
- **3.** Mainstream Pedestrian and Bicycle Safety in FHWA: FHWA has developed extensive and effective resources on pedestrian and bicycle safety. However, these pedestrian and bicyclist safety activities are not well integrated into FHWA's core programs of infrastructure, operations, and environmental reviews. Pedestrian and bicycle safety activities are stovepiped in FHWA and other offices do not assume a role or responsibility for increasing pedestrian and bicycle safety. FHWA could establish a matrix group with representatives from the core program offices to manage and collaborate on pedestrian and bicycle safety.
- 4. Encourage Effective State and Local Programs: A key pedestrian and bicycle safety strategy for FHWA is to ensure states and local agencies have robust safety planning processes and deploy effective countermeasures. The Agency recently issued guidance on implementation and evaluation of safety programs. FHWA should broaden the scope of these activities to assist the state and local agencies in institutionalizing proactive and system-wide management practices to support continuous improvement of their pedestrian and bicycle safety activities.
- 5. Collect Exposure and Program Data: Over the last five years there have been significant reductions in pedestrian and bicycle fatalities nationwide. However, much of the safety data to support program evaluation and decision making is flawed or unavailable. FHWA should continue to work with its partners to address pedestrian and bicycle data issues and opportunities.

6. Establish Feedback Loops: There are no institutionalized and ongoing processes for FHWA to collect feedback from states and local agencies on pedestrian and bicycle safety issues, activities, deployment, or results. FHWA should institutionalize business processes to collect program feedback from primary customers and compile and analyze available program data to support decision making to continually improve safety activities.

This program evaluation provides an independent evaluation of FHWA's Pedestrian and Bicycle Safety Program. It identified a range of program management strategies to unify and manage FHWA's initiatives to promote safe accommodation of pedestrians and bicyclists as a coordinated and cohesive program. A number of the proposed action items can be implemented with existing resources and significantly increase the effectiveness of FHWA's activities as well as strengthen the Agency's role as a leader within the highway and transportation community. These include improving coordination among the FHWA offices, actively seeking and institutionalizing feedback from state and local agencies, and fully integrating safe accommodation of pedestrians and bicyclists as part of the core mission of the Agency.

Potential outcomes of an enhanced program include:

- Leading fundamental change in the transportation industry toward equal consideration for safe access for pedestrian and biking in the transportation system;
- Better targeting FHWA resources and activities to help meet the current and emerging needs of states and local agencies on the front line of pedestrian and bicycle safety;
- Leveraging FHWA expertise throughout its core programs to help meet pedestrian and bicycle goals;
- Improving performance data and customer feedback to guide management decisions; and
- Fostering highly effective state and local programs which safely accommodate pedestrians and bicyclist throughout transportation.

An initial step may be for FHWA to use the results of this evaluation and feedback from senior management to create an action plan. The EWG identified the recommendation to create a matrix group with full representation of FHWA's core offices as both a "Quick Win" and a "High Impact" action. (The list of the EWGs priorities are listed below.)The matrix group would include representatives from Safety, Planning, and Environment, Operations, Infrastructure, Civil Rights, Federal Lands, Resource Center, and the Division Offices to oversee the Pedestrian and Bicycle Safety Program. The group would have a clear charter to integrate pedestrian and bicycle safety practices throughout the each of the core programs in FHWA. Rather than a group that only shares information on activities within the separate offices and programs, this group would actively manage the Pedestrian and Bicycle Safety Program and set goals and objectives, assign responsibilities and schedules, and receive reports on performance from various offices, and routinely report to senior management.

A first task for the matrix group could be to lead development of the action plan. The matrix group could prepare an action plan with specific assignments and schedules; track and report progress to management, and share lessons learned and approach with other offices

#### The top "Quick Wins" identified by the EWG include the following:

- 1. As part of the training assessment by students in Resource Center and NHI courses on pedestrian and bicycle safety, include a follow-up self-assessment a year later from the students on impacts, changes, and benefits from the training. (Action Item #15)
- **2.** Develop and deliver awareness training for transportation program managers, engineers, and specialists. (Action Item #1)
- **3.** Compile currently available data and create periodic management reports to support program decision making (Action Item #13)
- **4.** Establish a matrix group within FHWA with representatives from safety, planning, environment, operations, infrastructure, Civil Rights, Federal Lands, and the field to oversee the Pedestrian and Bicycle Safety Program. (Action Item #5)
- 5. Demonstrate the benefits of proactive, system-wide pedestrian and bicycle safety improvements. (Action Item #8)
- 6. Improve the effectiveness of State Bicycle and Pedestrian Coordinators by establishing two-way communication among Division staff and their Coordinators to provide support and share information on state and local pedestrian and bicycle safety initiatives. (Action Item # 10)

#### The top "High Impact" actions identified by the EWG include the following:

- Implement changes in standard operating procedures, guidance, and manuals. (Action Item # 2)
- 2. Establish a matrix group within FHWA with representatives from safety, planning, environment, operations, infrastructure, Civil Rights, Federal Lands, and the field to oversee the Pedestrian and Bicycle Safety Program. (Action Item # 5)
- **3.** Develop a detailed action plan to fully integrate pedestrian and bicycle safety and facilities programs throughout its safety, planning, operations, infrastructure, and field programs. (Action Item #6)
- 4. In developing the approach and scope for the planned studies to improve pedestrian and bicycle safety data, FHWA should partner with NHTSA to evaluate the FARS and identify training, coding, and other data issues to enhance pedestrian and bicycle crash reporting. FHWA should specifically include exploration and development of program management data that will also help FHWA manage its Pedestrian and Bicycle Safety Program. (Action Item #11)
- 5. Share best practices and explore potential incentives to encourage state and local agencies to collect information on the numbers of pedestrians and bicyclists and the amount and condition of pedestrian and bicycle facilities. (Action Item #12)

# 6.0 Appendix A: Interviews

# 6.1 List of Interviewees

Name Office/Division		Role				
FHWA Headquarters						
Becky Crowe	Office of Safety Road Safety Audit Program Manager Safe Routes to School Clearinghouse I					
Janet Ewing	Office of Safety	Communications Manager				
Erin Kenley	Office of Safety	Highway Safety Improvement Program, Program Manager				
David Nicol	Office of Safety	Office of Safety Design Director				
Tamara Redmon	Office of Safety	Pedestrian and Bicycle Safety Team Leader				
Dick Schaffer	Office of Safety	Bicycle and Pedestrian Specialist				
Yvonne Williams	Office of Safety	Financial Document Review				
Gabe Rousseau Office of Planning and the Environment		Bicycle and Pedestrian Program Manager				
Connie Yew	Office of Infrastructure	Stewardship and Oversight Team Leader				
Wayne Berman	Office of Operations	Congestion Management & Pricing Team Leader				
Ann Do Office of Research		Pedestrian and Bicycle Safety Research Contact				
	FHWA Resource Center and Division Offices					
Peter Eun Resource Center Resource Center Safety Engineer						
David Cohen	California Division Office	Pedestrian and Bicycle Coordinator				
Ken Kochevar	California Division Office	Safety Engineer				
Noel Mehlo Ohio Division Office		Environmental Specialist				
Nick Fortey	Oregon Division Office	Safety Engineer				
Elizabeth Hilton	Texas Division Office	Area Engineer				
Steve Ratke	Texas Division Office	Safety Engineer				

Name Office/Division		Role				
State and Local Transportation Agencies						
Richard Haggstrom         California DOT         Pedestrian Program Manager		Pedestrian Program Manager				
Maggie O'Mara	California DOT	Bicycle and Pedestrian Transportation Design				
Felicia Harper	Kentucky Transportation Cabinet	Pedestrian and Bicycle Coordinator				
Jesse Mayes	Kentucky Transportation Cabinet	CMAQ Program Coordinator				
Lynn Soporowski	Kentucky Transportation Cabinet	Pedestrian and Bicycle Coordinator				
Jerry Duke	Las Vegas Metro Area MPO	Planning Director				
Michelle May	Ohio DOT	ODOT Safety Program Manager				
Sheila Lyons Oregon DOT		Bicycle and Pedestrian Program Manager				
Julie Yip Oregon DOT		Safe Routes to School Program				
National Highway Institute						
Tom Elliott         National Highway Institute         Training Program Manager		Training Program Manager				
Mila Plosky National Highway Institute		Training Program Manager				
Department of Transportation						
Maria Vegega	NHTSA	Behavioral Research Division Chief				
Dianne Wigle NHTSA		Office of Safety Programs				
Katherine Mattice FTA		Office of Policy Development (pedestrian and bicycle contact)				
Bicycle and Pedestrian Industry Groups						
Sharon Roerty	National Center for Biking and Walking	Executive Director				
Dan Burden	Subject Matter Expert	Authority on bicycle and pedestrian programs				
Charlie Zegeer	UNC, Highway Safety Research Center	Project Manager for PBIC				

#### **6.2 Interview Protocols**

#### **Internal Stakeholder Protocol**

#### OVERVIEW AND PURPOSE OF INTERVIEWS

FHWA's Office of Safety (HSA) supports FHWA's goal to reduce pedestrian and bicyclist roadway fatalities and injuries through the development of pedestrian and bicycle safety projects, programs, and materials. Booz Allen Hamilton is working with HSA to conduct a program evaluation of the overall effectiveness of FHWA's pedestrian and bicycle safety activities. The study will assess the current state of the program, including program objectives, performance measures, major projects, key activities, and outreach and education efforts. The study will also review the effectiveness of the HSA pedestrian and bicycle safety activities as they relate to activities conducted by other programs and organizations. In addition, the study will identify program processes and resources. The study will then utilize the information collected to identify program strengths and weaknesses and develop recommendations around the program's effectiveness in reducing pedestrian and bicyclist roadway fatalities and injuries.

As part of this assessment, Booz Allen is interviewing FHWA staff and external stakeholders involved with FHWA pedestrian and bicycle safety activities. Information is being gathered to gain a better understanding of how pedestrian and bicycle safety activities are currently being publicized and implemented, how effective these current programs are, and where opportunities are for improvement.

Thank you in advance for assisting in this important effort. We appreciate any candid insight you will be able to provide to the Booz Allen team.

#### A. GENERAL OVERVIEW OF FHWA'S PEDESTRIAN AND BICYCLE SAFETY ACTIVITIES

- What is your role at FHWA?
- What pedestrian and/or bicyclist safety activities are you currently involved in?
  - How are these activities related to other pedestrian and bicycle safety activities within FHWA?
  - How are these activities related to other pedestrian and bicycle safety activities within other agencies or organizations?
- In your opinion, how have pedestrian and bicycle safety activities changed and/or evolved from the past?
- Throughout this interview we will combine bicycle and pedestrian activities as one unified safety area. Is this appropriate? Does FHWA treat each of the two components with the same weight and support?

#### B. MANAGEMENT OF FHWA'S PEDESTRIAN AND BICYCLE SAFETY ACTIVITIES

- How does your office prepare its portion of the FHWA budget and set priorities for pedestrian and bicycle safety activities?
- Are pedestrian and bicycle safety activities included in staff and management performance evaluation processes (or yours)?

- What type of training is provided to staff responsible for managing and/or participating in pedestrian and bicycle safety activities?
- What resources (e.g., funding, staff, and materials) are provided by FHWA to support pedestrian and/or bicyclist safety activities?
- What kind of collaboration exists between FHWA Offices in regard to bicycle and pedestrian safety activities? How can collaboration efforts be improved?
- What kind of communication exists between FHWA, states/localities, and industry partners regarding pedestrian and bicycle safety activities? How can communication efforts be improved?

#### C. PEDESTRIAN AND BICYCLE SAFETY ACTIVITIES STRATEGY AND PRIORITIES

- How is the national direction for safety activities (including pedestrian and bicycle safety) in FHWA set?
- Is there an overarching plan for pedestrian and bicycle safety activities?
  - If not, how are pedestrian and bicycle safety activities currently developed?
  - How are decisions around these activities made?
- In your opinion, what types of countermeasures are most effective? Which are least effective? Why?
- In your opinion, what types of outreach efforts are most effective? Which are least effective? Why?
- In your opinion, what types of FHWA and partner training are most effective? Which are least effective? Why?
- What types of data collection and analysis activities are conducted? Which do you view as most effective? Which are least effective? Why?
- What kind of research is being completed? How effective do you view this research to be? In your opinion, what additional research should be conducted in the future?
- Do you have any recommendations for the Program's direction, data analysis, countermeasures outreach efforts or training?

#### D. MEASURING PEDESTRIAN AND BICYCLE SAFETY ACTIVITIES SUCCESS

- How does FHWA link pedestrian and bicycle safety activities to the agency's safety outcomes?
- What performance measures has FHWA set to measure pedestrian and bicycle safety activity performance?
  - In your opinion, what additional performance measures should FHWA utilize to measure pedestrian and bicycle safety activity performance?
- In what ways does FHWA work with State, MPOs and industry stakeholders to collect data and/or measure performance?
- What challenges have you encountered while working with State, MPOs and industry stakeholders in collecting data and/or measuring performance? In what ways are State and local-level pedestrian and bicycle safety activities being affected by competing priorities and budgetary constraints?

- In your opinion, what is the highest priority in regards to pedestrian and bicycle safety? What components of the safety program have had the most impact? Which have had the least impact?
- Do you have any suggestions for additional ways FHWA could measure pedestrian and bicyclist safety activities performance?

#### E. MISCELLANEOUS

- Now that we have gone through this series of questions, do you have anything you want to add on any of our previous questions?
- Do you have any additional comments on the safety program?
  - Program strengths?
  - Program weaknesses?
  - Opportunities for improvement?

#### INTERVIEW FEEDBACK

- How much time did you spend preparing for this interview? What was the nature of the prep work you completed?
- In your opinion, how useful would you describe this interview? Why?
- In your opinion, did you find the interview questions to be comprehensive? What was most useful? What would you change?
- Overall, what worked well with this interview?
- Overall, what could have been improved?
- Do you have any suggestions/recommendations for future interviews?

# **External Stakeholder Protocol**

#### OVERVIEW AND PURPOSE OF INTERVIEWS

FHWA's Office of Highway Safety (HSA) supports FHWA's goal to reduce pedestrian and bicycles roadway fatalities and injuries through the development of pedestrian and bicycle safety projects, programs, and materials. Booz Allen Hamilton is working with HSA to conduct a program evaluation of the overall effectiveness of FHWA's pedestrian and bicycle safety activities. The study will assess the current state of the program including program objectives, performance measures, major projects, key activities, and outreach and education efforts. The study will also review the effectiveness of the HSA pedestrian and bicycle safety activities as they relate to activities conducted by other programs and organizations. In addition, the study will identify program processes and resources. The study will then utilize the information collected to identify program strengths and weaknesses and to develop recommendations around the program's effectiveness in reducing pedestrian and bicyclist roadway fatalities and injuries.

As part of this assessment, Booz Allen is interviewing FHWA staff and external stakeholders involved with FHWA pedestrian and bicycle safety activities. Information is being gathered to

gain a better understanding of how pedestrian and bicycle safety activities are currently being publicized and implemented, how effective these current programs are and opportunities for improvement.

Thank you in advance for assisting in this important effort. We appreciate any candid insight you will be able to provide to the Booz Allen team.

#### A. GENERAL OVERVIEW OF FHWA'S PEDESTRIAN AND BICYCLE SAFETY ACTIVITIES

- What pedestrian and/or bicyclist safety activities are you currently involved in?
  - What are your primary roles and responsibilities?
  - How long have you been involved with these activities?
  - What other agencies and/or organizations do you work closely with when developing and or implementing pedestrian and bicycle safety activities?
- In your opinion, what is the mission of FHWA's pedestrian and bicyclist safety activities?
  - o Do you think that FHWA is successfully achieving this mission?
  - What do you see as the primary challenges that prevent FHWA from effectively achieving its mission?
- What are the objectives of FHWA's pedestrian and bicyclist safety activities?
   What strategies does FHWA employee to meet those objectives?
- o what strategies does FRWA employee to meet those objectives?
- How have pedestrian and bicycle safety activities changed and/or evolved from the past?
- Throughout this interview we will combine bicycle and pedestrian activities as one unified safety area. Is this appropriate? Does your state/locality treat biking and walking with the same weight and support?

#### B. MANAGEMENT OF PEDESTRIAN AND BICYCLE SAFETY ACTIVITIES

- How does your state/locality prepare its budget and set priorities for pedestrian and bicycle safety activities?
- What type of training is provided to staff responsible for managing and/or participating in pedestrian and bicycle safety activities?
- What resources (e.g., funding, staff, and materials) are provided by FHWA to support your state/localities' pedestrian and bicycle safety activities?
- How is feedback provided and received between your state/locality, FHWA, and industry partners regarding pedestrian and bicycle safety activities?

#### C. PEDESTRIAN AND BICYCLE SAFETY ACTIVITIES STRATEGY AND PRIORITIES

Pedestrian and Bicycle Safety Activities Strategy

- Does your state/locality have a plan to guide pedestrian and bicycle safety activities? If not, how are pedestrian and bicycle safety activities developed and implemented? How are decisions around these activities made?
- How descriptive are your state's SHSP and HSIP in regards to pedestrian and bicycle safety activities?

Pedestrian and Bicycle Safety Activities Implemented

- What types of pedestrian and bicycle safety programs and projects does your state/locality implement (e.g., Safe Routes to School)?
- What types of pedestrian and bicycle safety resources does your state/locality utilize (e.g., Pedestrian and Bicycle Information Center, Toolbox of Countermeasures, Pedestrian Road Safety Audits)?
- What types of pedestrian and bicycle safety outreach materials does your state/locality utilize (e.g., Walkability Checklist, Pedestrian Forum Newsletter)?

#### Pedestrian and Bicycle Safety Activities Data Collection and Analysis

- What types of pedestrian and bicycle data collection and analysis activities are conducted by your state/locality?
  - Are the results of these activities provided to FHWA?
  - Which of these activities do you view as most effective? Why?
  - Which of these activities do you view as least effective? Why?
- What kind of pedestrian and/or bicycle safety research is being completed by your state/locality?
  - How effective do you view this research to be?
  - In your opinion, what additional research should be conducted in the future?

#### Effectiveness of Pedestrian and Bicycle Safety Activities

- In your opinion, what types of countermeasures are most effective? Which are least effective? Why?
- In your opinion, what types of outreach efforts are most effective? Which are least effective? Why?
- In your opinion, what types of bicycle and pedestrian safety training are most effective? Which are least effective? Why?
- Do you have any recommendations for the Program's direction, data analysis, countermeasures outreach efforts or training?

#### D. MEASURING PEDESTRIAN AND BICYCLE SAFETY ACTIVITIES SUCCESS

- Does your state/locality have pedestrian and bicycle safety performance measures? If so, what are they? If not, what does your state/locality use to guide pedestrian and bicycle activities?
- What agencies (e.g., FHWA, NHTSA), organizations, or other states/localities does your state/locality work with to collect data and/or measure performance?
- What challenges has your state/locality faced in collecting data and/or measuring performance?
- How is your state/locality being affected by competing priorities and budgetary constraints?
- In your opinion, what is the highest priority in regards to pedestrian and bicycle safety?
  - What components of the safety program have had the most impact?
  - Which have had the least impact?
- Do you have any suggestions for additional ways to measure pedestrian and bicyclist safety activities performance?

#### E. MISCELLANEOUS

- Now that we have gone through this series of questions, do you have anything you want to add on any of our previous questions?
- What other best practices or lessons learned would you like to share regarding your experience with pedestrian and bicycle safety activities?
- Do you have any additional comments on the safety program?
  - Program strengths?
  - Program weaknesses?
  - Opportunities for improvement?

#### F. INTERVIEW FEEDBACK

FHWA has launched this evaluation as the first project within a structured agenda of program evaluations that they will be conducting over the next few years. They want to use this opportunity to also make enhancements to their program evaluation process. Can we take a just a few more minutes to discuss your part of this process – to see if you can give them any feedback that would improve future evaluations?

- How much time did you spend preparing for this interview? What was the nature of the prep work you completed?
- In your opinion, how useful would you describe this interview? Why?
- In your opinion, did you find the interview questions to be comprehensive? What was most useful? What would you change?
- Overall, what worked well with this interview?

# 7.0 Appendix B: Logic Model Documentation

# 7.1 Pedestrian and Bicycle Safety Program Logic Model

A key step of the program evaluation was to capture an accurate picture of FHWA's current Pedestrian and Bicycle Safety Program activities and decision-making processes. To complete this step, Booz Allen reviewed program documents, analyzed pedestrian and bicycle data, and conducted interviews with Federal, state, and local transportation agency staff involved in pedestrian and bicycle safety activities, as well as pedestrian and bicycle safety advocates.

#### Baseline Program Assessment Includes:

- ✤ Logic Model
- Program Management Process Map
- Analysis of Available Data

The baseline program description contained in this report includes a current state logic model, a current state program management process map, and an analysis of available safety data.

# 7.2 Current State Logic Model

Logic models are important tools that can help an agency clarify linkages among program components, focus on outcomes, and plan appropriate data collection and analysis. FHWA's Pedestrian and Bicycle Safety Program logic model enables the Agency to describe the program's components and desired results, and explain the strategy, or logic, by which the program is expected to achieve its goals. The logic model is used to formulate new and validate existing measures of program success.

To create the logic model, Booz Allen developed a comprehensive baseline analysis of all facets of the Pedestrian and Bicycle Safety Program. This analysis helped populate each section of the logic model and identify sections for further analysis. The logic model includes the following:

- Program resources applied in support of the program activities (i.e., program staffing and funding);
- Program activities that transform program resources into outputs;
- Available program outputs, describing the level of activity provided (i.e., quantity of outreach materials distributed); and
- Program outcomes describing the intended result of carrying out the output activities (i.e., reducing pedestrian fatalities and injuries by 10 percent by 2011), as well as the intended impact of the program.

The logic model for the current FHWA Pedestrian and Bicycle Safety Program is presented in Figure 6.

<ul> <li>Promote comprehensive safety programs for pedestrian and bicycle safety.</li> <li>Support state and local agency activities to reduce pedestrian</li> <li>Support state and local agency activities to reduce pedestrian</li> <li>Mathematical agency activities to reduce pedestrian</li> <li>Support state and local agency activities to reduce pedestrian</li> <li>Support state and local agency activities to reduce pedestrian</li> <li>Support state and local agency activities to reduce pedestrian</li> <li>Support state and local agency activities to reduce pedestrian</li> <li>Support state and local agency activities to reduce pedestrian</li> <li>Support state and local agency activities to reduce pedestrian</li> <li>Support state and local agency activities to reduce pedestrian</li> <li>Support state and local agency activities to reduce pedestrian</li> <li>Support state and local agency activities to reduce pedestrian</li> <li>Support state and local agency activities to reduce pedestrian</li> <li>Support state and local agency activities to reduce pedestrian</li> <li>Support state and local agency activities to reduce pedestrian</li> <li>Support state and local agency activities to reduce pedestrian</li> <li>Support state and local agency activities to reduce pedestrian</li> <li>Support state and local agency activities to reduce pedestrian</li> <li>Support state and local agency activities to reduce pedestrian</li> <li>Support state and local agency activities to reduce pedestrian</li> <li>Support state and local agency activities to reduce pedestrian</li> <li>Support state and local agency activities to reduce pedestrian</li> <li>Support state and local agency activities to reduce pedestrian</li> <li>Support state and local agency activities to reduce pedestrian</li> <li>Support state and local agency activities to reduce pedestrian</li> <li>Support state and local agency activities to reduce pedest</li></ul>		Program Purpose	Resources	Activities	Available Measured	Intended
and bicycle fatalities and injuries.• USDOT coordinating committeesstate and local planning (e.g., STIP, TIP)agencies with Pedestrian Safety Plansagencies have effect pedestrian Safety Plans• Promote livable communities through safe pedestrian and bicycle facilities and activities.• State DOTs and local transportation agencies• Problem identification and assessment• # of pedestrian Safety Plans• Pedestrian and bicycle safety activities• Promote safety for all pedestrians and bicyclist including people with disabilities, older adults, children, and students.• State and local funds• Analysis and decision- making tools• Total funds obligated by states for pedestrian and bicycle safety activities• Pedestrian and bicycle safety training (# of classes, webinars, workshops, and materials to deliver and promote products• Develop conferences, classes, webinars, workshops, and materials to deliver and promote products• Pedestrian and bicycle safety training (# of classes, people, states, student satisfaction)• Increased awarene pedestrian and bicycle safety training (# of classes, people, states, student satisfaction)• NCHRP adults, children, and students.• NCHRP expert contract support • NHTSA HQ & field staff • FTA HQ • Safety NGOS• Publish materials and research online• # of printed publication orders• # of printed publication orders	Current Program	<ul> <li>Promote comprehensive safety programs for pedestrian and bicycle safety.</li> <li>Support state and local agency activities to reduce pedestrian and bicycle fatalities and injuries.</li> <li>Promote livable communities through safe pedestrian and bicycle facilities and activities.</li> <li>Promote safety for all pedestrians and bicyclist including people with disabilities, older adults, children, and students.</li> </ul>	<ul> <li>FHWA HQ offices: <ul> <li>HSA</li> <li>RD&amp;T</li> <li>HEP</li> <li>NHI</li> </ul> </li> <li>FHWA Field Offices <ul> <li>Resource Center</li> <li>Division Offices</li> </ul> </li> <li>USDOT coordinating committees</li> <li>State DOTs and local transportation agencies</li> <li>State and local funds</li> <li>Federal-aid highway program funds</li> <li>Research and program funds</li> <li>NCHRP</li> <li>PBIC outreach and training</li> <li>Expert contract support</li> <li>NHTSA HQ &amp; field staff</li> <li>FTA HQ</li> <li>Safety NGOs</li> </ul>	<ul> <li>Implement laws through regulations, guidance, and programs</li> <li>Strategic and budgetary planning</li> <li>Provide guidance for state and local planning (e.g., STIP, TIP)</li> <li>Problem identification and assessment</li> <li>Analysis and decision- making tools</li> <li>Identify, develop, and deploy effective countermeasures</li> <li>Develop conferences, classes, webinars, workshops, and materials to deliver and promote products</li> <li>Publish materials and research online</li> </ul>	<ul> <li># of pedestrian and bicycle fatalities and injuries</li> <li>% of Roadmap activities completed on time and within budget</li> <li># of state and local agencies with Pedestrian Safety Plans</li> <li># of pedestrian and bicycle safety activities in each state</li> <li>Total funds obligated by states for pedestrian and bicycle safety activities</li> <li>Pedestrian and bicycle safety training (# of classes, people, states, student satisfaction)</li> <li># of FHWA Safety and PBIC website hits</li> <li># of printed publication orders</li> </ul>	<ul> <li>Appropriate federal, state, and local agency staff have the tools, knowledge, and resources to address pedestrian and bicycle safety issues.</li> <li>State and local agencies have effective pedestrian and bicycle planning processes.</li> <li>Pedestrian and bicycle fatalities and injuries are reduced in each State and nationwide.</li> <li>Increased awareness of pedestrian and bicycle safety issues.</li> </ul>

# Figure 6: Current State Logic Model

The following section provides more detail on the elements in the Current State Logic Model (Figure 6).

#### Pedestrian and Bicycle Safety Program Purpose:

The purpose of the FHWA Pedestrian and Bicycle Safety Program is to promote comprehensive safety programs for pedestrian and bicycle safety, support state and local agency activities to reduce pedestrian and bicycle fatalities and injuries, and promote livable communities through safe pedestrian and bicycle facilities and activities. FHWA's bicycle and pedestrian safety activities are conducted throughout the Agency headquarters' safety and research offices and the field Resource Center and Division Offices. To accomplish its mission, FHWA leverages a set of resources to execute a series of activities. As a result of these activities, products, tools, and plans are developed. These outputs are measured to determine the positive impact the program has on pedestrian and bicycle safety. FHWA's Pedestrian and Bicycle Program is an integral part of the USDOT's priorities to improve highway safety and to promote livable communities. A livable community is one that provides safe and convenient transportation choices to all citizens, whether by walking, bicycling, public transit, or driving.

#### **Program Resources:**

- The FHWA Headquarters offices provide leadership on strategic initiatives, set overall policy, and provide program direction for the Agency's Pedestrian and Bicycle Safety Program. The following headquarters offices administer key elements of the Pedestrian and Bicycle Safety Program:
  - **HSA:** The Office of Safety's (HSA) stated mission is "to reduce highway fatalities by making roads safer through a data-driven, systematic approach and addressing all 4 E's of safety: engineering, education, enforcement, and emergency medical services."<sup>7</sup> HSA develops the strategies, tools, and countermeasures for state and local agencies to use to address pedestrian and bicycle safety concerns. Two key staff within HSA provide national leadership and advocacy on pedestrian and bicycle safety initiatives, including strategic and program development and implementation. Their efforts around training development and delivery are supported by Resource Center staff, as well as the Office of Research, Development, and Technology (RD&T). The Office also takes the lead in coordinating with other partners and stakeholders to improve pedestrian and bicycle safety, including other modes in USDOT, State DOTs, local transportation agencies, universities, and safety advocacy groups. In its program coordination role, HSA is a primary actor in setting program priorities. Currently, HSA is publicizing the two countermeasures that apply to their program that were included in The 9 Proven Crash Countermeasures report by using design guidelines and promotional brochures on the benefits of medians and shoulders to increase pedestrian and bicycle safety. HSA is also conducting an outreach and technical assistance campaign on pedestrian safety to the 13 Focus States and 5 Focus Cities. This initiative is part of HSA's Focused Approach to Safety Program that was launched in 2004. The program was evaluated in the John A. Volpe National Transportation Systems Center's (Volpe) Focused Approach to Safety report. HSA is also worked with RD&T to develop of a Pedestrian

<sup>&</sup>lt;sup>7</sup> FHWA Safety Program Home Page, http://safety.fhwa.dot.gov/

*Safety Program Strategic Plan.* This plan will help identify FHWA's pedestrian safety research and program development activities for the next 15 years.

- RD&T: The Office of Research, Development, and Technology (RD&T) is responsible for conducting research that supports the development and implementation of the Pedestrian and Bicycle Safety Program. RD&T's pedestrian and bicycle safety staff works in coordination and collaboration with their colleagues at HSA and the Resource Center. Similar to HSA, RD&T may work with other USDOT modes, states, transportation organizations, and universities to conduct its research. The research done at RD&T helps identify and prioritize pedestrian and bicycle safety needs and trends and contributes to the development of the pedestrian and bicycle safety strategies, countermeasures, and models. In general, RD&T conducts the research, HSA uses that research to create various products, materials, and planning documents, and then the Resource Center develops training around the products and materials.
- HEP: The Office of Planning, Environment, and Realty (HEP) promotes pedestrian 0 and bicycle use, safety, and accessibility. HEP manages the development of policies and regulations to safely accommodate pedestrians and bicyclists in highway planning, programming, and deployment throughout the highway system. Generally, HEP focuses on promoting pedestrian and bicycle use and accessibility and coordinates with HSA on the safety aspects of its pedestrian and bicycle activities. HEP and HSA activities benefit from increased support from Secretary LaHood's focus on livability within communities, as well as the recent increased interest in environmental friendly "greening" initiatives. HEP provides livability policy and direction as they relate to walking and biking. Similar to the other FHWA headquarters offices involved with the program, HEP operates in close coordination with its internal and external stakeholders in USDOT and FHWA, state and local agencies, university researchers, and advocacy groups. They provide conference support for an annual leadership conference with the Leagues of American Bicyclists, and the annual meeting of State DOT pedestrian and bicycle coordinators, in conjunction with the meeting of AASHTO's new technical committee on Non-Motorized Transportation. HEP is also responsible for overseeing the clearinghouse, the Pedestrian and Bicycle Information Center (PBIC), which provides guidance and support for the State Pedestrian and Bicycle Coordinators.
- NHI: The National Highway Institute (NHI) is an office within FHWA that works to improve the performance of the transportation industry through training and knowledge transfer. NHI delivers classroom-based and online learning, and free Web-based seminars transportation-related training. NHI is focused on not only training and developing educational materials that address the full lifecycle of the highway transportation system, but also enhancing knowledge transfer to and among transportation professionals. The target audience for NHI's pedestrian and bicycle training is the design community, and pedestrian and bicycle state coordinators. The number of pedestrian and bicycle courses that are offered by NHI depend on the number of courses requested by state and local agencies. Although the NHI and Resource Center training schedules on pedestrian and bicycle safety are not necessarily coordinated, these additional training opportunities serve as a useful supplement to those developed and offered FHWA's Resource Center. NHI is also

currently working with NHTSA to develop a course for pedestrian safety program management.

- FHWA Field Offices deliver program services to FHWA's partners and customers. The field offices involved in pedestrian and bicycle safety include the Resource Center and state-level Division Offices:
  - Resource Center: The Safety and Design Team at the FHWA Resource Center provides expert technical assistance, technology deployment, and training for pedestrian and bicycle safety activities to support to the FHWA Divisions, State DOTs, and other stakeholders. Two safety engineers on the 18-person Safety and Design Team support FHWA's Pedestrian and Bicycle Safety Program. These safety engineers serve as a principal information repository, technical advisor, and program delivery agent for the program. They are an essential element for both the FHWA Headquarters and Division Offices in developing and deploying the Pedestrian and Bicycle Safety Program. The Resource Center staff work in concert with the PBIC and the University of North Carolina Highway Safety Research Center (HSRC) to develop and disseminate training for states in the Focused Approach to Safety initiative. These courses provide technical assistance, teaching participants best practices on designing pedestrian facilities, prioritizing countermeasures, and developing pedestrian safety action plans.
  - Division Offices: FHWA Division Offices provide frontline program delivery 0 assistance and oversight to State DOT and local transportation agencies on pedestrian and bicycle safety initiatives. The Division Offices are responsible for oversight of State and local agency activities that impact pedestrian and bicycle safety including State Transportation Improvement Plan (STIP) and Metropolitan Planning Organization's (MPO) Transportation Improvement Plan (TIP) planning processes, development and reporting on the State Highway Safety Plan (SHSP) and Highway Safety Improvement Program (HSIP), and environmental reviews of specific projects. Generally, each of the 52 Division Offices (one in each state, plus the District of Columbia and Puerto Rico) has designated a staff member to serve as the pedestrian and bicycle contact for the Division as a collateral duty. The contact's responsibilities include advising Division engineers and specialists on pedestrian and bicycle safety planning and research, and technology transfer. The specific roles and responsibilities vary among the Divisions, depending on staff expertise and state and local requirements. In some Divisions, the pedestrian and bicycle contact may also work on oversight of the Americans with Disabilities Act (ADA), which includes specific requirements and guidelines around the accessibility of pedestrian facilities for people with disabilities and other strategic documents.
- **USDOT coordinating committees:** FHWA works in concert with its partner modes in cross-modal coordinating committees. These committees are established to improve the overall safety of the nation's transportation network, and pedestrian and bicycle environment, through a collaborative approach to the development and implementation of effective strategies. These coordinating committees include the DOT Pedestrian and Bicycle Share Group and the Pedestrian and Bicycle Charter Group. Through these groups, FHWA has collaborated on studies and initiatives with NHTSA and FTA to improve pedestrian and bicycle safety. In addition, FHWA participates in the Department's working group on Livable Communities. This group leverages the work among the DOT modes as well as work done by their partner Federal agencies, such as

the Department of Housing and Urban Development (HUD), Health and Human Services (HSS), and the Environmental Protection Agency (EPA), on similar committee efforts.

- State DOTs and local transportation agencies: The primary role of FHWA's Pedestrian and Bicycle Safety Program is to support state and local transportation agency activities to reduce pedestrian and bicycle fatalities and injuries. FHWA oversees specific requirements for what must be included in the transportation planning process for federally funded projects, and State DOTs and local transportation agencies determine their own transportation priorities and specific projects through the Statewide Long-Range Transportation Plans, STIPs, TIPs, HSIP, and SHSP. The Division Offices review and approve the processes used to develop these plans but the states and local agencies determine the projects and priorities, including pedestrian and bicycle safety priorities in those plans. State and local pedestrian and bicycle safety activities in these plans may include, for example, developing a Pedestrian Safety Action Plan, implementing safety countermeasures such as crosswalks, ITS technologies, and striping, as well as developing pedestrian and bicycle safety information or training to the public. Moreover, states and localities are also encouraged to include bicycle and pedestrian improvements as an incidental part of larger projects because the broad eligibility of bicycle and pedestrian facilities in all the major Federal surface transportation funding programs means that incidental improvements such as these are appropriate to be included as part of larger transportation projects. State and local transportation agencies may contact staff in the FHWA Division Office or Resource Center to arrange technical assistance and/or training to support its pedestrian and bicycle safety activities.
- State and local funds: The majority of highway funding comes from state and local government funds (see Table 12). The FHWA 2008 Conditions and Performance Report reported \$161.1 billion in total spending on highways. Of this amount, the Federal government provided 22.6 percent of these funds. While the majority of highway projects may not include any Federal funding, FHWA encourages states to include non-federally funded projects in the required Federal transportation planning process documents. Through its planning and programming oversight responsibilities, policy guidance, technical assistance, data analysis, training, and countermeasures, FHWA works to influence state and local agencies to allocate the appropriate amount of funds for pedestrian and bicycle safety activities.

Direct Expenditures for Highways, by Expending Agencies and by Type 2006 Exhibit 6-5, FHWA 2008 Conditions and Performance Report <sup>8</sup>						
	Percentage					
	rereentuge					
Total Expenditures	\$2.2	\$100.1	\$58.8	\$161.1	100.0%	
Funded by Federal Government	\$2.2	\$32.8	\$1.4	\$36.3	22.6%	
Funded by State Governments	\$0.0	\$65.1	\$15.8	\$80.9	50.2%	
Funded by Local Governments	\$0.0	\$2.2	\$41.6	\$43.8	27.2%	

#### Table 12: State and Local Funding

<sup>&</sup>lt;sup>8</sup> 2008 Status of the Nation's Highways, Bridges, and Transit: Conditions and Performance, http://www.fhwa.dot.gov/policy/2008cpr/pdfs.htm

- Federal-aid highway program funds: Most FHWA funding programs can be used for bicycle- and pedestrian-related projects. Estimates of Federal-aid highway program obligations for pedestrian and bicycle activities varied from approximately \$395 million to \$440 million between FY 2002 and FY 2006, then rose approximately 32 percent from FY 2007 to FY 2008, and then more than doubled between FY 2008 and FY 2009, primarily as a result of American Reinvestment and Recovery Act of 2009 (ARRA) funding. These funds include all obligations coded for pedestrian and bicycle safety and accommodation. A summary of these funds are included in Table 13 (see Appendix D).
- **Research and program funds:** In recent years, HSA and RD&T have used approximately \$1 million in program funds to support their research and program development activities for the Pedestrian and Bicycle Safety Program. HSA and RD&T use the Roadmap process to program pedestrian and bicycle safety funds. Both offices are responsible for making budgetary recommendations and requests for management approval. Typically, HEP and NHTSA staff also coordinate and provide input on the Roadmap funding decisions. HSA and RD&T initiated a two-year strategic planning process to provide input from stakeholders on its funding priorities.
- NCHRP: The National Cooperative Highway Research Program (NCHRP) is a research program sponsored by the State DOTs and administered by the Transportation Research Board (TRB) in cooperation with FHWA. NCHRP conducts research on highway planning, design, construction, operation, and maintenance including pedestrian and bicycle safety issues.
- **PBIC outreach and training:** The Pedestrian and Bicycle Information Center (PBIC) employs a comprehensive approach to research, planning, and implementation to promote walking and biking as a safe means of transportation. Administered by FHWA's HEP, the PBIC serves as a clearinghouse of resources for FHWA's pedestrian and bicycle safety advocates, partners, and customers. Its websites offer expert information and training on a diverse set of issues to these audiences. The resources and tools provided include crash and safety facts, examples of successfully implemented solutions, instructions on developing plans and policies, guidance on engineering pedestrian facilities, educational opportunities through webinars, funding explanations, and helpful hints to improve enforcement and build pedestrian and bicycle awareness/support. Additionally, PBIC offers a catalogue of pedestrian and bicycle courses with a combination of in-class and webinar options available.
- **Expert contract support:** FHWA contracts with private consultants and universities to support the Pedestrian and Bicycle Safety Program. FHWA maintains a multiyear task-order contracting process that provides a preselected cadre of expert consultants for task-order assignments. This contracting process streamlines the procurement process and ensures projects are initiated quickly. Projects selected through the Roadmap process are generally awarded through this process.
- NHTSA HQ & field staff: NHTSA, a partner USDOT operating administration, coordinates with FHWA on the development of its pedestrian and bicycle safety activities, behavioral interventions, and enforcement enhancements that improve overall highway safety. In regard to supporting the state and local agencies in their 4 E's (engineering, education, enforcement, and emergency management response [EMS]) approach to pedestrian and bicycle safety, FHWA focuses on engineering and some education, while NHTSA focuses on enforcement, education, and EMS. The data collection and analysis NHTSA conducts as a part of its FARS program is used by

FHWA in its pedestrian and bicycle safety research and analysis. NHTSA also conducts pedestrian and bicycle safety initiatives in risk analysis, education and outreach effectiveness evaluations, crash causation studies, and testing of new countermeasures. NHTSA and FHWA also collaborate to address emerging pedestrian and bicycle safety concerns such as the impact of quiet cars approaching intersections as well as distraction as a result of cell phones and/or headphones.

- **FTA HQ:** The Federal Transit Administration (FTA) provides grants to public transportation systems nationwide. Pedestrian and bicycle safety is an important issue for transit agencies because most transit passengers are also pedestrians on roadways as they travel to and from transit facilities. FTA participates in DOT-wide coordinating groups on pedestrian and bicycle safety and livability. FTA partnered with FHWA on the development of pedestrian safety information for transit agencies.
- Safety NGOs: FHWA regularly collaborates with nongovernmental organizations (NGOs) that serve as advocates for state DOTs and local agencies and for pedestrian and bicycle safety. By leveraging the support of NGOs such as the Association of Pedestrian and Bicyclist Professionals (APBP), National Center for Bike and Walking, American Bike Association, America Walks, AASHTO, Association of Metropolitan Planning Organizations (AMPO), and the TRB in FHWA's pedestrian and bicycle safety activities, the Agency is able to achieve a greater impact on safety. These NGOs serve as force multipliers, distributing the essential resources and tools developed by FHWA to assist states and localities in improving the safety and mobility within their communities. Additionally, they provide independent research and thought leadership on important pedestrian and bicycle safety issues. AASHTO provides an important role in developing consensus among State DOTs on pedestrian and bicycle design standards and publishing guidance.

#### **Program Activities:**

Program activities are a high-level description of initiatives within FHWA's Pedestrian and Bicycle Safety Program development, management, and delivery. They describe how the Agency expends pedestrian and bicycle safety resources to achieve a desired outcome/impact. FHWA uses these activities to plan, develop, and implement all components of the program.

As part of Booz Allen's evaluation, the Pedestrian and Bicycle Safety Program management process was mapped. This map deconstructs the pedestrian and bicycle process flow to provide a comprehensive picture of activities. This helps identify gaps, redundancies, and opportunities for improvement within the process. With the map, one can trace the process and observe the division of roles and responsibilities and interactions among Headquarters offices, Field offices, and the various other stakeholders from start to finish. Section 3.3 contains a process map that explains the Pedestrian and Bicycle Safety Program's current state.

Currently, the Focused Approach to Pedestrian Safety is the priority program within the Pedestrian and Bicycle Safety Program. The pedestrian safety initiative is a part of a broader program launched by HSA in 2004. The HSA program concentrates funding and technical assistance in specific locations with the highest fatality rates in three key emphasis areas – intersections, roadway departures, and pedestrian safety. FHWA uses lessons learned from program delivery in the focus locations to drive decision making and improve the program as a whole. In February of 2009, Volpe completed an evaluation of the Focused Approach,

examining the design, process, and implementation of the program. The final report contained nine recommendations to improve targeting of states and cities to include as Focus States and to enhance specific program activities including course offerings, evaluation tools, technical assistance, and new education and outreach efforts.

#### Available Measured Outputs:

Activity outputs are measures of program performance, supported by data, which provide FHWA a set of targets and indicators to reference during performance analysis. In order to gauge the effective application of resources, FHWA developed performance measures as part of their strategic planning and budgetary processes. A measure, such as the number of or percentage reduction in pedestrian and bicycle fatalities and injuries over a given period of time, allows FHWA to quantify the impact the program has had on the pedestrian and bicycle environment. By calculating the net change, the Agency is able to evaluate gaps between the current and desired state of the Pedestrian and Bicycle Safety Program, and the level of change it has been able to affect as a result of current efforts. These output measures, which ultimately align to Agency goals and objectives, address the type or level of program activities conducted, and/or the direct products and services delivered by a program.

Program and countermeasure data, such as the number of pedestrian and bicycle fatalities and injuries, is collected by the states and localities and reported to NHTSA, included in its FARS database, and analyzed by NHTSA. Statewide data on rates for pedestrian and bicycle fatalities and injuries in FARS are based on the number of fatalities and injuries per 100,000 people in the state. Statewide data on the number of pedestrians and bicyclists as well as the amount of pedestrian and bicycle facilities is not available. FHWA uses the available data in its pedestrian and bicycle safety research and analysis, which informs the development of strategic planning, budgetary and other performance-based documents. FHWA also collects statistics on the percentage of Roadmap activities completed on time and within budget, the number of states, total funds obligated by states for pedestrian and bicycle safety activities, pedestrian and bicycle safety training, FHWA Safety and PBIC website hits, and the number of printed publication orders. FHWA uses this information to evaluate the success of current initiatives, and to guide the development of future strategic documents such as the Roadmap, budget, and performance plans.

#### Intended Program Outcomes/Impacts:

The intended program outcomes and impacts communicate the value the Pedestrian and Bicycle Safety Program delivers to its stakeholders. They reflect the achievement of program's performance goals. The FHWA Pedestrian and Bicycle Safety Program's charge is to promote comprehensive safety programs for pedestrian and bicycle safety and support state and local agency activities to reduce pedestrian and bicycle fatalities and injuries. The program also promotes livable communities through safe pedestrian and bicycle facilities and activities. As part of this effort, FHWA has committed to providing Federal, state, and local agency staff with the tools, knowledge, and resources to address pedestrian and bicycle safety issues; state and local agencies have effective pedestrian and bicycle planning processes; pedestrian and bicycle fatalities and injuries are reduced in each state and nationwide; and there is an increased awareness of pedestrian and bicycle safety issues

# 7.3 Future State Logic Model

The findings and recommendations revealed through this evaluation presented opportunities for improvement across each base element of the current logic model. In addition to continuing the existing level of effort, the future state Pedestrian and Bicycle Safety Program would benefit from fostering a transportation safety culture to support and integrate pedestrian and bicycle safety as a core mission. To accomplish this FHWA will need to assume an inclusive management approach from the headquarters perspective. This means developing cross-functional and matrixed teams to manage the program, adding the offices of HPI and HOP into the current regime. Doing so will help FHWA streamline the pedestrian and bicycle safety activities as a unified program, while enhancing communication and collaboration by establishing feedback loops. Improved management of the program will allow for the timely and effective implementation of pedestrian and bicycle safety program management strategies by state and local agencies. Such strategies will include the collection and reporting of additional data, such as exposure rates, that is pivotal to measuring the output of the program and driving decision making.

The future state FHWA Pedestrian and Bicycle Safety Program logic model is presented in Figure 7.

Appendix B

Figure 7: Future State Logic Model						
Program Purpose	Resources	Activities	Available Measured Outputs	Intended Outcomes/Impacts		
<ul> <li>Promote comprehensive safety programs for pedestrian and bicycle safety</li> <li>Support state and local agency activities to reduce pedestrian and bicycle fatalities and injuries</li> <li>Promote livable communities through safe pedestrian and bicycle facilities and activities</li> <li>Promote safety for all pedestrians and bicyclist including people with disabilities, older adults, children, and students</li> <li>Foster a transportation safety culture to support and integrate pedestrian and bicycle safety as a core mission</li> </ul>	<ul> <li>FHWA HQ offices: <ul> <li>HSA</li> <li>RD&amp;T</li> <li>HEP</li> <li>NHI</li> <li>HIF</li> <li>HOP</li> </ul> </li> <li>FHWA Field Offices <ul> <li>Resource Center</li> <li>Division Offices</li> </ul> </li> <li>USDOT coordinating committees</li> <li>State DOTs and local transportation agencies</li> <li>State and local funds</li> <li>Federal-aid highway program funds</li> <li>Research and program funds</li> <li>NCHRP</li> <li>PBIC outreach and training</li> <li>Expert contract support</li> <li>NHTSA HQ &amp; field staff</li> <li>FTA HQ</li> <li>Safety NGOs</li> <li>Matrix organization to manage FHWA Pedestrian and Bicycle Safety Program</li> </ul>	<ul> <li>Implement laws through regulations, guidance, and programs</li> <li>Strategic and budgetary planning</li> <li>Provide guidance for state and local planning (e.g., STIP, TIP)</li> <li>Problem identification and assessment</li> <li>Analysis and decision making tools</li> <li>Identify, develop, and deploy effective countermeasures</li> <li>Develop conferences, classes, webinars, workshops, and materials to deliver and promote products</li> <li>Publish materials and research online</li> <li>Manage and mainstream FHWA's pedestrian and bicycle safety activities as a unified program</li> <li>Create feedback loops to improve coordination and management of the program</li> </ul>	<ul> <li># of pedestrian and bicycle fatalities and injuries</li> <li>% of Roadmap activities completed on time and within budget</li> <li># of states and local agencies with Pedestrian Safety Plans</li> <li># of pedestrian and bicycle safety activities in each state</li> <li>Total funds obligated by states for pedestrian and bicycle safety activities</li> <li>Pedestrian and bicycle safety training (# of classes, people, states, student satisfaction)</li> <li># of FHWA Safety and PBIC website hits</li> <li># of printed publication orders</li> <li>Timely implementation of pedestrian and bicycle safety program management strategies by state and local agencies</li> <li>Additional data, such as exposure rates</li> </ul>	<ul> <li>Appropriate federal, state, and local agency staff have the tools, knowledge, and resources to address pedestrian and bicycle safety issues</li> <li>State and local agencies have effective pedestrian and bicycle planning processes</li> <li>Pedestrian and bicycle fatalities and injuries are reduced in each state and nationwide</li> <li>Increased awareness of pedestrian and bicycle safety issues</li> <li>Effective implementation of pedestrian and bicycle safety program management strategies by state and local agencies</li> <li>Improved data-driven decision-making capabilities</li> </ul>		

# 8.0 Appendix C: Process Map Documentation

# 8.1 Current State Program Management Process Map

Utilizing the data collected through stakeholder interviews and document review, a Current State Pedestrian and Bicycle Safety Activities Program Management Process Map was developed. The map is a representation of the ongoing working relationships, approvals, feedback, and coordination occurring among key stakeholders of the Pedestrian and Bicycle Safety Program. It includes the major steps involved in decision making and the links between FHWA Headquarters, Resource Center, and Division Offices, as well as with NHTSA, State DOTs, and local metropolitan planning organizations (MPOs).

This section includes an illustrative map (see Figure 9 and Figure 10) and a narrative description of the current program management process. The process map legend in Figure 8 identifies key activities (represented by the shaded boxes), key decision points (represented by the shaded diamonds), and the parties involved (rows) across the various phases of the process. Note that on-page connectors are placed in the map to connect activities, which are split by a page margin.



# Figure 8: Process Map Legend

The process depicts the three phases of the program management lifecycle: planning, implementation, and evaluation. It is presented from the perspective of State DOTs and local MPOs, as they are the primary customers for FHWA's Pedestrian and Bicycle Safety Program. While the process displays the steps most frequently taken by State DOTs and local MPOs, current practices of a particular State DOT or local MPO may vary from the process displayed.



# Figure 9: Pedestrian and Bicycle Safety Activities Program Management Process Map: Planning Phase (1 of 2)



Figure 10: Pedestrian and Bicycle Safety Activities Program Management Process Map: Implementation and Evaluation Phases (2 of 2)

# Planning Phase

The Planning Phase involves coordination and collaboration among stakeholders regarding safety problem identification, strategies, resources, and priorities to achieve a safer pedestrian and bicycle environment.

The process begins when the State DOT and local MPO (for urbanized areas with more than 50,000 population) collect and report pedestrian and bicycle crash data to NHTSA for its FARS database and analysis. The State DOT and local MPO use the FARS data plus their own crash and survey data collected to (1) determine pedestrian and bicycle safety priorities within the State and local metropolitan area and (2) update the SHSP. During this time, NHTSA analyzes and publishes the data into the FARS. The FARS data (along with NCHPR studies and other research) is then used by FHWA Headquarters to identify and prioritize national pedestrian and bicycle safety priorities. FHWA and NHTSA stakeholders work together to develop and update the Pedestrian and Bicycle Roadmap – the program's guiding document. Once the Roadmap is approved by management, contracts are issued to (1) conduct pedestrian and bicycle safety research and (2) develop safety strategies and countermeasures. If training and/or technical assistance is deemed necessary for any safety activity being developed, FHWA's Resource Center works in collaboration with the Offices of Safety and Research to develop training materials. These materials are published and promoted by FHWA and its industry partners (e.g., NHI and PBIC).

The safety strategies and countermeasures developed by FHWA are reviewed by the State DOT and local MPO for potential project implementation. After the State DOT and local MPO make their selection, the State DOT updates its Statewide Transportation Improvement Program (STIP) and the local MPO updates its Transportation Improvement Program (TIP). The updated information, along with the Highway Safety Improvement Program (HSIP) project list, is forwarded to the FHWA Division Office for review. The Division Office reviews the pedestrian and bicycle provisions for project eligibility requirements. The Division Office either approves or denies the project for Federal-aid funding. If denied, the Division Office provides feedback for resubmission.

# **Implementation Phase**

# *The Implementation Phase involves the effective execution of pedestrian and bicycle safety activities, training, and technical assistance.*

After the project is approved for Federal-aid funding, the project enters the implementation phase. If the project is being conducted by a Focus State or Focus City and requires training or technical assistance, the FHWA Resource Center provides services free of charge. If the project requires training but is not being conducted by a Focus State or Focus City, services are provided at cost by the NHI, a consultant, or the FHWA Resource Center. Technical assistance is provided for free. Once training and/or technical assistance is completed (if it was requested by the state or local agency) by the participants (i.e., State DOT or local MPO staff) complete a Resource Center evaluation form. Once completed, the project is initiated by the State DOT or local MPO. After the project is complete, the State DOT or local MPO documents key findings

and results and collects project evaluation data. The State DOT utilizes the data collected to develop and send an end-of-year HSIP report to FHWA's HSA. Upon completion, the HSIP report is received by the HSA.

#### **Evaluation Phase**

The evaluation phase involves the institutionalized and ongoing methods to measure the effectiveness of programs and activities to enhance the Pedestrian and Bicycle Safety Program.

Once completed, the project may require an evaluation. If an evaluation is necessary, the State e DOT writes an evaluation report. The report is sent to the FHWA Division Office for review. After reviewing the document, the Division Office reimburses the State DOT and/or local MPO under ederall-aid funding requirements. The Division Office also sends the evaluation report to the RD&T. If no evaluation is required, the Division Office reimburses the State and/or local MPO upon completion of the project.

# 8.2 Future State Program Management Process Map

Leveraging process improvement best practices, in conjunction with the data collected through stakeholder interviews, a Future State Pedestrian and Bicycle Safety Activities Program Management Process Map was developed. Similar to the current state process map, it is a representation of the ongoing working relationships, approvals, feedback, and coordination occurring among key stakeholders of the Pedestrian and Bicycle Safety Program. Additionally, the three program management phases outlined in the previous section remain the same. The difference is that this iteration of the map includes key improvements that were identified during the process analysis of the program evaluation. These improvements help to streamline management of the Pedestrian and Bicycle Safety Program, allowing for a collaborative management approach and increased coordination with the state and local agencies. An illustrative map of the Future State Pedestrian and Bicycle Safety Activities Program Management Process Map is depicted in Figure 11 and Figure 12.


Figure 11: Pedestrian and Bicycle Safety Activities Program Management Process Map: Planning Phase (1 of 2)



Figure 12: Pedestrian and Bicycle Safety Activities Program Management Process Map: Implementation and Evaluation Phases (2 of 2)

# 9.0 Appendix D: Analysis of Available Data

## 9.1 Analysis of Available Data

The evaluation of FHWA's Pedestrian and Bicycle Safety Program includes an assessment of available safety, training, and website data. The purpose of this data analysis is to explore opportunities to use available data to support the management and evaluation of FHWA's pedestrian and bicycle safety activities. There are significant deficiencies in the quality of the pedestrian and bicycle program data including the lack of exposure data and inventories of pedestrian and bicycle facilities. HSA discusses the data limitations in its Roadmap narrative and in the draft pedestrian strategic plan and has identified projects to better estimate and model this data. For this evaluation, Booz Allen explored several opportunities to use the limited, but currently available, data FHWA could use to help guide management of its Pedestrian and Bicycle Safety Program. While the current, limited data cannot support conclusive decisions about the program, the following section gives examples of the types of program management information that could be done when the quality of the data improves.

## 9.1.1 Safety Data

Safety data analysis was conducted on currently available, nationwide data – FARS fatality data and Financial Management Information System (FMIS) data on FHWA obligations for pedestrian and bicycle projects. Comparisons were drawn between Focus and Non-Focus States' spending and fatality reductions.

Several recent studies reported significant reductions in national pedestrian and bicycle fatalities and injuries. These studies include NHTSA reports, FHWA's National Bicycling and Walking Study: 15-Year State Report and the Volpe evaluation of HSA's Focused Approach to Safety.

Based on the available data, several questions were explored in the analysis:

#### FHWA Meets Goals for Increased Pedestrian and Bicycle Safety

"...it is initially apparent that the goal of decreasing pedestrian and bicyclist injuries and fatalities by 10 percent has been surpassed. The number of pedestrians and bicyclists killed has decreased from 6,414 to 5,094 since 1995, representing a 20.6 percent decline. Similarly, the 121,000 estimated pedestrian and bicyclist injuries in 2008 represents a 16.5 percent decrease from the 145,000 estimated injured in 1995."

> The National Bicycle and Walking Study: 15-Year Report, May 2010

- Does an increase of FHWA funding for pedestrian and bicyclist safety correlate to declines in fatality numbers and rates?
- Since the inception of the Focus States Approach, have fatality numbers and rates in Focus States declined more than in Non-Focus States?
- Could Return-on-Investment (ROI) analysis be a useful tool for states to assess their bicycle and pedestrian safety programs and for FHWA to assess its national programs?

While the quality of the data is not sufficient to draw conclusions, the analysis demonstrates that with improvements in coding, reporting, and monitoring of FMIS data and analysis of pedestrian and bicycle safety activities from SHSPs and other state plans, FHWA would be able to use this information to support management and evaluation of its pedestrian and bicycle safety activities. These changes could be made in the short term by FHWA but would require

training and commitment from Division staff to provide this information. In the longer term, collecting pedestrian and bicyclist exposure data and facilities inventory data would allow more robust analysis of the Pedestrian and Bicycle Safety Program.

#### 9.1.1.1 Safety Data Issues

FHWA supports pedestrian and bicycle safety activities at the state level through technical assistance, planning requirements, and funding. However, the pedestrian and bicycle safety environment is complex and many factors, in addition to FHWA activities, impact changes in fatality rates. For example, as discussed previously, FHWA funding is only 22.6 percent of the total funds used to fund highway projects nationwide. State DOTs are encouraged to include all of their highway safety activities in their SHSPs and HSIPs and to integrate pedestrian and bicycle improvements in all highway projects but it is not required.

In addition, pedestrian and bicycle safety may be affected by changes in enforcement, public education, and emergency medical services. Changes in economics, weather, maintenance and availability of sidewalks and pathways, demographics, density of development, and traffic speed and volume are other examples of complex factors that may impact pedestrian and bicycle safety.

There are also significant limitations in the quality of the available data. The FARS data collects the number of pedestrian and bicycle fatalities on roadways. This may not include pedestrian and bicycle data for crashes that did not involve a motor vehicle. FARS does not include nonroadway crash data such as sidewalks, bike paths, and parking lots. Other limitations to the data include the lack of exposure data on the number of people walking and biking and inventories on the quantity and maintenance of pedestrian and bicyclist facilities (i.e., walkways, striping for bicycle lanes, signals and pedestrian refuge areas). Some local transportation agencies and MPOs collect exposure data on pedestrian and bicyclists through surveys of users and inventories of facilities.

#### 9.1.1.2 Analysis Approach

To explore the data questions, Booz Allen compiled available FARS data and obligations for FHWA-funded pedestrian and bicycle projects. While the data has significant limitations, as discussed previously, this analysis demonstrates the kind of analysis that could be conducted if better data were available. The analysis compares FHWA funding and pedestrian and bicycle fatalities of the 13 states that participated in the Focused Approach to Pedestrian Safety to funding and fatalities in the other 37 states. The Focus States initiative started in 2004 and the analysis uses the most current data from the last five years (2005–2009).

Pedestrian and bicyclist fatality data was gathered for all states during the period of 2003–2009 from NHTSA's FARS.<sup>9</sup> The data from 2003 and 2004 was included to provide a 3-year moving average (3-YMA) to estimate expected fatalities. A 3-YMA computes the fatality rate by averaging the fatalities from the current year with the previous two years (e.g., the 3 YMA for

<sup>&</sup>lt;sup>9</sup> Fatality Analysis Reporting System Encyclopedia, NCSA Data Resource Website, http://www-fars.nhtsa.dot.gov/Main/index.aspx

2009 would average the fatalities for 2007, 2008, and 2009). Yearly population data was found in FARS and checked for consistency against census data.

Spending by state was used from estimates compiled on FHWA's Planning and Environment website from FHWA FMIS data.<sup>10</sup> It is important to note that there are significant limitations to the FMIS data because of variances in coding and reporting. The FMIS information includes obligations for pedestrian and bicycle safety projects as well as all other projects such as planning, Safe Routes to School (SRTS), or maintenance. This analysis uses the total funding value listed per state based on the assumption that safety is an integral part of every pedestrian and bicycle projects. In addition, this data combines funding for both pedestrian and bicycle projects so it overestimates the amount of funding for pedestrian projects. FHWA obligations for state spending reports on pedestrian and bicycle activities were compiled for FY 2005–2009.

Analyses were conducted on three distinct groups: (1) Pedestrian Safety Focus States (Arizona, California, Florida, Georgia, Hawaii, Illinois, Nevada, New Jersey, New Mexico, New York, North Carolina, Pennsylvania, Texas); (2) the remaining 37 Non-Focus States; and (3) each state separately. Table 13 summarizes calculations performed for this analysis.

Focus vs. Non-Focus States								
2002	2003	2004	2005	2006	2007	2008	2009	05-'09
287727	290210	292895	295560	298359	301290	304056	307007	
5516	5403	5402	5678	5567	5400	5132	4722	
1.92	1.86	1.84	1.92	1.87	1.79	1.69	1.54	
2.00	2.40	1.92	1.87	1.88	1.88	1.86	1.78	
\$ 434.55	\$ 439.75	\$ 427.10	\$ 399.96	\$ 394.89	\$ 563.96	\$ 541.05	\$1,188.67	\$3,089
Focus States								
153440	155125	156942	158720	160702	162462	164215	165800	
53%	53%	54%	54%	54%	54%	54%	54%	
3543	3421	3464	3674	3574	3400	3264	2992	-19%
2.31	2.21	2.21	2.31	2.22	2.09	1.99	1.80	-22%
3506	3965	3522	3476	3520	3571	3549	3413	-2%
			-198	-54	171	285	421	624
\$ 171	\$ 200	\$ 172	\$ 186	\$ 164	\$ 266	\$ 230	\$ 626	\$1,472
39%	46%	40%	46%	42%	47%	42%	53%	
Nor	n-Focus Stat	es						
134287	135085	135953	136840	137657	138828	139841	141206.44	
47%	47%	46%	46%	46%	46%	46%	46%	
1973	1982	1938	2004	1993	2000	1868	1730	-14%
1.47	1.47	1.43	1.46	1.45	1.44	1.34	1.23	-16%
2088	2342	1996	1964	1975	1978	1999	1954	-1%
			-40	-18	-22	131	224	275
\$ 264	\$ 239	\$ 255	\$ 214	\$ 230	\$ 298	\$ 311	\$ 563	\$ 1,617
61%	<b>%</b> 54% 60% 54% 58% 53% 58% 47%							
¢4.24	This colour	ation wield	the lines of	arrad man ¢1	) million on	ont This s	recents that	the o
\$1.70	focused ar	proach to s	a fou was m	iveu per #1	fective in ter	me of "ROI	"	uie
	Focus vs           2002           287727           5516           1.92           2.00           \$ 434.55           F           153440           53%           3543           2.31           3506           *           1134287           47%           134287           47%           1973           1.47           2088           *           \$ 264           61%           \$4.24           \$1.70	Focus vs. Non-Focus           2002         2003           287727         290210           5516         5403           1.92         1.86           2.00         2.40           \$ 434.55         \$ 439.75           Focus States         153440           155125         53%           5343         3421           2.31         2.21           3506         3965           41         3506           39%         46%           Non-Focus Stat           134287         135085           47%         47%           1973         1982           1.47         1.47           2088         2342           \$ 264         \$ 239           61%         54%	Focus vs. Non-Focus States           2002         2003         2004           287727         290210         292895           5516         5403         5402           1.92         1.86         1.84           2.00         2.40         1.92           \$ 434.55         \$ 439.75         \$ 427.10           Focus States           153440         155125         156942           53%         53%         54%           3543         3421         3464           2.31         2.21         2.21           3506         3965         3522           0         0         172           3906         46%         40%           Non-Focus States         134287         135085           134287         135085         135953           47%         47%         46%           1973         1982         1938           1.47         1.47         1.43           2088         2342         1996           \$         264         239         \$ 255           61%         54%         60%           \$ 424         This calculation yield:	Focus vs. Non-Focus States           2002         2003         2004         2005           287727         290210         292895         295560           5516         5403         5402         5678           1.92         1.86         1.84         1.92           2.00         2.40         1.92         1.87           \$ 434.55         \$ 439.75         \$ 427.10         \$ 399.96           Focus States           153440         155125         156942         158720           53%         54%         54%         54%           3543         3421         3464         3674           2.31         2.21         2.21         2.31           3506         3965         3522         3476           -         -         -198         -198           \$ 171         \$ 200         \$ 172         \$ 186           39%         46%         40%         46%           Non-Focus States         -         -           134287         135085         135953         136840           47%         47%         46%         46%           1973         1982         1938	Focus vs. Non-Focus States           2002         2003         2004         2005         2006           287727         290210         292895         295560         298359           5516         5403         5402         5678         5567           1.92         1.86         1.84         1.92         1.87           2.00         2.40         1.92         1.87         1.88           \$ 434.55         \$ 439.75         \$ 427.10         \$ 399.96         \$ 394.89           Focus States           153440         155125         156942         158720         160702           53%         54%         54%         54%         3543           3421         3464         3674         3520           3506         3965         3522         3476         3520           3506         3965         3522         3476         3520           -198         -54         164         39%         46%         40%           Von-Focus States         134287         135085         135953         136840         137657           47%         47%         46%         46%         46%         46%	Focus vs. Non-Focus States           2002         2003         2004         2005         2006         2007           287727         290210         292895         295560         298359         301290           5516         5403         5402         5678         5567         5400           1.92         1.86         1.84         1.92         1.87         1.79           2.00         2.40         1.92         1.87         1.88         1.88           \$ 434.55         \$ 439.75         \$ 427.10         \$ 399.96         \$ 394.89         \$ 563.96           Focus States           153440         155125         156942         158720         160702         162462           53%         53%         54%         54%         54%         3400           2.31         2.21         2.31         2.22         2.09           3506         3965         3522         3476         3520         3571           4         -198         -54         171         \$ 200         \$ 172         \$ 186         \$ 164         \$ 266           39%         46%         40%         46%         46%         46%	Focus vs. Non-Focus States           2002         2003         2004         2005         2006         2007         2008           287727         290210         292895         295560         298359         301290         304056           5516         5403         5402         5678         5567         5400         5132           1.92         1.86         1.84         1.92         1.87         1.79         1.69           2.00         2.40         1.92         1.87         1.88         1.88         1.86           \$ 434.55         \$ 439.75         \$ 427.10         \$ 399.96         \$ 394.89         \$ 563.96         \$ 541.05           Focus States           153440         155125         156942         158720         160702         162462         164215           53%         53%         54%         54%         54%         54%         54%           3543         3421         3464         3674         3574         3400         3264           2.31         2.21         2.21         2.31         2.22         2.09         1.99           3506         3965         3522         3476         3520         <	Focus vs. Non-Focus States20022003200420052006200720082009287727290210292895295560298359301290304056307007551654035402567855675400513247221.921.861.841.921.871.791.691.542.002.401.921.871.881.881.861.78\$ 434.55\$ 439.75\$ 427.10\$ 399.96\$ 394.89\$ 563.96\$ 541.05\$1,188.67Focus States15344015512515694215872016070216246216421516580053%53%54%54%54%54%54%54%354334213464367435743400326429922.312.212.212.312.222.091.991.80350639653522347635203571354934134198-541712854211\$ 171\$ 200\$ 172\$ 186\$ 164\$ 266\$ 230\$ 62639%46%40%46%46%46%46%134287135085135953136840137657138828139841141206.4447%47%46%46%46%46%46%46%1973198219382004199320001868 <t< td=""></t<>

Table 13: State Population, Fatality, and Spending Summary Calculations

#### 9.1.1.3 Preliminary Indications

If the quality of the data were improved and controlled for externalities, the analyses would suggest that there is an inverse relationship between spending and fatalities for Focus and Non-Focus States (see Figure 13), meaning that as spending on the program(s) increased, fatalities decreased. From 2005 to 2009, the available data shows that FHWA spending increased sharply, which one could infer indicates an increase in the states' pedestrian and bicycle

<sup>&</sup>lt;sup>10</sup> FHWA Federal-Aid Highway Program Funding for Pedestrian and Bicycle Facilities and Programs http://www.fhwa.dot.gov/environment/bikeped/bipedfund.htm

activities. During this same time both yearly fatalities and fatality rates decreased. This is illustrated in Figure 13.





\*Sourced from FMIS Data \*Sourced from FARS Data

Similar analysis (see Table 14) indicates pedestrian safety improved in the Pedestrian Focus States compared to the Non-Focus States. Thirteen Focus States experienced a 19 percent reduction in the total number of fatalities versus a 14 percent reduction for the 37 Non-Focus States. Similarly, the fatality rate for Focus States was reduced 22% compared with a 26 percent reduction in Non-Focus States.

2005–2009 Pedestrian Fatality Summary						
	Focus	Non-Focus				
Fatalities	-19%	-14%				
Fatality Rate	-22%	-16%				
Total Federal Spending (\$ millions)	\$1,472	\$1,617				

Table 14. Pedestrian	Safety Focus	State 715	Non-Focus	State Peri	formance (	2005-2009)
	Sujery I bens	5111C 05.		oinic I cij	onnance (	2000 2000)

Another approach could be an "estimate of lives saved" as a result of the Focused Approach to Pedestrian Safety activities (see the cells highlighted in blue in Table 13). This was found by subtracting the 3-YMA forecast from the observed fatalities each year and summing across the years of 2005–2009. For the Focus States, it is estimated that 624 lives were saved. For the Non-Focus States, it is estimated that 275 lives were saved. This difference suggests that targeted activities in the Focus States did have a significant effect. The assumption made is that without "focused approach to safety activities," fatalities should follow a pattern similar to the 3- YMA. However, without better data on the Focus and Non-Focus States' activities and total funding and other external influences, it is not feasible to draw these conclusions.

The method for calculating "lives saved," as detailed previously, can be visualized from the graphs in Figure 14. For Focus and Non-Focus States, subtracting the observed data from the forecasted data from 2005–2006 yields negative values. This is seen as the areas shaded in red. As spending and pedestrian and bicycle safety activities ramped up, this calculation turned positive for both groups for the remainder of the period. This is shown as the areas shaded in blue. The "total lives saved" are calculated as the sum of the red (a negative value) and blue (positive value) areas to yield a net effect.





Applying the same methodology as described previously, "lives saved" were calculated for each state and the results are summarized in Table 15. The "Sum" column captures the estimated lives saved for each state. The "Pos" and "Neg" columns were used to keep a tally of results. This calculation shows every Focus State had a positive sum, whereas 28 percent of the Non-Focus States had a negative outcome. In addition, every Focus State surpassed the expected, forecasted number of fatalities for the five-year period of 2005-2009. With better data, this type of analysis would provide evidence that influences of the Focused Approach to Safety program were significant. The two yellow-highlighted rows draw attention to the best (California) and worst (Mississippi) performing states according to this approach. Additional analyses could be conducted to identify differences in activities between high- and lowperforming states. This information could be used to further identify program activities that have the greatest result and states most in need of assistance to improve their Pedestrian and Bicycle Safety Program.

Difference: Projected Minus Actual Fatalities (Focus States)									
Focus States									
	2005	2006	2007	2008	2009	Sum	Pos	Neg	
Arizona	-38	-34	7	48	25	8	1	0	
California	-47	-40	78	96	121	208	1	0	
Florida	-91	-38	13	57	74	15	1	0	
Georgia	1	6	2	3	-3	8	1	0	
Hawaii	-5	0	6	13	10	25	1	0	
Illinois	14	28	-12	17	40	87	1	0	

Difference: Projected Minus Actual Fatalities (Focus States)									
Focus States									
	2005	2006	2007	2008	2009	Sum	Pos	Neg	
Nevada	-4	13	7	2	21	40	1	0	
New Jersey	0	-14	10	14	-6	4	1	0	
New Mexico	-7	-15	8	21	18	25	1	0	
New York	-3	9	35	13	6	59	1	0	
North Carolina	-16	-7	3	2	30	12	1	0	
Pennsylvania	0	-2	2	31	16	47	1	0	
Texas	-1	38	12	-32	69	86	1	0	
						624	13	0	
Non-Focus States	Non-Focus States								
	2005	2006	2007	2008	2009	Sum	Pos	Neg	
Alabama	-10	-6	9	12	9	14	1	0	
Alaska	6	1	-5	7	-1	7	1	0	
Arkansas	-1	5	-12	-9	3	-14	0	1	
Colorado	17	-4	0	10	7	30	1	0	
Connecticut	4	-8	0	-14	17	0	1	0	
Delaware	7	-14	5	-7	4	-5	0	1	
District of Columbia	-6	-1	-4	9	2	-1	0	1	
Idaho	5	6	-5	1	-3	4	1	0	
Indiana	-4	-17	11	9	23	23	1	0	
Iowa	-10	-1	2	10	4	5	1	0	
Kansas	-1	-2	5	1	-2	2	1	0	
Kentucky	-4	5	12	-15	13	11	1	0	
Louisiana	-19	-2	-10	12	4	-15	0	1	
Maine	1	-2	1	-4	3	0	0	1	
Maryland	4	11	-16	-11	-8	-20	0	1	
Massachusetts	4	23	3	-11	23	41	1	0	
Michigan	22	9	13	19	13	77	1	0	
Minnesota	3	6	11	7	-12	16	1	0	
Mississippi	-25	-1	-5	13	-8	-26	0	1	
Missouri	-5	6	0	23	9	33	1	0	
Montana	-5	-1	-6	3	0	-10	0	1	
Nebraska	2	1	2	5	-4	6	1	0	
New Hampshire	6	7	-5	2	2	12	1	0	
North Dakota	-5	4	2	0	0	1	1	0	
Ohio	-1	-4	-14	-2	14	-5	0	1	
Oklahoma	-5	-1	-15	6	17	1	1	0	
Oregon	-6	-6	-6	0	19	1	1	0	

Difference: Projected Minus Actual Fatalities (Focus States)										
Focus States										
	2005	2006	2007	2008	2009	Sum	Pos	Neg		
Rhode Island	-5	-4	-1	2	-2	-10	0	1		
South Carolina	-11	-39	-7	14	29	-14	0	1		
South Dakota	-4	4	4	0	4	7	1	0		
Tennessee	8	-6	14	17	0	33	1	0		
Utah	7	-11	-7	-3	14	0	1	0		
Vermont	4	6	0	1	-3	8	1	0		
Virginia	-12	6	4	11	8	17	1	0		
Washington	-8	5	1	6	3	8	1	0		
West Virginia	2	4	-2	10	1	15	1	0		
Wisconsin	6	1	-5	1	19	23	1	0		
Wyoming	-3	1	4	-2	1	0	1	0		
						111	40	11		

Using "lives saved," a type of ROI measure could be calculated. That provides a rough-orderof-magnitude measure of the number of lives saved per dollar expenditure on the program. We used "lives saved per 10 million dollars spent" for each state or collection of states. Applying this concept to the Focus and Non-Focus States generated the following results in Table 16.

Table 16 shows that more than twice as many lives were "saved" in the Focus States per \$10 million invested in bicycle and pedestrian safety activities. With better data, these results could help support the case that the Focused Approach to Safety program may be a significant contributor to the reduction in fatalities.

Lives Saved/\$10 Million Spent					
Focus States	4.24				
Non-Focus States	1.70				

### 9.2 Training Data

Pedestrian and bicycle safety training data was collected from FHWA's Resource Center and the NHI. The purpose of the data analysis was to draw conclusions on the effect of training on pedestrian and bicycle safety and the management of these resources. The data shows that the free training provided by the Resource Center to the Focus States resulted in a dramatic increase in training on pedestrian facility design, planning, and safety – NHI delivered 14 pedestrian facility design courses while the Resource Center delivered 163 pedestrian facility design, planning, action plan development courses, and other technical assistance contacts.

Table 17 compares the number of pedestrian and bicycle training courses delivered by NHI and the Resource Center from FY 2006–2010.

FHWA Pedestrian and Bicycle Training Courses FY 2006–2010								
	Pedestrian	Bicycle Facility Design	Total					
NHI	14	18	32					
Resource Center	153*	0	163					
Total	167	18	195					

#### Table 17: FHWA Pedestrian and Bicycle Training Courses FY 2006-2010

*\*This total includes 8 "other" and 2 "technical assistance" contacts reported by the Resource Center.* 

While the information collected and amount of the data is not sufficient to draw conclusions about the effective use of its training resources, more information could be collected from these efforts and routinely shared with FHWA headquarters and Division managers to assist in the management of their pedestrian and bicycle safety activities.

#### Available Pedestrian and Bicycle Training Data

Booz Allen collected five years of training data on pedestrian and bicycle safety courses from the FHWA Resource Center and the NHI. NHI delivers two courses on pedestrian and bicycle design - Pedestrian Facility Design (NHI 142045) and Bicycle Facility Design (NHI 142046).

These courses focus on facility design and include safety information in the course content. NHI provided data for each course including participants by type (e.g., FHWA, state, MPO, stakeholder) and class locations by state. Participant evaluation data was also provided for each course delivered from January 1, 2005, to October 19, 2010.

The Resource Center delivered courses on pedestrian facility design, planning, and pedestrian action plans. The courses varied in length and content depending on the needs of the local agency. The courses include: the following

- 1-Day and 2-Day Pedestrian Facility Design
- 1-Day and 2-Day Pedestrian Facility Planning
- 2-Day and 3-Day Design and Planning Course
- Pedestrian Safety Action Plan Development Course

Data from the Resource Center included courses by type, date, and location (city and state) as well as whether the participating city or state was a Focus or Non-Focus State. For detailed tables on FHWA Resource Center and NHI training course data, see Appendix B.

#### Analysis of Available Training Data

The same data was not provided for the Resource Center courses as was provided for the NHI course. Table 18 summarizes the data provided on the number of classes, participants, and locations of the courses. If similar data was collected by each course provider, some comparisons of the courses effectiveness could be assessed. Likewise, one could collect the costs to FHWA for delivering these courses (including course development, consultant instructor fees, and travel).

#### Table 18: NHI and Resource Center Course Comparison

Comparison of NHI and Resource Center Data on Pedestrian and Bicycle Courses

FY 2006-2010							
	N	<b>Resource</b> Center					
	Pedestrian	Bicycle	Pedestrian				
Number of courses	14	18	153				
Number of participants	445	376	—				
Number of FHWA staff participants	14	11	_				
Number of Focus States	6	11	153				
Number of Non-Focus States	13	7	10				

This summary table indicates that only one FHWA staff member attended each of the NHI courses on Pedestrian Safety over the last five years. Only 11 FHWA staff members participated in the 18 bicycle design courses. While NHI reserves space for no fee in each class for FHWA staff, it appears few offices put a priority on pedestrian and bicycle facility design for their employees.

The NHI course data for its pedestrian and bicycle classes show that more than 80 percent of the participants who filled out a session evaluation form (for the courses in which data was available) viewed training as an effective in increasing their job skills and performance.

Table 19 summarizes the results from the NHI session evaluations<sup>11</sup> reviewed (25 courses in pedestrian facility design and 21 courses in bicycle facility design from January 1, 2005, to October 19, 2010).

When the participants in the NHI classes were asked to rate their knowledge of pedestrian or bicycle facility design before and after the course, both courses showed a positive net change in knowledge. Specifically, intermediate and advanced knowledge of bicycle and pedestrian facility design increased between 18 percent and 42 percent from before to after the course, respectively. It can be reasonably inferred that this increase in knowledge combined with the use of facility design in participants' jobs and their view that the information will improve their job performance will lead to a positive impact on pedestrian and bicycle safety, regarding facilities, in participants' respective agencies.

#### Table 19: NHI Pedestrian and Bicycle Facility Design Evaluation Results

<sup>&</sup>lt;sup>11</sup> FHWA Resource Center course evaluations were unavailable for this analysis.

		Strongly Disagree	Disagree	Nuetral	Agree	Strongly Agree
The course will help improve	Ped Facility Design	0.23%	0.70%	6.99%	48.25%	43.82%
my job performance.	Bike Facility Design	0.29%	0.00%	6.73%	47.66%	45.32%
Content was relevant to my	Ped Facility Design	0.23%	0.94%	8.90%	39.81%	50.12%
job.	Bike Facility Design	0.29%	0.00%	12.50%	44.19%	43.02%
Exercises aided in my	Ped Facility Design	0.00%	1.64%	5.61%	43.69%	49.07%
understanding and skill	Bike Facility Design	0.00%	0.58%	5.20%	43.64%	50.58%
The course was a satisfactory	Ped Facility Design	0.00%	0.23%	3.94%	38.28%	57.54%
learning experience.	Bike Facility Design	0.29%	0.00%	3.74%	40.52%	55.46%

		None	Little	Basic	Intermediate	Advanced
Your knowledge before the	Ped Facility Design	6.28%	16.51%	47.91%	26.28%	3.02%
course could be rated as:	Bike Facility Design	6.67%	28.70%	44.64%	17.68%	2.32%
Your knowledge after the	Ped Facility Design	0.00%	0.46%	13.66%	64.58%	21.30%
course could be rated as:	Bike Facility Design	0.00%	0.58%	18.08%	59.77%	21.57%
Not Change	Ped Facility Design	-6.28%	-16.05%	-34.25%	38.30%	18.28%
Net Change	Bike Facility Design	-6.67%	-28.12%	-26.56%	42.09%	19.25%

Information on NHI course participants' occupation (e.g., planner, engineer), level of expertise in the subject matter, and previous training experience is not currently available. This information would provide insight into the transportation professionals being impacted by training. It would also help FHWA and NHI tailor outreach efforts and content to increase pedestrian and bicycle safety awareness at the state and local levels.

Program managers arranging these courses should expand the data collected to demonstrate the effectiveness of their courses. For examples of the kinds of program management information program managers would be useful include:

- Twelve courses on Pedestrian Safety Action Plans were delivered over the last five years. How many of these states developed action plans?
- The number of courses delivered in Focus States over the last five years ranges from one course to 34 courses. Did the number of courses and/or participants impact the number of pedestrian safety activities or fatality numbers?
- Did the participants implement any pedestrian or bicycle safety activities as a result of the course? Just as course participants complete a course evaluation at the end of a course, they can also complete a second course evaluation one year later.
- State Pedestrian and Bicycle Coordinators and Division pedestrian and bicycle contacts could use lists of course participants and agencies to follow up and promote new technologies and countermeasures.

The following tables include additional data used during the analysis to compare FHWA Resource Center and NHI training:

• Table 20 provides an overview of FHWA Resource Center training courses by class type and Focus versus Non-Focus State locations for FY 2006–2010.

- Table 21 provides an overview of NHI 142045 (Pedestrian Facility Design) course class attendance by type for FY 2006–2011.
- Table 22 provides an overview of NHI 142046 (Bicycle Facility Design) course class attendance by type for FY 2006–2011.
- Table 23 provides an overview of NHI 142045 and NHI 142046 course totals and class attendance totals for FY 2006–2011.
- Table 24 provides an overview of FHWA Resource Center class course totals by Focus and Non-Focus State for FY 2006–2010.
- Table 25 provides an overview of NHI 142045 (Pedestrian Facility Design) course totals by state.
- Table 26 provides an overview of NHI 142046 (Bike Facility Design) course totals by state.

			Class Type Totals								
		1-Day Design	2-Day Design	1-Day Planning	2-Day Planning	2-Day Planning/	3-Day Planning/	PSAP Develop-	Other	Technical Assistance	Total
Focus		1	16	1	14	0 Design	Design 1	0	1	0	34
Non-Focus	2006	0	0	0	0	0	0	0	0	0	0
Focus	2007	2	16	0	8	0	6	0	1	2	35
Non-Focus	2007	0	0	0	0	1	0	0	0	0	1
Focus	2008	0	0	28	0	8	0	4	3	0	43
Non-Focus	2008	0	1	0	2	0	0	0	0	0	3
Focus	2009	0	11	0	1	0	3	7	0	0	22
Non-Focus	2005	0	1	0	1	1	0	0	1	0	4
Focus	2010	0	13	1	3	0	0	0	2	0	19
Non-Focus	2010	0	1	0	0	0	0	1	0	0	2
Total Focus		3	56	30	26	8	10	11	7	2	163
Total Non-Focus		0	3	0	3	2	0	1	1	0	103

Table 20: FHWA Resource Center Annual Training Course, by Class Type

Table 21: Annual NHI 142045 (Pedestrian	Facility Design) Class Attendance, by Type
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NHI 142045 (Pedestrian Facility Design) Class Attendance										
Fiscal Year	FHWA	Federal	State	MPO	LTAP	Private	l'Nat	Academia	Other	Total
2006	0	0	47	1	0	1	0	0	0	49
2007	2	0	38	0	14	9	0	0	1	64
2008	0	0	47	3	31	20	0	0	2	103
2009	7	0	88	7	34	22	0	0	12	170
2010	5	0	50	2	1	0	0	0	1	59
Total Attendance	34	22	541	27	115	89	0	1	20	849

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NHI 142046 (Bicycle Facility Design) Class Attendance										
Fiscal Year	FHWA	Federal	State	MPO	LTAP	Private	l'Nat	Academia	Other	Total
2006	0	0	27	0	0	0	0	0	0	27
2007	0	0	28	0	13	1	0	0	3	45
2008	1	0	24	4	60	27	0	0	9	125
2009	4	0	70	7	10	7	0	0	4	102
2010	6	0	63	2	3	2	0	0	1	77
Total Attendance	21	7	404	25	117	83	0	2	21	680

NH	I 142045 (Pedestr	ian Facility Desig	(n)	and NH	1142
	Class Totals by Fi	scal Year		С	lass
Fiscal	NHI 142045	NHI 142046		Fiscal	
Year	(Ped Fac Design)	(Bike Fac Design)		Year	(Pe
2006	2	1		2006	
2007	3	4		2007	
2008	4	5		2008	
2009	8	5		2009	
2010	2	3		2010	
Total	35	32		Total	

 Table 23: Annual NHI Class Attendance and Totals

 NHI 142045 (Pedestrian Facility Design) and NHI 142046 (Bike Facility Design)

C	lass Attendance by	/ Fiscal Year
Fiscal	NHI 142045	NHI 142046
Year	(Ped Fac Design)	(Bike Fac Design)
2006	49	27
2007	64	45
2008	103	125
2009	170	102
2010	59	77
Total	849	680

 Table 24: FHWA Resource Center Annual Training Course Totals, by State

Fiscal Year Totals (Focus States)								
State	2006	2007	2008	2009	2010	Total		
AZ	3	2	0	0	0	5		
CA	5	9	11	8	1	34		
DC	0	0	0	1	0	1		
FL	2	2	10	4	1	19		
GA	1	1	3	2	0	7		
HI	0	0	3	0	0	3		
IL	3	2	4	0	1	10		
MI	4	2	0	0	0	6		
NC	0	2	2	0	4	8		
NJ	2	0	1	0	0	3		
NM	4	4	1	1	1	11		
NV	0	0	2	2	0	4		
NY	8	4	4	4	5	25		
PA	2	2	2	0	0	6		
TX	0	5	0	0	6	11		
Focus Total	34	35	43	22	19	153		

Fiscal Year Totals (Non-Focus States)								
State	State 2006 2007 2008 2009 2010 Tota							
AK	0	0	0	1	0	1		
IN	0	0	0	1	2	3		
KY	0	0	0	1	0	1		
MN	0	1	0	0	0	1		
WI	0	0	3	1	0	4		
Non-Focus Total	0	1	3	4	2	10		

Fiscal Year Totals (Focus States)									
State	2006	2007	2008	2009	2010	Total			
CA	0	0	2	0	0	2			
GA	0	0	0	0	0	0			
NJ	0	0	0	0	0	0			
NM	0	0	0	2	0	2			
NV	0	0	0	0	0	0			
NY	0	0	0	0	0	0			
PA	0	0	0	1	0	1			
ТХ	0	0	0	1	0	1			
Total	0	0	2	4	0	0			

#### Table 25: NHI 142045 (Pedestrian Facility Design) Course Totals, by State

Fiscal Year Totals (Non-Focus States)									
State	2006	2007	2008	2009	2010	Total			
AK	0	0	0	0	0	0			
СО	0	0	0	0	0	0			
DE	0	1	0	0	0	1			
ID	0	0	0	1	0	1			
KY	0	1	0	0	0	1			
MA	0	0	0	1	0	1			
MO	0	1	0	0	0	1			
MT	1	0	2	1	0	4			
ND	0	0	0	0	0	0			
NH	1	0	0	0	0	1			
ОН	0	0	0	1	0	1			
SD	0	0	0	0	1	1			
WI	0	0	0	0	0	0			
WV	0	0	0	0	1	1			
Total	2	3	2	4	2	13			

Fiscal Year Totals (Focus States)						
State	2006	2007	2008	2009	2010	Total
CA	0	0	2	0	0	2
GA	0	0	1	0	1	2
FL	0	1	0	0	0	1
NM	0	2	2	0	0	4
NV	0	0	0	0	0	0
PA	0	0	0	1	0	1
ТΧ	0	0	0	1	0	1
Total	0	3	5	2	1	11

Table 26: NHI 142046 (Bike Facility Design) Course Totals, by State

Fiscal Year Totals (Non-Focus States)						
State	2006	2007	2008	2009	2010	Total
AK	0	0	0	0	0	0
CO	0	0	0	0	0	0
KS	0	0	0	0	0	0
KY	0	0	0	0	0	0
MA	0	0	0	1	0	1
MO	0	1	0	0	0	1
MT	1	0	0	1	0	2
ND	0	0	0	0	0	0
OH	0	0	0	1	0	1
RI	0	0	0	0	0	0
SD	0	0	0	0	1	1
WV	0	0	0	0	1	1
Total	1	1	0	3	2	7

## **10.0** Appendix E: Evaluation Process Feedback

The program evaluation of FHWA's Pedestrian and Bicycle Safety Program is part of HSA's ongoing efforts to continually improve the management of its programs. HSA's Analysis and Evaluation Team leads HSA's program evaluation activities. To help support the Analysis and Evaluation Team's future program evaluations, the Booz Allen team collected information and feedback from the EWG and interviewees to help improve the evaluation process in the future.

Booz Allen document the time spent with each interviewee to track the total staff and stakeholder time used in this evaluation. At the end of the interview, the interviewer asked each member of the EWG and/or interviewee their feedback on the process, results, and amount of their time used in this effort. This information is compiled in Table 27.

#### **COTM and EWG Involvement**

Booz Allen maintained continual lines of communication with Contracting Officer Technical Manager (COTM) regarding stakeholder involvement, content, deliverable structure, and emerging items. COTM served as point of contact between BAH and program stakeholders and provided support in reviewing and communicating project feedback and needs.

Booz Allen met approximately every two months with the EWG for a status update and checkin to validate findings and recommendations, as shown in Table 27 below. Additionally, EWG members served as resources answering any questions and providing necessary documentation and data or acting as points of contact to other stakeholders as necessary.

Date	Meeting Purpose	Time
6/10/2010	Kick-Off Meeting	2 hr
	Client and BAH introductions	
	Project overview, approach, and work plan	
	Project management and control	
	Next steps	
8/24/2010	EWG Briefing	1.5 hr
	Program evaluation update	
	Emerging themes	
	Logic model	
	Next steps	
10/26/2010	Mid-Point Report Review	2.5 hr
	• Discussed components of mid-point report (i.e., logic model,	
	process map, findings, and recommendations)	
	EWG asked questions and provided feedback	
	Briefed Office Director separately on the report	

#### Table 27: Evaluator Interactions

#### Interview process

#### Interview Structure:

- Identified interviewees with input from EWG members
  - Collected interviewee list and updated it through discussions with EWG, COTM, and initial round of interviewees
  - Interviewee list included state and local transportation agencies and their FHWA Division Office counterpart
  - Included subject matter experts and industry groups in interview process to widen perspective
- Developed protocol shell for internal and external stakeholders and tailored the questions to the role of the individual interviewee (e.g., FHWA staff, State DOT, local agency)
- Contacted the interviewee with an introductory email from the COTR with a follow-up email and phone calls with Booz Allen to schedule the interview
- Provided interview questions to the interviewee ahead of time
- Interviews were completed within one hour. Booz Allen had one interviewer and one note taker for each interview.
- At the end of the interview, we asked for feedback on interview and process at end of each interview.

#### Findings:

- 1. Establishing an EWG to oversee the program evaluation is very important.
  - **a.** The EWG included key staff members from the Headquarters and Field staffs working on FHWA's Pedestrian and Bicycle Safety Program. This is important because these offices and staff will be responsible for addressing findings and implementing recommendations from the report.
  - **b.** The EWG provided valuable input to the study plan, identified Federal, state, and local staff for interviews, and provided program management data.
  - **c.** Each of the EWG was interviewed as one of the first steps in the program evaluation.
- 2. The interview process worked well.
  - **a.** Interviewees appreciated having the questions ahead of time. Most interviewees reported that they briefly scanned the questions beforehand and were able to answer the questions without additional research or time. While we did not ask for written answers, a few interviewees also provided written answers to the questions.
  - **b.** The interviewees reported the interview covered the topics well. Several noted that it was effective to allow the interview to proceed as a conversation rather than to strictly follow the order of the questions. Adopting a conversational strategy avoided asking questions that had been covered and allowed the interviewee to provide information and perspectives beyond the specific questions.
  - **c.** All interviews were scheduled within a four-week period. Each interview was completed within one hour.
  - **d.** Every interviewee reported they were satisfied with the interview process, scope of the questions, and skill of the interviewers.

- 3. Vetting preliminary findings and recommendations through the Mid-Point Report was very helpful.
  - **a.** The study plan included a Mid-Point report to vet initial findings and recommendations. This was very helpful step to validate the research and analysis and collect additional program data on training and the websites before we moved to drafting the final report.
  - **b.** Booz Allen presented the Mid-Point Report and briefed the EWG on the content and highlights. We received detailed comments from the field staff on the EWG and from the COTR and Office Director, which were very helpful.

# **11.0** Appendix F: Glossary of Terms

Acronym	Definition
AASHTO	American Association of State Highway and Transportation Officials
ADA	Americans with Disabilities Act
AMPO	Association of Metropolitan Planning Organizations
ARRA	American Reinvestment and Recovery Act of 2009
CMM	Capability Maturity Model
COTM	Contracting Officer Technical Manager
EPA	Environmental Protection Agency
EWG	Evaluation Working Group
FARS	Fatality Analysis Reporting System
FHWA	Federal Highway Administration
FMIS	Financial Management Information System
FTA	Federal Transit Administration
HEP	Office of Planning and Environment
HOP	Office of Operations
HPI	Office of Infrastructure
HSA	Office of Safety
HSIP	Highway Safety Improvement Program
HSP	Highway Safety Plan
HSRC	University of North Carolina Highway Safety Research Center
HSS	Health and Human Services
HUD	Department of Housing and Urban Development
MPO	Metropolitan Planning Organizations
NCHRP	National Cooperative Highway Research Program
NGO	Non-Governmental Organization
NHI	National Highway Institute
NHTSA	National Highway Traffic Safety Administration
OST	Office of the Secretary of Transportation
PBIC	Pedestrian and Bicycle Information Center
RD&T	Office of Research, Development, and Technology
ROI	Return-on-Investment
SHSP	Strategic Highway Safety Plan
SRTS	Safe Routes to School
STIP	State Transportation Improvement Plan
TIP	Transportation Improvement Plan
TRB	Transportation Research Board
USDOT	United States Department of Transportation
Volpe	John A. Volpe National Transportation Systems Center