

2011



Surface Transportation Environment and Planning Cooperative Research Program (STEP)

Annual Report

FHWA Publication Number FHWA-HEP-12-047

*STEP: A Federal Research Program –
Conducting Research that Links to Practice*

Surface Transportation Environment and Planning Cooperative Research Program (STEP)

Fiscal Year (FY) 2011 Annual Report Executive Summary

Since 2006, the Federal Highway Administration (FHWA) has administered the Surface Transportation Environment and Planning Cooperative Research Program (STEP) to encourage new, strategic, and applied research on the relationship between surface transportation planning and the environment. Federal, State, and other stakeholders are involved throughout the STEP process to shape, refine, and implement research agendas.

Funding

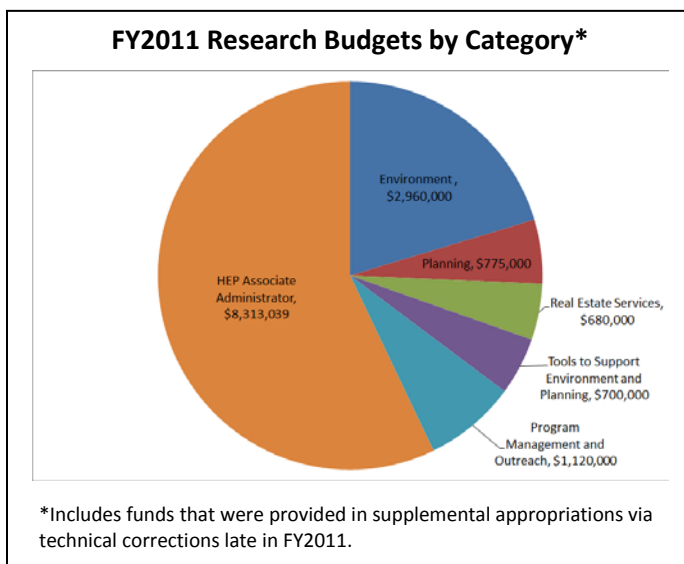
Section 5207 of the Safe, Accountable, Flexible Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU) established the STEP. SAFETEA-LU and continuing resolutions authorized \$16.875 million annually to implement the STEP. After adjusting for obligation limitations, rescissions, and the over-designation of Title V Research in SAFETEA-LU, \$14.6 million was available for the FY2011 STEP.

FY2011 STEP Accomplishments

- ✦ FHWA improved the state of the practice in planning, environment, and realty through investment in projects identified in the FY2011 STEP Research Plan that fall into four broad research categories: environment, planning, real estate services, and tools to support environment and planning.
- ✦ STEP continued to be a model for stakeholder collaboration, outreach, and feedback. Using a Web-based system, stakeholders provided 110 pieces of feedback on research needs during the FY2011 comment period between July 2, 2010, and September 30, 2010.
- ✦ FHWA developed tools to improve the quality and efficiency of environmental decision-making.
- ✦ FHWA promoted transportation agency capacity building through facilitating peer exchanges, conferences, and creating tools to support agency staff in transportation planning activities.
- ✦ FHWA improved travel modeling capabilities through data collection and technical assistance.
- ✦ FHWA promoted interstate and international coordination through facilitating border planning working groups.

Impacts

- ✦ The STEP process allowed FHWA to foster interagency collaboration, provide a variety of forums for information sharing, and develop new training courses to improve the effectiveness of the transportation planning and environmental review processes.
- ✦ Through the STEP, stakeholders directly participated in prioritizing research needs through meetings and study reviews. Stakeholders also developed and implemented innovative outreach practices; contributed to research through pilot studies, reports, and conference participation; and addressed complex issues in transportation planning through partnerships and workshops.



*STEP is the **sole source** of SAFETEA-LU funding for FHWA research on planning and the environment.*

Visit www.FHWA.DOT.gov/HEP/STEP

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Surface Transportation Environment and Planning Cooperative Research Program (STEP)

Conducting Research that Links to Practice

Since 2006, the Federal Highway Administration (FHWA) has administered the Surface Transportation Environment and Planning Cooperative Research Program (STEP) to encourage new, strategic and applied research on the relationship between surface transportation planning and the environment. Federal, State, and other stakeholders are involved throughout the STEP process to shape, refine, and implement research agendas.

This publication provides an overview of the STEP program’s accomplishments during Fiscal Year (FY) 2011. Detailed information about outreach activities and specific research projects can be found in the appendices.

Linking Research to Practice

STEP funding allows researchers to carry out timely investigations and analyses, translate and synthesize research from other initiatives into practice, and fund quick turn-around efforts that advance key strategies to address national priorities.

STEP funds support projects with three different, but interrelated functions:

- **Conducting Research Studies** – Several projects collect and analyze scientific or technical data about species and habitat, construction materials, travel patterns, and other topics. Researchers in academia, at State Departments of Transportation, or in other State agencies carry out this work to create a foundation for applied projects that implement findings and new practices.
- **Developing and Deploying Tools, Technologies and Practices** – Many projects build on the technical and scientific foundation established by STEP-funded projects. These activities translate research findings into action through the establishment of demonstration and pilot programs, the documentation of best practices, and other activities.
- **Connecting the Community and Transferring Knowledge** – Other projects facilitate dialogue and links among transportation professionals. National associations and Federal, State, and local agencies host peer exchanges, summits, conferences, and similar events. They also develop training materials, build websites, and partner with stakeholders to share critical information.

STEP’s Legislative History

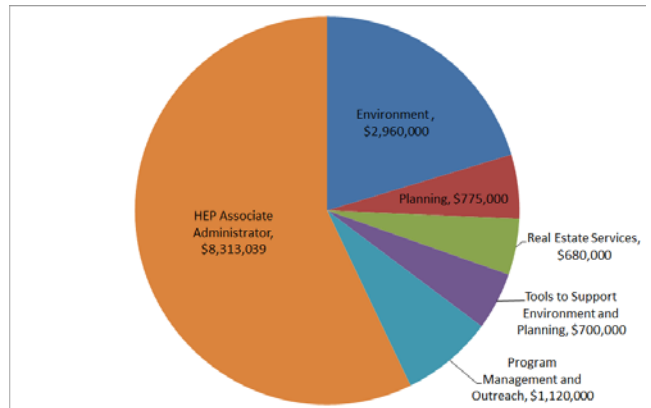
Section 5207 of the Safe, Accountable, Flexible Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU) established STEP. Congress mandated a 50 percent non-Federal match to encourage collaboration with partners and increase the scope of research that can be undertaken. In cases where projects are funded through a competitive bid process, the requirement may be waived.

Efficient Management of a Successful Program

SAFETEA-LU and continuing resolutions authorized \$16.875 million annually to implement the STEP. After adjusting for obligation limitations, rescissions, and the over-designation of Title V Research in SAFETEA-LU, \$14.6 million was available for the FY2011 STEP.

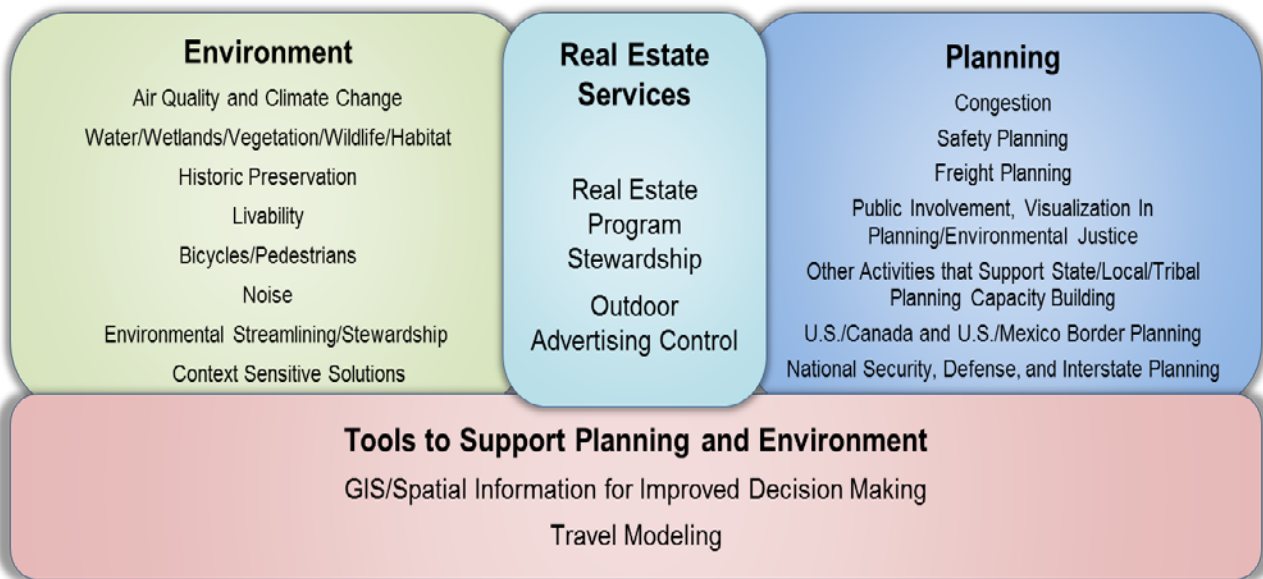
Through STEP, FHWA invests in projects in 19 “emphasis areas” that fall into four broad research categories: environment, planning, real estate services, and tools to support environment and planning. The projects funded in FY2011 enhance the state-of-the-art and -practice in planning, environment, and realty.

FY2011 Research Budgets by Category*



*Includes funds that were provided in supplemental appropriations via technical corrections late in FY2011.

STEP EMPHASIS AREAS



Highlights of FY2011 STEP Research

STEP projects include short-term initiatives and ongoing multi-year programs; they may be carried out by FHWA staff or by a collection of professionals in many different agencies. The FHWA uses STEP funds and the STEP process to build partnerships that encourage collaboration, leverage diverse funding sources, and offer a fresh perspective on emerging research topics. FY2011 STEP projects reflect stakeholder feedback and collaboration.

Notable projects from each emphasis area are highlighted below with respect to their core function:

Conducting Research Studies

- Investigated best practices for **innovative project delivery** to meet Section 106 of the National Historic Preservation Act and best practices in applying **environmental justice principles** as part of the National Environmental Policy Act process.
- Reviewed practices for **estimating fleet emissions data** for on-road vehicles and heavy-duty trucks to inform evaluations of methods to derive fleet activity data.
- Documented the state-of-the-practice for **performance-based planning in non-metropolitan and rural areas**.
- Identified strategies used by Regional Development Organizations to **incorporate livability principles into rural and small metropolitan area planning** processes.

Developing and Deploying Tools, Technologies, and Practices

- Developed tools to **assist transportation and air quality modelers in preparing emissions analyses** using the Motor Vehicle Emission Simulator.
- Updated an **online tool for streamlining the preparation of biological assessments** and consultation processes under the Endangered Species Act.

- Created a desk reference for determining when Travel Demand Management (TDM) should be incorporated into the transportation planning process, including **how TDM might be integrated into statewide, regional, corridor, and local transportation planning.**

Connecting the Community and Transferring Knowledge

- Hosted four **Structured, Transparent, Accountable, Reproducible, and Sustainable workshops** to facilitate the exchange of ideas, data, and tools to integrate transportation planning and project development activities.
- Conducted eight workshops focused on **applying innovative analysis tools in planning for operations.**
- Hosted a workshop with 125 attendees to identify opportunities for reducing the **environmental and community impacts of congestion in the U.S./Canada and U.S./Mexico border regions.**
- Held three peer exchanges that focused on applications of **Geographic Information Systems in supporting livability, safety, and climate change considerations.**

Stakeholder Collaboration

Stakeholder outreach, feedback, and participation in research efforts are critical to successful implementation of the STEP. Since the inception of the STEP program, FHWA has collected stakeholder feedback through a Web-based system. Stakeholders can target their feedback towards one of the 19 emphasis areas or submit general comments. In addition, throughout FY2011, FHWA collaborated with Federal, Tribal, and State partners, representatives of national associations, members of the academic community, private sector professionals, and individual citizens. Together they assessed research needs, identified potential funding sources, and designed appropriate research plans and activities. Hundreds of individuals were reached through meetings, teleconferences, and other events.

“The STEP program provides a great opportunity to further very relevant research.”

-- Florida State Department of Transportation stakeholder

Appendix A

Overview of STEP Program

DEFINITION OF STEP

Section 5207, Surface Transportation Environment and Planning Cooperative Research Program (STEP), of the Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU) established a new cooperative research program for environment and planning research in Section 507 of Title 23, United States Code, Highways (23 U.S.C. 507). The general objective of the STEP is to improve understanding of the complex relationship between surface transportation planning and the environment.

FY2011 REPORT

The purpose of this report is to provide an overview of the Federal Highway Administration (FHWA) STEP accomplishments, stakeholder outreach and feedback, and STEP research activities for Fiscal Year (FY) 2011. The report includes an overview of STEP and lessons learned in STEP implementation.

STEP FUNDING

SAFETEA-LU authorized \$16.875 million per year for FY2006-FY2009 to implement this new program. FY2010 and FY2011 funding was authorized through continuing resolutions. Due to obligation limitations, rescissions and the over-designation of Title V Research in SAFETEA-LU, \$14.6 million of the \$16.875 million authorized was available in FY2011. STEP is the primary source of funds to conduct all FHWA research on planning and environmental issues. In addition, Congress mandated several special studies and designated STEP as the funding source for those projects. STEP also addresses priorities identified in the U.S. Department of Transportation (USDOT) Research and Development Strategic Plan (Section 508 of Title 23 U.S.C.). FHWA must make difficult choices among the many competing needs for planning and environmental research, and cannot fund all worthy research.

Congress mandated that the Federal share be 50 percent for research funded under Title V of SAFETEA-LU, including STEP. While this will not apply to contract funding, it will apply to STEP research funded through cooperative agreements and grants.

Section 507 of Title 23 U.S.C. identifies certain characteristics of STEP regarding program content and administration. Regarding the program content, STEP may include research to:

- Develop more accurate models for evaluating transportation control measures and system designs for use by State and local governments to meet environmental requirements.
- Improve understanding of transportation demand factors.
- Develop indicators of economic, social, and environmental performance of transportation systems to facilitate alternatives analysis.
- Meet additional priorities determined through the transportation research and development strategic planning process identified in 23 U.S.C. 508.
- Refine the scope and research emphases through outreach and in consultation with stakeholders.

In administering the program, USDOT and FHWA must ensure, to the maximum extent practicable, that:

- The best projects and researchers are selected based on merit, open solicitations, and selection by a panel of appropriate experts.
- Qualified, permanent core staff with ability to manage a large multi-year budget is used;
- Stakeholders are involved in governance of program.
- There is no duplication with the Strategic Highway Research Program2 (SHRP2) (23 U.S.C. 510), which will be administered by the National Research Council of the National Academy of Sciences.

In FY2011, STEP was implemented along the following timeline:

- December** Post current fiscal year plan on STEP Website.
- Winter** Begin to implement current FY plan, through appropriate procurement methods, agreements and partnerships. (This milestone may shift depending on appropriations).
- Summer/Fall** Refine STEP Implementation strategy/goals/emphasis areas; publish Federal Register notice and update website information to solicit feedback on next FY STEP activities. Conduct outreach for next FY by emphasis area, review research needs, and identify gaps.
- Winter** Develop priorities for and fund critical, short-term research. Develop draft next FY STEP Plan for comment.
- Spring** Post current FY plan on STEP website. (This milestone may shift depending on appropriations).

EMPHASIS AREAS

Nineteen emphasis areas were identified under the four broad research categories of environment, planning, real estate services, and tools to support environment and planning, as well as the additional program category of program management and outreach. Emphasis area contacts carried out individual outreach activities, while the STEP Program Manager and support team compiled and managed incoming stakeholder feedback, provided guidance on communication with stakeholders, and oversaw the development of the research plan.

The table on the next page displays the 19 emphasis areas organized within research/program themes as well as a list of FHWA emphasis area contacts.

1. Environment	
Air Quality and Climate Change	Cecilia.Ho@dot.gov Diane.Turchetta@dot.gov
Water/Wetlands/Vegetation/Wildlife/Habitat	Marlys.Osterhues@dot.gov
Historic Preservation	MaryAnn.Naber@dot.gov
Livability	Gabe.Rousseau@dot.gov
Bicycles/Pedestrians	Gabe.Rousseau@dot.gov
Noise	Mark.Ferroni@dot.gov
Environmental Streamlining/Stewardship	Shari.Schaftlein@dot.gov
Context Sensitive Solutions	Shari.Schaftlein@dot.gov
2. Planning	
Congestion	Harlan.Miller@dot.gov
Safety Planning	Lorrie.Lau@dot.gov
Freight Planning	Spencer.Stevens@dot.gov
Public Involvement, Visualization in Planning/ Environmental Justice	Frederick.Bowers@dot.gov Brenda.Kragh@dot.gov Susan.Grosser@dot.gov
Other Activities that Support State/Local/Tribal Planning Capacity Building	Kenneth.Petty@dot.gov
U.S./Canada and U.S./Mexico Border Planning	Roger.Petzold@dot.gov
National Security, Defense, and Interstate Planning	Stefan.Natzke@dot.gov
3. Real Estate Services	
Real Estate Program Stewardship	Carolyn.James@dot.gov
Outdoor Advertising Control	MaryJane.Daluge@dot.gov
4. Tools To Support Planning and Environment	
Travel Modeling	Sarah.Sun@dot.gov
GIS/Spatial Information for Improved Decision Making	Mark.Sarmiento@dot.gov
5. Program Management and Outreach	Patricia.Czenas@dot.gov

TIERS OF STAKEHOLDERS

As described in the STEP Implementation Strategy, the number of stakeholders with an interest in environment and planning research is enormous and diverse. Stakeholders have been categorized according to the following three tiers:

Tier I - Federal Agencies and Tribes: Tier I stakeholders may include agencies like the Departments of Commerce, Defense, Homeland Security, Agriculture, Energy, Interior, and Housing and Urban Development (HUD), the U.S. Environmental Protection Agency (EPA), and the Centers for Disease Control and Prevention (CDC). Within each of these agencies, there are many discrete organizations and programs with an interest in STEP, e.g., the National Park Service (NPS), U.S. Fish and Wildlife Service (USFWS), and Bureau of Land Management within the Department of the Interior. Within the USDOT, FHWA partners with the Federal Transit Administration on virtually all planning and environmental work, including research. FHWA also coordinates with the Federal Railroad, Aviation, Research and Innovative Technology, and Maritime Administrations, and with the Office of the Secretary of Transportation on Global Climate Change as well as other issues. There are over 500 Federally recognized Native American Tribes, which have a major interest in research affecting their planning and environmental needs.

Tier II - State and Local Government: State DOTs and Metropolitan Planning Organizations (MPOs) have a major interest in environment and planning research, as the research affects national policy and can also provide important tools, information, and training to meet day-to-day needs of these agencies. In addition, local government units (including transit operators as well as county public works departments and city transportation departments) depend on national environmental and planning research. State/local environmental and natural resource agencies and State Historic Preservation Offices have a strong interest in planning and environmental research. There is also a growing interest by State/local health agencies in transportation planning and environmental research as it relates to health impacts of the surface transportation system.

Tier III - Nongovernmental Transportation and Environmental Stakeholders: Within the transportation and environment sectors, there are hundreds and perhaps thousands of nongovernmental stakeholders, such as the American Automobile Association, American Road and Transportation Builders Association, American Highway Users Alliance, Surface Transportation Policy Project, Defenders of Wildlife, American Association of Retired Persons, Sierra Club, Conservation Law Foundation, American Council of Engineering Companies, American Planning Association (APA), League of American Bicyclists, National Trust for Historic Preservation, International Right of Way Association, National Alliance of Highway Beautification Agencies and others too numerous to specify here.

Appendix B

Research Highlights

STEP emphasis area contacts and program staff identified research activities for FY2011 based on stakeholder feedback and other national priorities. A summary table is provided below. Complete descriptions of each research activity recommended in FY2011 can be found on the STEP website at http://www.fhwa.dot.gov/hep/step/resources/research_plans/fy11rp.cfm.

Emphasis Area	Number of Research Recommendations	FY2011 STEP Funds Requested
ENVIRONMENT EMPHASIS AREAS		
Air Quality and Climate Change	4	\$1,000,000
Water/Wetlands/Vegetation/Wildlife/Habitat	0	\$0
Historic Preservation	3	\$200,000
Livability	1	\$400,000
Bicycles/Pedestrians	1	\$150,000
Noise	1	\$310,000
Environmental Streamlining/Stewardship	4	\$800,000
Context Sensitive Solutions	1	\$100,000
PLANNING EMPHASIS AREAS		
Congestion	3	\$200,000
Safety Planning	1	\$50,000
Freight Planning	2	\$125,000
Public Involvement, Visualization in Planning/Environmental Justice	2	\$200,000
Other Activities that Support State/Local/Tribal Planning Capacity Building	0	\$0
U.S./Canada and U.S./Mexico Border Planning	3	\$200,000
National Security, Defense and Interstate Planning	0	\$0
REAL ESTATE SERVICES EMPHASIS AREAS		
Real Estate Program Stewardship	3	\$570,000
Outdoor Advertising Control	1	\$110,000
TOOLS TO SUPPORT PLANNING AND ENVIRONMENT EMPHASIS AREAS		
GIS/Spatial Information for Improved Decision Making	2	\$200,000
Travel Modeling	1	\$500,000
PROGRAM MANAGEMENT AND OUTREACH	2*	\$1,120,000
HEP ASSOCIATE ADMINISTRATOR		\$8,313,039
TOTAL	35	\$14,548,039

* Total includes one Financial Management and Program Assistance research recommendation

STEP funds contributed to substantial advancements in research and tools to support transportation planning and the environment. In addition, STEP research projects have leveraged funds from other sources to complete this work. Several emphasis areas were involved in successful cost-sharing partnerships.

Descriptions of FY2011 research accomplishments by emphasis area, including those funded with prior year funding, are listed below. These descriptions include accomplishments from both short-term and ongoing projects. The total budget for an emphasis area may not equal the sum of individual projects described in this report, as some projects started in FY2011 but are not yet complete and some accomplishments occurred in FY2011 but were funded in prior years.

Emphasis Areas Related to Environment

Air Quality and Climate Change

Emphasis Area Contacts: Cecilia Ho and Diane Turchetta

Level of FY2011 Funding: \$1,000,000

- **Health Effects Institute (HEI) (FY2011: \$100,000; Prior Year Funding: \$200,000).** HEI released several reports, developed requests for proposals, and released the *2010-2015 Strategic Plan*. FHWA also attended HEI's annual meeting and coordinated an HEI briefing for FHWA headquarters' staff, as well as the Transportation Research Board's (TRB) air quality subcommittee.
- **National Near Road Mobile Source Air Toxics Study (FY2011: \$125,000; Prior Year Funding: \$2,315,000).** FHWA completed the project's data collection and monitoring effort, preliminary data analysis in Las Vegas, Nevada, and data collection and monitoring in Detroit, Michigan.
- **Air Quality Analysis Support (FY2011: \$250,000; Prior Year Funding: \$250,000).** FHWA developed an inter-agency agreement with the USDOT Volpe National Transportation Systems Center to provide technical support on various air quality and emissions analysis tasks, including implementation of EPA's Motor Vehicle Emission Simulator (MOVES) model and air quality dispersion models, technical support to review MOVES training materials, staff support for the "Health in Transportation" effort, and support to design and conduct model sensitivity analysis for the MOVES model.
- **Smart State Transportation Initiative (SSTI) (FY2011: \$3,000,000).** SSTI disseminates accounts of state-level reform for use by the general transportation community. For example, SSTI has just published reviews of changes at the Pennsylvania DOT as well as related to Washington State DOT's sustainability efforts. More information is available at www.ssti.us.

The following research activities had accomplishments in FY2011 but were funded through prior years of STEP funding.

- **Improving Vehicle Fleet, Activity, and Emissions Data for On-Road Mobile Sources Emissions Inventories (Prior Year Funding: \$340,000).** As part of this research effort, FHWA:
 - Reviewed state-of-the-practice information and identified limits in estimating vehicle fleet data for on-road vehicles and operating heavy-duty truck vehicles;

- Evaluated use of vehicle identification number decoders in conjunction with license plate surveys and vehicle registration databases to derive vehicle fleet data;
- Evaluated the use of electronic control module data to derive truck activity data;
- Developed data fusion methods to compile truck activity data from multiple sources; and
- Measured emissions from heavy-duty trucks with various loaded vehicle weights.

The final report was submitted to FHWA in September 2011.

- **Modifying Link-Level Emissions Modeling Procedures for Applications within the MOVES Framework (Prior Year Funding: \$142,008).** Through this research effort, FHWA developed methods for converting data for use with the MOVES model and provided general information regarding anticipated emission inventory changes as related to use of MOVES. FHWA also identified additional data collection and research needs to fully utilize the capabilities of MOVES. Finally, FHWA documented lessons learned from transitioning from the MOBILE6 model to MOVES.
- **Advances in Project Level Analysis (Prior Year Funding: \$109,000).** Through this research effort, FHWA developed usable tools that assist transportation and air quality modelers in preparing project-level emissions analysis that take advantage of MOVES' capabilities. The final product includes a methodology demonstration that uses a micro-simulation modeling output to create vehicle specific power (VSP) profiles as inputs to MOVES under two scenarios: 1) a series of congested conditions for different facility types; and 2) conditions typical of intermodal and port facilities.

Additionally, this project demonstrated a sample emissions control strategy analysis. Using the tools and methodologies developed through this project, users will be able to examine VSP profile files, obtain information on the methodology used to create them, and identify lessons learned.

- **Association of Metropolitan Planning Organizations (AMPO) Air Quality Work Group (Prior Year Funding: \$98,327.21).** FHWA supported AMPO's air quality work group, which was created in 2002. The group met several times, both in person and via teleconference, to discuss several major air quality issues, including:
 - EPA's conformity rulemaking and guidance documents for particulate matter (PM) and ozone areas;
 - New ozone and PM standards; and
 - MOVES implementation issues.

AMPO also convened air quality and transportation planners to exchange information and share and document best practices in areas such as transportation conformity, air quality planning for State implementation plans, and implementation of EPA's final version of MOVES.

- **Air Quality and Transportation Conformity Outreach and Communications (Prior Year Funding: \$211,173).** This research effort enhanced outreach and communication activities for the air quality and conformity area. As part of this effort, FHWA published a monthly newsletter on air quality and transportation conformity, completed and released a brochure entitled *Transportation Conformity: Linking Transportation and Air Quality*, revised a guidance document

entitled *Transportation Conformity: A Basic Guide for State and Local Officials*, and updated the FHWA air quality website available at www.fhwa.dot.gov/environment/air_quality.

FHWA also identified and shared conformity best practices, initiated a complete update of the *Transportation Conformity Reference Guide*, and developed and delivered transportation conformity training sessions to MPOs. Additional activities included presentation and delivery of STEP research results at key venues and conferences.

Water/Wetlands/Vegetation/Wildlife/Habitat

Emphasis Area Contact: Marlys Osterhues

Level of FY2011 Funding: \$0

The following research activities had accomplishments in FY2011 but were funded through prior years of STEP funding.

- **Advancing Tools Used for Decision Support and Impact Analyses for Transportation, Wildlife, and Ecological Systems (Prior Year Funding: \$145,000).** In April 2011, FHWA updated the Endangered Species Act (ESA) Webtool (www.environment.fhwa.dot.gov/ESAWebTool/default.aspx). The Webtool is an online resource to streamline preparation of biological assessments (BAs) and the consultation process under Section 7 of the ESA for transportation projects.

The tool has been in use for three years and has been well received both by State DOTs and resource agencies. The updated site contains: a downloadable national BA template, online file cabinets for BA documentation and collaboration, geospatial project archiving with posting and searching functionality, region-specific contacts and resources, a library, glossary, and frequently asked questions. The tool also includes a training site. Two national webinars were held to inform target audiences of the tool's new capabilities.

- **Research and Innovation Agreements with the U.S. Army Corps of Engineers (USACE) and USFWS (Prior Year Funding: \$400,000).** FHWA continued its support for existing USACE and USFWS research and innovation agreements. The purposes of these agreements are to conduct research and promote innovation related to the highway program with respect to natural resource protection laws. The agreements and their resulting accomplishments are described in more detail below:
 - The purpose of the USFWS agreement is to conduct research and promote innovation in the highway program with respect to fish and wildlife laws. Results of the agreement included: continued coordination with USFWS transportation contacts in regional and field offices to keep all levels of USFWS personnel updated on transportation issues, Every Day Counts (EDC) initiatives, pilot projects, webinars, workshops, conferences, and training opportunities. A major effort under this agreement was the advancement of programmatic issues to streamline the consultation process and strengthen the transportation community of practice. Overall, the agreement and its efforts enhanced interagency coordination and supported development of training capabilities that promoted early coordination between FHWA, USFWS, and State DOTs.
 - A major effort under the USACE agreement was the continued management of an internal USACE transportation community of practice (involving 97 project managers, supervisors, and district chiefs). The purpose of this community of practice was to advance solutions and promote inter-district sharing of innovative thinking and best

practices to improve the efficiency of application review, while ensuring environmental protection and promoting environmental stewardship. Within this community of practice, USACE addressed transportation-related issues, gathered tools for use within USACE, and developed programmatic guidance to address liaison issues.

Other efforts focused on training capabilities that promote early coordination and partnering efforts between USACE districts, FHWA, and State DOTs. In addition, FHWA coordinated USACE attendance and participation at each EDC summit in the fall of 2010 and at the Eco-Logical symposium to ensure interagency collaboration and transparency on all policy initiatives

- **Supporting Peer and Research Exchange at Conferences, Workshops and Technical Panels/Environmental Excellence Awards (Prior Year Funding: \$120,000).** FHWA provided funding support for the 2011 International Conference on Ecology and Transportation held in Seattle, Washington, in August 2011. Over 500 transportation representatives from across the U.S. and numerous international countries attended. At the conference, FHWA awarded its 2011 Environmental Excellence awards that recognize and promote projects and processes that use FHWA funding to go beyond environmental compliance. Over 100 applications were submitted for this national recognition program. Twelve winners were selected in ten categories. More information about the awards program is available at: www.environment.fhwa.dot.gov/eea2011/index.htm.

- **Advancing Methods, Maps, and Tools Used for Decision Support and Impact Analyses for Transportation, Wildlife, and Ecological Systems. (Prior Year Funding: \$50,000).** FHWA provided funding support to the Arkansas State Highway and Transportation Department (AHTD) for use of the USFWS Information Planning and Consultation (IPaC) website to streamline environmental analysis of FHWA projects in Arkansas. More information on IPaC is available at <http://ecos.fws.gov/ipac>.

In cooperation with the FHWA Arkansas Division Office, USFWS and AHTD are participating in a pilot research project using the IPaC decision support system to implement proactive species conservation during transportation project planning. The anticipated outcome of the pilot is to demonstrate how a collaborative partnership between a State DOT (AHTD) and a resource agency (USFWS) can achieve better conservation results and streamlined, predictable project planning.

- **Specific Research to Address Threatened and Endangered Species Concerns on Regional and National Basis (Prior Year Funding: \$25,000).** FHWA provided additional funding for the continued development of a pile driving handbook. The objective of this effort is to provide FHWA and State DOT engineers, biologists, and consultants with state-of-the-practice information for avoiding and minimizing environmental hazards related to in-water pile driving projects. The handbook will be a web-based booklet that is easy to update and search.
- **International Stormwater Best Management Practices (BMP) Database (Prior Year Funding: \$50,000).** FHWA provided support to the International BMP database, which now contains performance data for over 500 BMPs. A summary of the result of performance analysis contained in a series of technical papers was released, which provides information on BMP performance on several stormwater categories: nutrients, solids, metals, fecal indicator bacteria, and runoff volume. The summary is available at

www.bmpdatabase.org/BMPPerformance.htm). The BMP database is available at www.bmpdatabase.org.

Historic Preservation

Emphasis Area Contact: MaryAnn Naber
Level of FY2011 Funding: \$200,000

- **Continuation of the Research and Innovation Agreement with the Advisory Council on Historic Preservation (ACHP) (FY2011: \$100,000).** This effort continued to identify and capitalize on best practices for innovative project delivery under Section 106 of the National Historic Preservation Act to encourage other agencies to adopt such practices. Results were promoted nationally through announcements and articles posted online (available at www.achp.gov/fhwa.html) and presentations at conferences (i.e., TRB's Annual Conference, TRB's Standing Committee on the Environment). Additionally, results were disseminated by creating tools that help agencies develop effective programmatic agreements and promote early coordination and process improvement efforts among all parties participating in the Section 106 review process.

The following research activities had accomplishments in FY2011 but were funded through prior years of STEP funding.

- **Dissemination of Effective Practices for Considering Historic Preservation in Transportation Planning and Early Project Development (Prior Year Funding: \$65,000).** A contract was awarded to develop case studies that identify effective practices for considering historic preservation issues early in the project planning process.

Livability

Emphasis Area Contact: Gabe Rousseau
Level of FY2011 Funding: \$150,000

There were no FY2011 accomplishments in this area.

Bicycles/Pedestrians

Emphasis Area Contact: Gabe Rousseau
Level of FY2011 Funding: \$150,000

- **Pedestrian Bicycle Information Center (FY2011: \$89,553).** FHWA awarded a new cooperative agreement to the University of North Carolina's Highway Safety Research Center to operate a national clearinghouse on walking and bicycling. The clearinghouse website is: www.pedbikeinfo.org.
- **National Transportation Enhancements Clearinghouse's (NTEC) Summary of Nationwide Spending as of FY2010 Report (FY2011: \$99,382).** FHWA continued its cooperative agreement with the Rails-to-Trails Conservancy to operate the NTEC. NTEC increases the transparency of a complex program, promotes best practices, and provides policymakers and the public with an opportunity to learn how States have used transportation enhancement (TE) program funding.

NTEC prepared the *Summary of Nationwide Spending as of FY2010* report, which is part of an annual series of national spending reports. The report provided insight into TE spending at the

national and State levels and helped agency staff, policymakers, professionals, and the public better understand and maximize the benefits that can be derived from TE activities. The report is available at www.enhancements.org/download/Spending_Report/TE_Spending_Report_FY10.pdf. NTEC also published data briefs, provided technical assistance to the public, and organized the annual TE professional seminar for FHWA and State TE managers.

Noise

Emphasis Area Contact: Mark Ferroni
Level of FY2011 Funding: \$310,000

- **Highway Traffic Noise: Research, Training and Communication (FY2011: \$310,000).** FHWA continued ongoing development of the traffic noise model (TNM) 3.0 and expects a beta version to be completed within the first quarter of 2012. Beta-testing will be conducted in the second and third quarters of 2012, with a release of TNM 3.0 expected by the end of the 2012 calendar year.

Environmental Streamlining/Stewardship

Emphasis Area Contact: Shari Schaftlein
Level of FY2011 Funding: \$800,000

- **Advancing Innovations in FHWA's Environmental Review Process and Improving Project Delivery (FY2011: \$125,000 combined with prior year funding: \$105,000).** FHWA initiated a new contract to identify best practices for applying environmental justice (EJ) principles and conducting EJ analyses during the National Environmental Policy Act (NEPA) process. This effort will result in the development of a report, case studies, and presentation materials.

The following research activities had accomplishments in FY2011 but were funded through prior years of STEP funding.

- **Linking Eco-Logical to Project Development (Prior Year Funding: \$250,000).** FHWA continued its longstanding support of Eco-Logical through the following activities:
 - Held signatory agency meetings in October 2010 and January 2011;
 - Documented progress on Eco-Logical grants. Information is available at http://environment.fhwa.dot.gov/ecological/eco_grant_program.asp
 - Delivered five national webinars throughout the year to highlight and educate transportation practitioners. Webinars are posted on the Eco-Logical website at http://environment.fhwa.dot.gov/ecological/eco_webinar_series.asp;
 - Completed an Eco-Logical pilot report on Montana's Integrated Transportation and Ecological Enhancements process. The report is available at www.environment.fhwa.dot.gov/ecological/ITEEM/study.asp;
 - Presented Eco-Logical information, tools, and case studies at ICOET and several other conferences; and
 - Published the *Eco-Logical Grant Program Annual Report* in April 2011, which is available at http://environment.fhwa.dot.gov/ecological/successes/second_edition.asp.

These efforts increased the visibility of FHWA's environmental stewardship activities and helped FHWA Division Offices and resource agencies share approaches for effectively minimizing and

mitigating project impacts, resulting in more streamlined permitting times and better environmental stewardship.

- **Supporting Peer and Research Exchange at Conferences, Workshops, and Technical Panels (Prior Year Funding: \$45,000).** FHWA supported peer and research exchanges by providing funding support to develop or host the following conferences and award programs:
 - 2011 Biodiversity Without Boundaries Conference in May 2011, in Lied Lodge, Nebraska;
 - 2011 National Wetlands Award Program in May 2011, in Washington, District of Columbia (D.C.);
 - 2011 National Mitigation and Ecosystem Banking Conference, in April 2011, in Baltimore, Maryland;
 - 2010 Restore America's Estuaries Conference on Coastal and Estuarine Habitat Restoration, in November 2010, in Galveston, Texas;
 - 2011 National Conference on Engineering & Ecohydrology for Fish Passage, in June 2011, in Amherst, Massachusetts; and
 - 2011 Policy Consensus Initiative Symposium: Accelerating Project Delivery through Intergovernmental Collaboration, in April 2011, in Washington, D.C.

- **Planning and Environmental Linkages (PEL) (Prior Year Funding: \$400,000).** This effort continues past work to make substantial investments in developing methods, tools, and techniques to improve the quality and efficiency of environmental decision-making. FHWA supported several ongoing technology transfer and outreach initiatives to advance planning and environmental linkages, including the following:
 - Technical assistance and training. FHWA advanced the adoption of PEL initiatives nationwide through focused workshops, trainings, and peer exchanges.
 - The last four of six Structured, Transparent, Accountable, Reproducible, Sustainable (STARS) workshops were completed in Idaho, Oklahoma, West Virginia, and Montana. These workshops were effective in providing tools and methods for linking the planning and environmental review processes early and effectively. The workshops convened staff from State DOTs, FHWA Division Offices, and resource and regulatory agencies in each host State to increase participants' understanding of tools that assist in streamlining project development. Participants provided positive feedback on the workshops, which resulted in increased communication among agencies.
 - Completed one PEL webcast entitled PEL 101: The Tools for Adopting and Implementing a PEL Approach, in November 2011. A recording of the webinar is available at:
<http://wwwcf.fhwa.dot.gov/exit.cfm?link=http://fhwa.adobeconnect.com/p6o0gm1cj3w>.
 - Outreach and communication. These activities developed and disseminated resources for stakeholders to use in understanding and implementing PEL activities.
 - Maintained the PEL section of the Environmental Review Toolkit website (available at <http://environment.fhwa.dot.gov/integ/index.asp>) in collaboration with the USDOT Volpe Center; and
 - Posted relevant EDC/PEL information, particularly as related to those States with processes equivalent to EDC and PEL.

- **Research and Innovation Agreements with EPA (Prior Year Funding: \$175,000).** FHWA continued an existing research and innovation agreement with the EPA Office of Water within EPA's headquarters' offices. The agreement established a research and innovation liaison position. As part of this agreement, FHWA accomplished the following in FY2011:
 - Worked with the EPA Office of Water's Transportation Team to respond to policy and guidance questions and provide input on project-related issues and streamlining tools;
 - Continued regular EPA-wide transportation peer exchanges including webinars, conference calls, and information sharing. These information exchanges occurred via regular teleconference calls to address transportation policy issues and focused on EPA's community of practice. EPA liaisons also attended the ICOET conference and participated in community of practice meetings;
 - Supported initiatives such as Green Infrastructure, Eco-Logical, EDC, and PEL, in collaboration with EPA staff; worked on charrettes, forums, and produced tools;
 - Supported and participated in TRB annual meeting and AASHTO's Standing Committee on the Environment; and
 - Generated information and dialogue on ongoing Clean Water Act rule-makings, including those related to National Pollutant Discharge Elimination System permitting and waters of the United States.

- **Improving Project Delivery through the EDC Initiative. (Prior Year Funding: \$500,000).** FHWA has a longstanding commitment to improving the environmental review process for transportation projects and ensuring meaningful stewardship of human and natural resources. As part of FHWA's EDC initiative, FHWA renewed its focus on improving project delivery by establishing a research initiative to develop tools. These tools guide and support FHWA Division Offices and States in employing underutilized flexibilities in project development and delivery.

FHWA advanced the following research activities to aid in the implementation of six key EDC initiatives designed to accelerate the environmental review process:

- Provided technical assistance and facilitated peer exchanges for State DOTs, FHWA Division Offices, and Federal/State resource and permitting agencies on various EDC initiatives;
 - Initiated a new contract to research available electronic process tools to enhance and expedite the NEPA review process and develop a prototype electronic tool that enhances and expedites interagency collaboration during the preparation and review of environmental documents; and
 - Initiated a new contract to synthesize categorical exclusion documentation and best practices from other Federal agencies.
-
- **Advancing Innovations in FHWA's Environmental Review Process (Prior Year Funding: \$525,000).** FHWA continued to pursue initiatives intended to advance innovations in the environmental review process. FHWA's accomplishments from these initiatives are listed below:
 - Utilized the Environmental Document Tracking System to gather data on timeliness and project management for large-scale projects;
 - Completed developing and piloting a training course titled "Environmental Factors in Construction and Maintenance" (NHI course 134080);
 - Conducted a sixth onsite audit of the California Department of Transportation (Caltrans) under a pilot program. FY11 activities for this audit included audit planning, preparing the audit team, developing logistics for the onsite audit, and interviewing Caltrans staff.

- This year's audit took place on October 17-21, 2011, and involved onsite visits to five Caltrans District Offices and the Caltrans headquarters' office;
- Continued existing efforts to track and report on the implementation of SAFETEA-LU Section 6009, which amended Section 4(f) law. FHWA submitted a draft *Phase II Report* to Congress in May 2011 on the implementation of Section 4(f) statute changes; and
 - Completed a *Freight and NEPA Handbook* to assist NEPA practitioners in integrating freight considerations into NEPA analysis. The handbook is available at <http://ops.fhwa.dot.gov/publications/fhwahop10033/index.htm>.
- **Environmental Conflict Resolution (Prior Year Funding: \$60,000).** FHWA continued its ongoing support to the U.S. Institute for Environmental Conflict Resolution (USIECR) to advance environmental conflict resolution activities. Through this support, USIECR:
 - Completed FHWA project assessments in North Carolina and Utah on projects that had multiple unresolved issues that affected the project's schedule;
 - Planned, coordinated, and facilitated a Section 106 workshop for FHWA, Arizona DOT, and Tribal stakeholders in June 2011 in Arizona; and
 - Supported the Native Dispute Resolution Network 2011 Skills Exchange Workshop, which was held in August 2011 in California.
 - **Environmental Streamlining Outreach and Technology Transfer (Prior Year Funding: \$70,000).** This research effort made substantial investments to develop methods, tools, and techniques that improve the quality and efficiency of environmental decision-making. Through this effort, FHWA supported several ongoing technology transfer and outreach initiatives. Accomplishments included the following:
 - Revised and updated the online Environmental Review Toolkit (<http://environment.fhwa.dot.gov/index.asp>), which has received 318,773 unique visits. The toolkit is continually revised and updated. As part of these updates, FHWA conducted an annual review and certification of website material to ensure accuracy;
 - Published 12 issues of *Successes in Stewardship* (<http://environment.fhwa.dot.gov/strmlng/es4newsltrs.asp>), a newsletter that highlights current environmental streamlining practices from around the country. The USDOT Volpe Center assisted FHWA in selecting topics for the newsletter and drafting each issue; and
 - Conducted outreach to over 300 attendees at the first Green Streets and Highways Conference in Colorado in November 2010. The conference advanced livable and sustainable outcomes through program initiatives, research efforts, and grant programs. FHWA helped to organize and oversee the conference and presented related best practices and current research through facilitating discussion sessions that involved 25 FHWA Division Administrators, State and Federal leaders, FHWA staff, and the consulting community. A report summarizing the conference is available at www.tanddi.org/files/pdf/FINALGreenHighwaysConfReport_INTERACTIVE.pdf.

Context Sensitive Solutions

Emphasis Area Contact: Shari Schaftlein
Level of FY2011 Funding: \$100,000

- **National Dialogue Workshops (FY2011: \$361,283).** FHWA initiated a new contract with the Context Sensitive Solutions (CSS) Clearinghouse to host a series of ten additional National Dialogue workshops over the next 30 months to:

- Deliver CSS principles and practices to a wide array of partner organizations;
- Strengthen and broaden the constituency for CSS;
- Discover new opportunities for partnerships;
- Bring new perspectives to the practice of planning, designing, building, and maintaining transportation facilities; and
- Foster a CSS community of practice.

All National Dialogue products and follow-up activities will be posted and promoted via the Clearinghouse. The Clearinghouse is available at <http://contextsensitivesolutions.org/>.

FHWA also initiated a new contract to conduct a comprehensive evaluation of various CSS highway elements, as well as the evaluation of those elements within the context of safety from a quantitative, substantive, analytical, and technical perspective. The evaluations will be completed along with other technical tools already available to the highway professional. Final findings will be presented and published in an information report or identified as a recommended practice, depending on professionals' technical needs and guidance.

The following research activities had accomplishments in FY2011 but were funded through prior years of STEP funding.

- **Disseminate CSS Outreach Products, Message, and Performance Measures /Development of CSS Outreach Materials. (Prior Year Funding: \$150,000).** This effort supported development and outreach related to the Institute of Transportation Engineers' (ITE) recommended practice, *Designing Walkable Urban Thoroughfares: A Context Sensitive Approach*. Final materials resulting from the project were posted on the CSS website, available at www.ite.org/css/. These materials included the following:
 - Case studies. Final portable document format (PDF) versions for two CSS case studies: 1) Contra Costa Centre Transit Village; and 2) Lancaster Avenue;
 - Web briefings. Final PowerPoint presentations and recordings for two web seminars: 1) CSS Case Study Successes in Designing Walkable Urban Thoroughfares; and 2) Designing Safety and Security into Walkable Urban Thoroughfares;
 - *ITE Journal* article. The final version of the *ITE Journal* article titled "Walkable Urban Thoroughfares: From Concept to Recommended Practice" was published in the September issue of the *ITE Journal*.
 - Fact sheets and PowerPoint presentations. These included: 1) final versions of nine CSS fact sheets; 2) a CSS overview PowerPoint presentation; 3) a full PowerPoint presentation; and 4) CSS appendices; and
 - Performance measures—Final version.
- **CSS Clearinghouse (Prior Year Funding: \$100,000).** FHWA continued its support for the CSS Clearinghouse, which facilitates a national information exchange on CSS-related issues and topics. Since 2005, the CSS Clearinghouse, available at www.contextsensitivesolutions.org, has served as the central community of practice for the industry. The clearinghouse saves time for agencies and practitioners while providing them with access to important information. CSS activities, resources, and information disseminated through the clearinghouse included the following efforts:
 - Launched new homepage design. Since July 2011, the website has had 16,214 visits and 33,338 page views; and

- Hosted four national webinars on CSS-related topics. The webinar topics were: sustainability, corridor planning, urban forestry, and safety.

Emphasis Areas Related to Planning

Congestion

Emphasis Area Contact: Harlan Miller
Level of FY2011 Funding: \$200,000

- **A Framework for Travel Demand Management (TDM) in the Transportation Planning Process (FY2011: \$75,000).** This effort created a draft desk reference to provide understanding of where, how, and when to integrate TDM into the transportation planning process. The guidance focused on how TDM relates to key policy objectives that are often included in transportation plans, such as congestion and air quality. It also discussed how TDM might be integrated into statewide, regional, corridor, and local transportation planning. Finally, the reference provided examples, case studies, and best practices. The document is anticipated to be complete by spring 2012.
- **Conduct Workshops on Applying Innovative Analysis Tools in Planning for Operations (FY2011: \$75,000).** FHWA held the following eight workshops on applying innovative analysis tools in planning for operations: Ft. Lauderdale, Florida, in October 2010; Las Vegas, Nevada, in December 2010; Los Angeles, California in February 2011; Buffalo, New York in July 2011; Philadelphia, Pennsylvania in July 2011; Austin, Texas in August 2011; and Columbus, Ohio in September 2011. Workshop participants included State DOT and MPO staff.
- **Guidebook for Equity Analysis (Congestion Pricing). (FY2011: \$50,000).** Development of the *Guidebook for Equity Analysis* (congestion pricing) began in FY2011 with a literature review, research, and interviews with experts. The Guidebook will serve as a resource document to State DOTs, MPOs, local agencies, and project sponsors on conducting an equity analysis for tolled or priced roads to help them ensure that equity (for low income, minority, and traditionally underserved populations) is appropriate and adequate.

The following research activities had accomplishments in FY2011 but were funded through prior years of STEP funding.

- ***Congestion Management Process (CMP): A Guidebook; Showcasing Visualization Tools in Congestion Management; and Case Studies of the Congestion Management Process (Prior Year Funding: \$180,000).*** FHWA completed the *Congestion Management Process: A Guidebook*, which highlights effective congestion management methods and practices. FHWA also completed the report titled *Showcasing Visualization Tools in Congestion Management*, which highlights the effective use of visualization tools in congestion management. FHWA completed *Case Studies of the Congestion Management Process*, which highlights case studies on the CMP at seven MPOs around the country. All resources listed above are available at www.fhwa.dot.gov/planning/congestion_management_process/. FHWA also hosted a webinar to roll out the guidebook to State and MPO staff. Additional webinars are being planned for FY2012.

Safety Planning

Emphasis Area Contact: Lorrie Lau

Level of FY2011 Funding: \$50,000

- **Transportation Safety Planning (TSP) (FY2011: \$50,000).** TSP efforts continued as a joint collaboration between the FHWA Office of Planning and the FHWA Office of Safety. FHWA re-scoped the TSP contract and awarded a new contract to develop:
 - A tool to strengthen linkages between the regional transportation planning process and the Strategic Highway Safety Plan through a regional safety planning process;
 - A TSP leadership workshop; and
 - A training package for local officials and decision-makers on TSP.

In conjunction with the TRB TSP Working Group (TSPWG), FHWA developed a new document entitled *Integrating Road Safety into NEPA Analysis: Practitioner's Primer*. The primer presented a brief introduction on addressing safety within the NEPA process. It also provided information on methods to conduct meaningful, quantitative analysis of project safety issues and information on recent tools, research, and techniques to improve road safety. The primer was designed for NEPA practitioners who want to learn more about best practices for analyzing and addressing project safety issues during each stage of the NEPA process. It was intended to help safety practitioners understand the basics of the NEPA process and where safety considerations can be incorporated. The completed document is available at

<http://environment.fhwa.dot.gov/projdev/pd6rs.asp>.

Freight Planning

Emphasis Area Contact: Spencer Stevens

Level of FY2011 Funding: \$125,000

- **Understanding the Policy and Program Structure of National and International Freight Corridor Programs in the European Union International Scan (FY2011: \$50,000).** A report was drafted to document findings from an international scan on freight and sustainability. This effort also provided funding for two European Union representatives involved in the scan to present on multi-national freight corridor planning at the FHWA/American Association of State Highway and Transportation Officials' (AASHTO) Freight Partnership IV meeting in Kansas City, Missouri.
- **Freight and National Environmental Protection Act Handbook (FY2011: \$40,000).** This effort produced a guidebook for integrating freight into the planning process. This will be a companion piece to the already published *Integrating Freight into NEPA Analysis Guidebook*, which is available at www.ops.fhwa.dot.gov/publications/fhwahop10033/index.htm. Drafts of the report have been reviewed and should be ready for publication by the end of FY2012.

The following research activities had accomplishments in FY2011 but were funded through prior years of STEP funding.

- **Broad Agency Announcement on Tour-Based and Supply Chain Modeling for Freight in Chicago (Prior Year Funding: \$251,230).** This effort developed a state-of-art modeling framework, identified two key industries for testing the framework, processed calibration data sets, and estimated several model components. The project will continue to provide estimates for the other components of the model. It will also develop software to implement the proposed

framework, which combines advanced tour-based and supply chain modeling approaches using disaggregate representations of goods movements and supply chains.

- **METRANS: A Freight Analysis and Planning Model (Prior Year Funding: \$125,000).** This project provided a functional model that can be integrated with existing travel demand forecasting software packages. It offers a useful tool for practitioners to address freight planning issues, leveraging work already conducted on the Argos model for the Southern California region. The model is available at:
www.fhwa.dot.gov/planning/freight_planning/publications/analysis_planning_model/index.cfm

Public Involvement, Visualization in Planning/Environmental Justice

Emphasis Area Contact: Frederick Bowers, Brenda Kragh, and Susan Grosser
Level of FY2011 Funding: \$200,000

The following research activities had accomplishments in FY2011 but were funded through prior years of STEP funding.

- **Annual Operation and Maintenance Funding for Joint FHWA/Florida DOT Community Impact Assessment (CIA) Website (Prior Year Funding: \$12,600).** FHWA and the Florida DOT operated and maintained a joint website on CIAs. FL DOT contracts with the Center for Urban Transportation Research for this expertise on a calendar-year basis and provides oversight of the contract and periodic updates. The website, www.ciatrans.net, is used by practitioners to access CIA, public involvement, and EJ reference materials. FHWA maintained the CIA website, including monitoring general operations, addressing broken links, correcting text errors, and adding relevant new links.

Other Activities that Support State/Local/Tribal Planning Capacity Building

Emphasis Area Contact: Kenneth Petty
Level of FY2011 Funding: \$0

The following research activities had accomplishments in FY2011 but were funded through prior years of STEP funding.

- **Transportation Planner's Accessibility Toolkit (Prior Year Funding: \$249,750).** This project will enable accessibility-based assessments of transportation improvements through the implementation of a web-based accessibility toolkit. In addition, it will provide analysis capabilities to those who lack access to travel demand forecasting tools or lack the specialized training to use those tools. This project held a kick-off meeting and completed *Technical Memorandum #1*, which provides a summary of a literature review on accessibility measures and describes data availability and constraints.
- **Linking Transportation Planning with Public Health: An Ecological-Based Paradigm for Institutional Collaboration (Prior Year Funding: \$121,713).** This project is currently underway and will develop an ecological-based planning paradigm to promote greater collaboration among transportation planning and public health agencies for transportation planning and development decision-making. It will address jurisdictional and institutional issues and provide tools and techniques that support State and local planning capacity building

- **Project Prioritization and Performance-Based Planning Efforts in Rural and Small Metropolitan Regions (Prior Year Funding: \$100,000).** A report, entitled *Transportation Project Prioritization and Performance-Based Planning Efforts in Rural and Small Metropolitan Regions*, was published in September 2011 in partnership with the National Association of Development Organizations' Research Foundation. The report provided an overview of the state-of-the-practice in non-metropolitan regional transportation planning, including contract amounts, regional planning organization tasks, and committee structures. The document also examined rural long-range planning efforts, criteria used to rank regional priority projects, and case studies on statewide and regional planning processes in North Carolina, Pennsylvania, and Washington. These case studies offer examples for rural and small metro regions that would like to formalize their planning process. The report is available at www.nado.org/wp-content/uploads/2011/11/RPOprioritization.pdf.
- **Transportation Planning Excellence Awards (TPEA) Program (Prior Year Funding: \$100,000).** The TPEA Program recognizes outstanding initiatives across the country that develop, plan, and implement innovative transportation planning practices. The winners represented a variety of planning organizations from across the country, and were published in an *Excellence in Transportation Planning* resource report for their peers.
- **Incorporating Livability into Rural and Small Metropolitan Transportation Planning (Prior Year Funding: \$100,000).** This effort produced a report focused on Regional Development Organizations (RDOs) that are working in all types of communities across the country to design and implement strategies to create stronger, more dynamic, and resilient regional economies based on quality of place. The report featured case studies from California, Michigan, North Carolina, and Utah; it also highlighted opportunities available to RDOs to undertake sustainable development initiatives using a systems-based approach.
- **Asset Sustainability Index (Prior Year Funding: \$126,851).** This effort produced a report entitled *Asset Sustainability Index* that examined metrics that evaluate the sustainability of infrastructure conditions as well as the use of these metrics in Australia, Great Britain, and the private sector. These metrics encourage a long-term, asset management-based approach to managing infrastructure to meet condition targets today and in the future. The report also examined asset management data and systems used in four U.S. States to determine if they could produce long-term sustainability metrics.
- **Transportation Planning Workshops for Sustainability and Livability: Bringing Agencies to the Table (Prior Year Funding: \$59,877).** This project illuminated successes, challenges, and advance practices in planning sustainable and livable communities. It provided practical information for MPO, environmental, planning, transit, and housing decision-makers with a goal to assist with ways to more effectively implement innovative livability planning as part of MPO activities. The workshops also highlighted practical and usable tools and techniques for making sustainability and livability a more integral part of the MPO process.
- **Tribal Peer Exchange: New Mexico State DOT Tribal Liaison Coordination and Best Practices (Prior Year Funding: \$40,000).** This peer exchange, which took place in November 2010 in Albuquerque, New Mexico, convened State DOT Tribal liaisons from around the country to discuss key issues of interest and concern that span the field of Tribal transportation planning. Peers presented a summary of effective practices they have developed and/or implemented, described challenges, successes, and lessons learned associated with the practice(s); and

identified resources they used or would like to see developed. The report is available online at http://www.planning.dot.gov/Peer/NewMex/albuquerque_10.pdf

- **National Tribal Transportation Conference Support (Prior Year Funding: \$30,000).** This project supported the planning and management of both the 2011 and 2012 National Tribal Transportation Conferences. This effort included logistical support for presenters and other attendees, production of meeting materials for participants and staffing, and conference support activities, including registration and facilitation. The effort also supported pre-conference planning as well as conference coordination and facilitation.

U.S./Canada and U.S./Mexico Border Planning

Emphasis Area Contact: Roger Petzold

Level of FY2011 Funding: \$200,000

- **Greening Transportation at the Border (FY2011: \$150,000).** Greening Transportation at the Border is a new initiative focused on the U.S./Canada and U.S./Mexico border regions and how FHWA can reduce the impact of transportation, specifically congestion, in these regions and make them more livable and sustainable. As a first step for this initiative, FHWA held a workshop in San Diego, California, in February 2011, with over 125 individuals attending. Based on results from this workshop, FHWA explored a number of future activities, including:
 - Focusing efforts on reducing congestion at the border;
 - Reducing vehicle emissions at the border;
 - Congestion pricing;
 - Energy efficient building;
 - Reducing PM 2.5/paved roads;
 - Electrification of truck stops;
 - Low emission vehicles;
 - Low emission paving material and processes;
 - Financing green projects;
 - Promoting green building standards;
 - Relocating rail in border regions;
 - Promoting SmartWay, an EPA program to reduce transportation-related emissions;
 - Promoting rubberized asphalt paving;
 - Developing performance measures; and
 - Assessing intelligent transportation system/border traffic management and others.

Working through the U.S./Mexico Joint Working Committee (JWC) and the U.S./Canada Transportation Border Working Group (TBWG), FHWA will develop specific action items to advance these activities.

- **U.S./Mexico JWC Research (FY2011: \$25,000).** The JWC is a binational group. Its primary focus is to cooperate on land transportation planning and the facilitation of efficient, safe, and economical cross-border transportation movements. The JWC also develops biennial work plans. The 2010-2012 work plan included expanding the development of regional border master plans, commercial vehicle border wait-time studies, border traffic modeling studies, and border information flow architecture studies.
- **U.S./Canada TBWG Research. (FY2011: \$25,000).** The mission of the U.S./Canada TBWG is to facilitate the safe, secure, efficient, and environmentally responsible movement of people and

goods across the U.S./Canada border. The five TBWG subcommittees focus on the following topics: greening transportation at the border; sustainability, livability, climate change, border wait time, infrastructure investments, rail issues, and data issues. Another area of interest is emerging policy issues.

- **Emissions and Border Wait-Time Analysis (FY2011: \$300,000).** This effort will provide all material, equipment, labor, and any other items necessary to conduct comprehensive research and analysis of the contribution of vehicle emissions attributed to border wait-times and/or border crossing travel times. Topics and areas for exploration during this research could include, but are not limited to: vehicle emissions and idling, environmental and social impacts, health impacts, congestion and emissions, types of vehicles, including vehicle classification (e.g., passenger, light-duty diesel, heavy-duty diesel, average age) and fuels related to emissions, operational influences on mobility at the crossings, and ancillary effects due to mobility constraints to the area surrounding the border crossings. A contract for this effort was awarded and an expert panel was formed to provide technical oversight. The contractor is developing a detailed work plan to address vehicle emissions at the border due to border wait time.

The following research activities had accomplishments in FY2011 but were funded through prior years of STEP funding.

- **Corridor and Gateway Concepts (Prior Year Funding: \$450,000).** This research effort is intended to research and document foundational elements that could better posture decision-makers to answer two key questions:
 - Where should the U.S. invest transportation funds to proactively build infrastructure that will provide the multimodal capacity needed to keep the U.S. economically competitive?
 - What are potential opportunities for the U.S., Canada, and Mexico to invest transportation funds to proactively build infrastructure that will provide the multimodal capacity needed to keep the North American continent economically competitive?

A contract for this project was awarded and plans were developed to hold two national workshops and two regional workshops to obtain both private sector and public sector expert input to address the two questions above.

National Security, Defense, and Interstate Planning

Emphasis Area Contact: Stefan Natzke

Level of FY2011 Funding: \$236,390

The following research activities had accomplishments in FY2011 but were funded through prior years of STEP funding.

- **National Highway System Product Development (Prior Year Funding: \$236,390).** This project involved coordinating designation changes to the National Highway System (NHS) with State DOTs and modifying the impacted official map record of the NHS map layers. FY2011 was the first year of an ongoing, multi-year effort to update the record of this evolving system.
- **International Transportation Economic Development Conference: Economic Impact of Connecting People, Goods, Markets, Employment, Services, and Production (Prior Year**

Funding: \$20,000). This effort involved organizing and implementing the International Transportation and Economic Development Conference in May 2011, in Charleston, West Virginia. The conference provided case studies, data, and other research on the link between transportation and economic development, focusing on challenges related to the economy, global concerns and financial constraint. Conference proceedings are available at www.ited2011.org.

Emphasis Areas Related to Real Estate Services

Real Estate Program Stewardship

Emphasis Area Contact: Carolyn James

Level of FY2011 Funding: \$570,000

- **Acquisition and Negotiation for ROW for Federal Projects (FY2011: \$200,000).** FHWA worked with the National Highway Institute (NHI) to develop a new course on ROW acquisition and negotiation for Federal projects. NHI initiated development of this project in FY2012.
- **Eminent Domain for Attorneys and Appraisers (FY2011: \$200,000).** FHWA worked with NHI to establish a new indefinite delivery/indefinite quantity (IDIQ) contract to develop a new course on eminent domain for attorneys and appraisers. NHI used the new IDIQ to initiate development of this project in FY2012.
- **Stakeholder and Partner Outreach and Informational Dissemination Programs (FY2011: \$120,000).** FHWA supported a number of diverse activities to support stakeholder engagement, information dissemination, and resource development. FHWA used three primary information conduits for stakeholder and partner outreach related to real estate topics: the FHWA real estate website (available at www.fhwa.dot.gov/reaalestate), [newsletters](#), and the Real Estate Exchange community of practice (available at <http://knowledge.fhwa.dot.gov/cops/rex.nsf/home>).

Outreach and information dissemination efforts also included modifying, revising, and re-launching the Realty Competency Building Navigator (available at www.fhwa.dot.gov/real_estate/practitioners/rcb_navigator/).

The following research activities had accomplishments in FY2011 but were funded through prior years of STEP funding.

- **Visualization in ROW (Prior Year Funding: \$75,000).** The final report entitled *Visualization for Right-of-Way Acquisition* was completed. The report was posted on FHWA's real estate website on June 5, 2012 and can be found at http://www.fhwa.dot.gov/real_estate/publications/visualization_for_row_acquisition/.
- **Alternative Uses of ROW (Prior Year Funding: \$35,000).** The final report was posted on FHWA's real estate website in January FY2012 and can be found at http://www.fhwa.dot.gov/real_estate/publications/alternative_uses_of_highway_right-of-way/. Additionally, this effort produced research findings published by TRB and a Sustainable Transportation Operations and Infrastructure Workshop held during the TRB Annual Meeting.

- **Business Relocation Assistance Retrospective Study (Prior Year Funding \$200,000).** The final report was completed and posted on FHWA's real estate website in FY2012 at http://www.fhwa.dot.gov/realestate/business_relocation_assistance/final_report/index.cfm.
- **Voluntary Acquisition Best Practices and Implementation (Prior Year Funding \$100,000).** A kick-off meeting with stakeholders was held in March 2011. Several facilitated discussions and telephone interviews were also held with stakeholders. Research through a document search and legislative history analysis was also initiated and will continue into FY2012. A final report is expected in the summer of 2012.
- **Coordination with Railroads to Facilitate Acquisition of ROW (Prior Year Funding \$80,000).** A kick-off meeting with stakeholders was held in March 2011 and research was initiated and potential interviews planned. A final report is expected in the spring of 2012.

Outdoor Advertising Control

Emphasis Area Contact: Mary Jane Daluge
Level of FY2011 Funding: \$10,000

STEP funding supported continuous and ongoing updating, editing, and development of FHWA's real estate website (www.fhwa.dot.gov/realestate/), dissemination of two newsletters, and supported the Real Estate Exchange (<http://knowledge.fhwa.dot.gov/cops/rex.nsf/home>). Additionally, STEP sponsored and supported two national meetings convening right-of-way (ROW) and outdoor advertising control professionals.

Emphasis Areas Related to Tools to Support Planning and Environment

Travel Modeling

Emphasis Area Contact: Sarah Sun
Level of FY2011 Funding: \$500,000

- **General Travel Model Improvement Program (TMIP) Promotion, Outreach and Capacity Building (FY2011: \$500,000).** TMIP's Web Knowledge and Information Exchange webinar series delivered nine webinars on the following topics (recordings are available at <http://www.fhwa.dot.gov/planning/tmip/>):
 - Travel Model Validation (two parts) in October 2010;
 - Household Travel Surveys in January 2011;
 - Forecasting Land Use Activities (six parts) in February, March, April, May, June, and September 2011; and
 - Open Street Map and Google Transit Feed (March 2011).

The peer review program provides an opportunity for planning agencies to invite a peer review panel to review their models to ensure that the technical processes they are applying meet standards of professional practice and meet Federal, State, or local planning requirements. TMIP supports peer reviews by assisting agencies in panel assembly, logistics, and funding for travel. In FY2011, TMIP conducted five peer reviews in Omaha, Nebraska; Monterey, California; New York, New York; Chattanooga, Tennessee; and Burlington, Vermont. Reports from these peer reviews are available upon request.

TMIP also produced and released a document entitled *Peer Review Process Guide: How to Get the Most Out of Your Peer Review* (available at www.fhwa.dot.gov/planning/tmip/resources/peer_review/process_guide/).

Furthermore, TMIP conducted a non-motorized travel case study, which was designed to identify factors that influence walk and bike travel. Using data from the National Household Travel Survey, available geographic information systems (GIS), and U.S. Census data, the team identified specific variables associated with the propensity to travel by walking.

The case study approach focused on Chittenden County, Vermont, and included county and sub-county level analyses to assess the influence of completeness and complexity of network coverage for roads and sidewalks as well as a matched-pair analysis to identify why some people walk and others travel by car for the same origin-destination pairs. The study considered only those respondents age 16 or older who reported at least one trip on the travel day. At the county level, the study results suggest that walking is most strongly associated with age, education level, presence of children, type of job, physical activity levels, and a positive attitude toward walking; higher residential densities and presence of shopping centers and social and institutional centers; and an adequate number of good sidewalks or walking paths. The findings suggest that smaller urban areas can promote increased walking through infrastructure investments in and near areas with higher residential densities and more shopping centers and social/institutional centers. In addition, education about the benefits of walking may also influence mode choice.

GIS/Spatial Information for Improved Decision Making

Emphasis Area Contact: Mark Sarmiento

Level of FY2011 Funding: \$180,000

- **GIS Applications in Transportation Case Studies (FY2011: \$90,000).** Topics were identified for a series of case studies on GIS applications in transportation, including noise, environmental streamlining, and renewable energy opportunities along State DOT ROWs. A preliminary list of potential participants was identified for a case study focused on GIS and noise issues.
- **GIS Applications in Transportation Peer Exchanges (FY2011: \$90,000).** A list of potential participants was developed for a peer exchange focusing on the use of GIS in the area of highway noise. This peer exchange will take place in spring 2012.

The following research activities had accomplishments in FY2011 but were funded through prior years of STEP funding.

- **GIS Peer Exchanges (Prior Year Funding: \$90,000).** Three peer exchanges were completed in FY2011 and focused on GIS applications to support livability, safety, and climate change considerations. The USDOT Volpe Center summarized each peer exchange in a report. The reports are available on the FHWA GIS in Transportation website at: <http://gis.fhwa.dot.gov/reports.asp>.
- **GIS Case Studies (Prior Year Funding: \$60,000).** Two case study reports were completed: *Applying Geospatial Tools to Livability Issues* and *Climate Change Applications of GIS*. These reports are available at <http://gis.fhwa.dot.gov/reports.asp>.

- **Enhancement of the National Highway Planning Network (NHPN) (Prior Year Funding: \$234,850).** This project updated NHPN, which contains line features representing over 450,000 miles of current and planned interstates, principal arterials, and rural minor arterials in all 50 States, D.C., and Puerto Rico. The network will be made available through the USDOT Research and Innovative Technology Administration's National Transportation Atlas Database.
- **GIS in Transportation Newsletter (Prior Year Funding: \$25,000).** Four newsletters were published that focused on a variety of GIS topics, efforts, and activities, particularly those that State DOTs initiated. The newsletters are available at: <http://gis.fhwa.dot.gov/newsletters.asp>.
- **GIS in Transportation Webcasts (Prior Year Funding: \$25,000).** Four webcasts were delivered that focused on the following topics: Missouri DOT's Traveler Information Map; the Appalachian Development Highway System GIS; the Coastal Adaptation to Sea Level Rise Tool; and integrated environmental planning tools for enhancing environmental, transportation, and Tribal capacity. Summaries of the webcasts are available at: <http://gis.fhwa.dot.gov/webcasts.asp>.

Program Management and Outreach

Emphasis Area Contact: Patricia Cazenias
Level of FY2011 Funding: \$1,120,000

- **Program Management and Outreach (FY 2011: \$1,120,000).** Accomplishments included the following:
 - Presented at numerous national meetings;
 - Conducted two Excellence in Transportation Planning webinars, an EJ webinar and a real estate services webinar, which included emphasis area information along with discussions on the STEP program and how to engage and solicit input from external stakeholders;
 - Produced STEP program highlights fact sheets;
 - Participated in the TRB Annual Meeting in Washington, D.C.;
 - Submitted information on current STEP research to the TRB's Research in Progress database, available at <http://rip.trb.org>;
 - Submitted information to the U.S. DOT Research Hub, a searchable database of the latest agency-sponsored research, development, and technology projects. The database acts as a central location for information on projects funded by U.S. DOT operating administrations and provides links to research reports and other products;
 - Posted a Federal Register notice to solicit feedback for the FY2012 STEP Implementation Plan;
 - Provided website support for FHWA's Office of Planning, Environment and Realty's research and programs. STEP documents posted on the website (www.fhwa.dot.gov/hep/step/) include: STEP Federal Register notice, FY2011 STEP Implementation Strategy, and STEP webinar summaries. The website is used by emphasis area contacts to better share new information about STEP events and product;
 - Coordinated development and implementation of research initiatives with SHRP2 and the National Cooperative Research Highway Program (NCHRP); and
 - Processed approximately 276 procurement requests and 10 allocation memos to initiate STEP research initiatives. Timely reports were provided regarding the status of research initiatives, including the National Science Foundation/FEDWeb report and the annual Minority Institutions of Higher Education report.

Appendix C

Feedback from STEP Stakeholders

The STEP program's legislative background mandates that the program's budget and research recommendations be based on feedback, suggestions, and priorities outlined by STEP stakeholders. The legislation does not prescribe a particular method for collecting feedback. The STEP Implementation Strategy, initially published in July 2006, describes various stakeholder groups and outlines ways that STEP program managers might collect information.

Notable Stakeholder Quote

"The STEP program provides a great opportunity to further very relevant research."

-- Florida DOT stakeholder

In FY2011, the Web-based STEP stakeholder feedback mechanism continued to be a primary method to collect stakeholder feedback and report feedback to emphasis area contacts. This mechanism captures basic personal information about the stakeholder (including his or her name, title, agency, and affiliation type). Additionally, the mechanism asks stakeholders to answer a series of questions about the STEP in order to gather information such as:

- Suggestions on the lines of research that should be pursued in a particular emphasis area;
- Other current or planned research projects in this emphasis area;
- Potential funding sources for research suggestions or recommendations; and
- General comments about the STEP program.

The Web-based feedback mechanism was the preferred vehicle for submitting comments. However, in some cases, individuals or entities submitted suggestions by fax, email, or phone. In these cases, the information was added to the STEP feedback database through the Web-based mechanism.

This Appendix provides an overview of stakeholder collaboration and outreach activities conducted, feedback received, including descriptive statistics about the nature of comments and submitters, and a summary of feedback received in each emphasis area. This stakeholder feedback provides the foundation for the research highlights discussed in Appendix B.

STAKEHOLDER COLLABORATION

Hundreds of individuals were reached through meetings, teleconferences, and other events. Since STEP's inception, FHWA has collected stakeholder feedback through a Web-based system. Stakeholders targeted their feedback towards one of the 19 emphasis areas or submit general comments. FHWA staff representatives for each emphasis area consult the stakeholder feedback to coordinate and develop the annual STEP research plan, which lists research priorities for the coming year and corresponding funding amounts. FHWA received over 110 pieces of feedback in FY2011 from the Web-based system.

The feedback system captures information about:

- Suggestions on the lines of research that should be pursued;
- Other current or planned research projects;
- Potential funding sources for research suggestions; and
- General comments about the STEP program.

Stakeholders are also directly involved in prioritizing research needs during stakeholder outreach meeting, committee meetings, or by commenting on the progress of research studies. Thus, FHWA ensures that feedback

informs technical research, findings are applied and implemented, and the transportation community is connected, informed, and successful.

Outreach to STEP Stakeholders

Stakeholder outreach, feedback, and participation in research efforts are critical to successful implementation of the STEP. In order to disseminate current information about the STEP, emphasis area contacts, program managers, and research coordinators attended meetings, teleconferences, and events to share STEP information.

STEP emphasis area contacts also communicated by phone and email to encourage stakeholders to use the Web-based feedback system. The purpose of this type of outreach was to underscore the importance of submitting feedback and research suggestions through the online feedback mechanism during the FY2011 comment period (July 2, 2010 through September 30, 2010).

Overall, the STEP program was represented at many events, teleconferences, in email lists, on websites, and in various publications. Information reached hundreds of stakeholders. This section includes a summary of outreach activities undertaken by FHWA staff on behalf of the STEP. Outreach generally took place in the following formats:

- Participation in events, conferences, symposia, webinars, or meetings (including working groups).
- Telephone calls (including conference calls and individual conversations);
- Email (including group or listserv emails and stakeholder messages);
- Publications (including newsletters and websites); and
- Other types of outreach (such as peer exchanges).

A description of specific outreach efforts conducted by emphasis area contacts for the FY2011 STEP follows below.

FHWA conducted live outreach through a variety of events in FY2011. Staff representing several STEP emphasis areas participated in and presented at sessions during the TRB summer and annual meetings for the Committee on Archeology and Historic Preservation in Transportation; Committee on Transportation-Related Noise and Vibration; and the Committee on Geographic Information Science and Applications. FHWA staff also participated in annual meetings for the AASHTO Standing Committees on the Environment, Planning, and Design. FHWA staff also conducted outreach at the International Transportation Economic Development Conference, the Southern Transportation and Air Quality Summit, ICOET, the Eco-Logical Signatory Agency Meeting, the National Mitigation Banking Association meeting, the Association of State Wetlands Managers' meeting, the annual meeting of State Bicycle and Pedestrian Coordinators, and the National Association of Environmental Professionals' annual meeting. FHWA also sponsored numerous events, including the National Association of Highway Beautification Agencies' Educational Conference on Outdoor Advertising Control and the Mid-West Regional Freight Workshop. Live outreach efforts reached all stakeholder tiers, including Federal agencies, State DOTs, resource agencies, MPOs, the academic community, and non-profit groups. These events offered an opportunity to describe the STEP program in general, discuss potential research activities, provide updates on ongoing initiatives, and encourage stakeholders to submit feedback through the online feedback mechanism.

FHWA conducted STEP outreach through a variety of other venues, including its GIS in Transportation and TMIP webinar series. FHWA staff also conducted outreach through phone, email distribution lists, and other formats, including the AASHTO GIS for Transportation Symposium State Survey and email list.

Finally, FHWA published several newsletters, including *Air Quality and Transportation Conformity Highlights*, the *GIS in Transportation Quarterly Newsletter*, *Successes in Stewardship*, and the *Realty Newsletter*. These newsletters complemented other FHWA outreach efforts.

General STEP Outreach

Program managers and STEP program support staff undertook outreach via online publication of several STEP documents, including the FY2011 STEP Implementation Strategy, the FY2010 Annual Report and the FY2011 Research Plan, and STEP program highlights fact sheets. Additional outreach activities included presentations on STEP at numerous national meetings and several webinars that included discussions on STEP and how to engage and solicit input from external stakeholders.

FEEDBACK OVERVIEW

110 comments were received between July and September 2010. In some cases, organizations or associations submitted feedback to several different emphasis areas that pertain to their work.

Water/Wetlands/Vegetation/Wildlife/Habitat received the most (41) comments. Four emphasis areas (Travel Modeling; National Security, Defense, and Interstate Planning; Safety Planning; and Congestion) did not receive any comments.

The figures below display the breakdown of comments received that pertain to STEP’s broad program areas and to its individual emphasis areas.

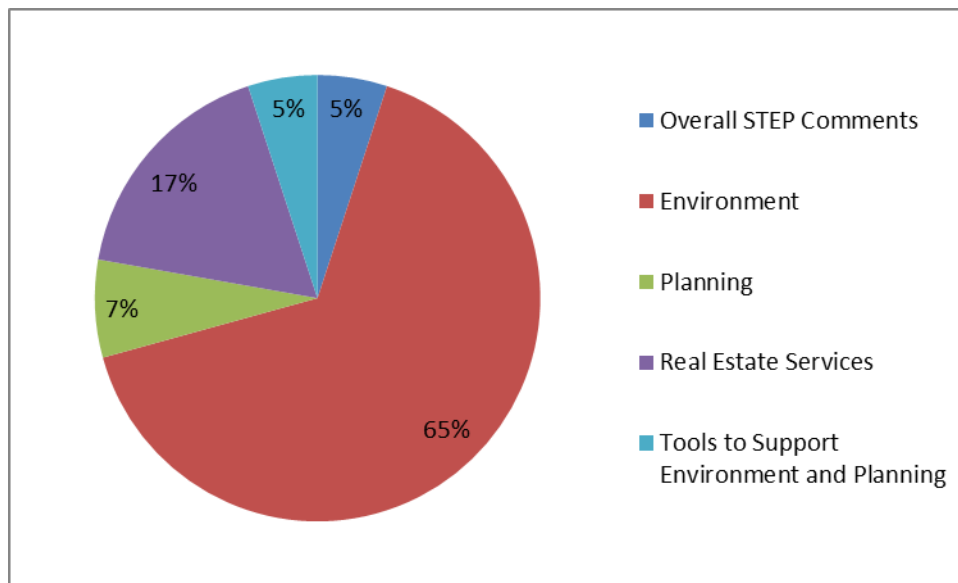


Figure 1: Distribution of Feedback by Program Area (FY2011)

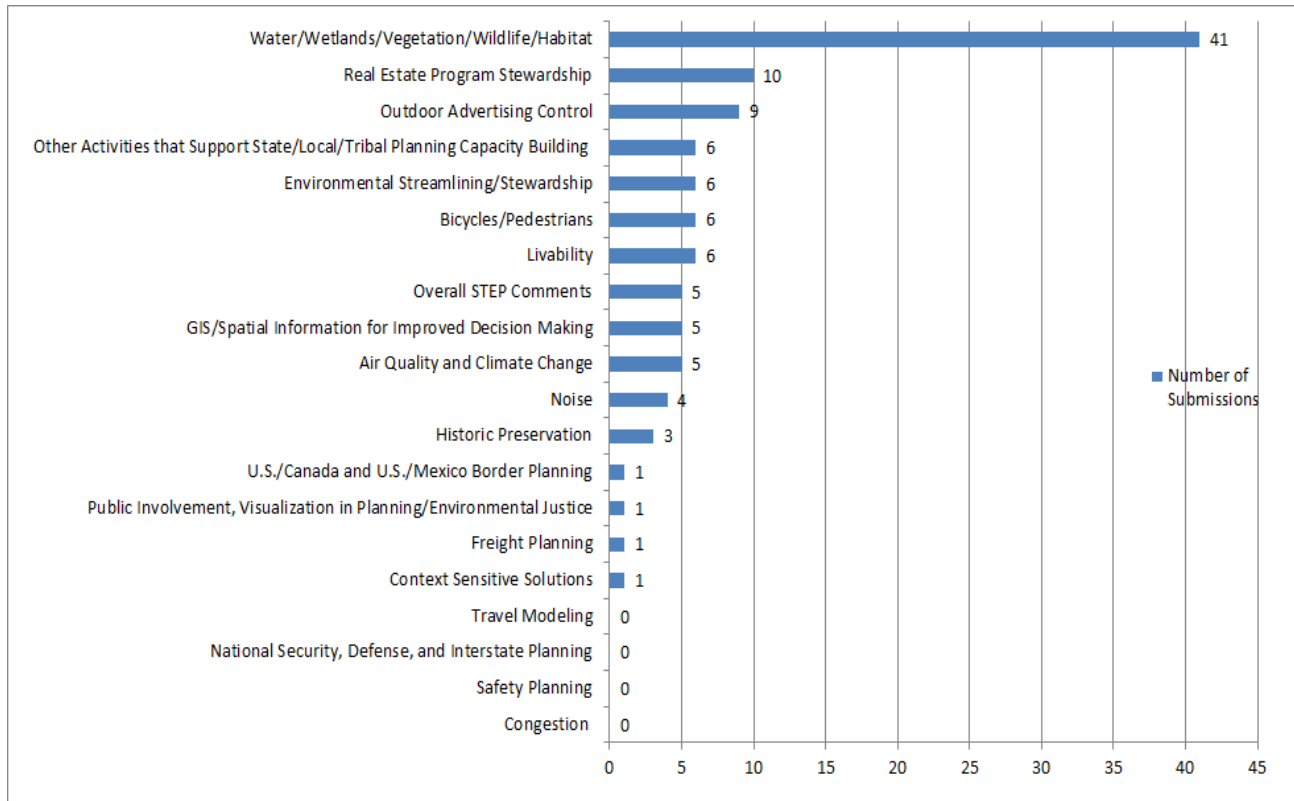


Figure 2: Distribution of Feedback by Individual Emphasis Area (FY2011)

As described in Appendix A, STEP stakeholders are organized into three tiers: Federal and Tribal partners (Tier I), State and local governments (Tier II), and non-governmental transportation and environmental stakeholders (Tier III).

The Web-based feedback mechanism required stakeholders to describe their affiliation by selecting a response from a pre-defined list. This list included the entities described above (e.g., Federal, Tribal, State, local, research/academic, national association, private sector, individual citizen or “other” affiliation). In some cases, stakeholders inadvertently listed their affiliation as Federal when their organization name indicated a different affiliation type. In these cases, data were corrected prior to analysis. All tiers and affiliations were represented in FY2011 comments; see the tables that follow for a distribution of comments.

Table 1: Distribution of Feedback by Affiliation Type

	110	100%
Federal and Tribal Government	42	38%
State Government	27	25%
Local Government	1	1%
National Association	10	9%
Private Sector	2	2%
Research/Academic	21	19%
Individual Citizen	1	2%
Other	6	5%

Table 2: Distribution of Feedback by Tier

Comments Received to Date by Tier	110	100%
Tier 1 (Federal or Tribal Government)	42	38%
Tier 2 (State or Local Government)	28	25%
Tier 3 (National Association, Private Sector, Research/Academic, Individual Citizen, or "Other")	40	36%

Since communication and collaboration with stakeholders are critical to the implementation of the STEP, the Web-based stakeholder feedback mechanism captured email addresses for those individuals who wish to remain informed about the STEP. STEP program managers and emphasis area contacts may wish to contact stakeholders to gather more information, share updates about STEP, or to simply stay in touch with stakeholder groups.

Stakeholders supplied helpful suggestions on the lines of research that should be pursued under various STEP emphasis areas. Many stakeholders completed the entire feedback form, and offered information about other current or planned research projects in particular emphasis areas, suggestions for funding sources or other resources, and general comments about the STEP program.

Note that with regard to potential funding sources or other resources, these suggestions were provided by stakeholders who may have a wide range of experience with or information about these potential sources. STEP program managers and emphasis area contacts have not made funding agreements or arrangements with any of these potential partners. STEP program managers and research coordinators assess the possibility of funding or resource partnerships as various research projects take shape.

STAKEHOLDER FEEDBACK SUMMARIES BY EMPHASIS AREA

This section summarizes feedback submitted through September 2010 that pertains to each of the 19 emphasis areas as well as overall feedback on STEP.

Click on the links below to be directed to a particular emphasis area feedback summary.

Environment Emphasis Areas:

- [Air Quality and Climate Change](#)
- [Water/Wetlands/Vegetation/Wildlife/Habitat](#)
- [Historic Preservation](#)
- [Livability](#)
- [Bicycles/Pedestrians](#)
- [Noise](#)
- [Environmental Streamlining/Stewardship](#)
- [Context Sensitive Solutions](#)

Planning Emphasis Areas:

- [Congestion](#)
- [Safety Planning](#)
- [Freight Planning](#)

- [Public Involvement, Visualization in Planning/ Environmental Justice](#)
- [Other Activities that Support State/Local/Tribal Planning Capacity Building](#)
- [U.S./Canada and U.S./Mexico Border Planning](#)
- [National Security, Defense, and Interstate Planning](#)

Real Estate Services Emphasis Areas

- [Outdoor Advertising Control](#)
- [Real Estate Program Management](#)

Tools to Support Planning and Environment Emphasis Areas:

- [Travel Modeling](#)
- [GIS/Spatial Information for Improved Decision Making](#)

Program Management and Outreach

- [Overall Feedback](#)

Emphasis Areas Related to Environment

Air Quality and Climate Change

Five comments were submitted to the Air Quality and Climate Change emphasis area. One comment was submitted by a Federal government stakeholder and one comment was submitted by a State government stakeholder. The remaining three comments were submitted by stakeholders affiliated with a national association and research/academic institutions. No comments were submitted by stakeholders affiliated with Tribal government, local government, or the private sector, individual citizens, or other stakeholders.

Several research suggestions proposed methods for evaluating the impacts of stream-road crossings on stream habitat connectivity to better prepare for climate change-induced shifts in species distribution. Other suggestions focused on evaluating transportation-related emission control strategies as well as measuring whether cyclists are more affected by air pollution when riding on the road versus on cycle tracks that are separated from the road.

Stakeholders highlighted several existing research efforts in this area, including a study of the effects of reduced oxygen pressure on medically compromised subjects that will produce data on human responses to irritants produced by vehicle exhaust. Stakeholders also discussed existing studies that have evaluated the effects of stream crossings on connectivity over limited geographic scales.

Several potential funding sources were identified, including USFWS, the National Institute of Health (NIH), the American Automobile Association, and automobile manufacturers.

Water/Wetlands/Vegetation/Wildlife/Habitat

Forty-one comments were submitted to the Water/Wetlands/Vegetation/Wildlife/Habitat emphasis area. Federal and Tribal government stakeholders submitted 25 comments and State government stakeholders submitted six comments. The remaining 10 comments came from the private sector, research/academic institutions, and stakeholders with "other" affiliations. There were no comments from local governments, national associations, or individual citizens.

Many suggestions in this emphasis area proposed initiatives to design, pilot, evaluate, and develop guidance on wildlife passages that facilitate habitat connectivity in the presence of transportation

projects. Other suggestions focused on developing and improving datasets for highway runoff and methods for monitoring water quality as well as research on the use of various plant species and products that improve soil productivity along transportation rights-of-way. Stakeholders also recommended development of guidance on programmatic consultations, compensatory mitigation, and the Eco-Logical approach for infrastructure projects.

Stakeholders highlighted a variety of existing or planned research in this area. These efforts, led by academic institutions, State governments, transportation agencies, and Federal resource agencies, will collect and store highway runoff, water quality, and geochemical data, evaluate the effectiveness of specific wildlife crossings, implement pilot projects to test watershed-based approaches to wetland mitigation, and host webcasts focused on stormwater management. Several stakeholders cited a competition in which five teams will design new and innovative wildlife crossings for Interstate 70 in Colorado.

Potential funding sources identified by stakeholders include Federal agencies such as the National Oceanic and Atmospheric Administration National Marine Fisheries Service, EPA, USFWS, the Department of Defense, State DOTs, and TRB.

Historic Preservation

Three comments were submitted to the Historic Preservation emphasis area. Two comments came from State government stakeholders and one comment came from a private sector stakeholder. No comments were submitted by Federal, Tribal, or local government stakeholders, national associations, research/academic institutions, individual citizens, or other stakeholders.

One stakeholder suggested that research focus on the differences between general bridge maintenance and the maintenance of historic bridges. Another stakeholder suggested that a national workshop on traditional cultural properties would be beneficial to enable historic preservation stakeholders to identify, define, evaluate, and establish boundaries for these properties under Section 106 of the National Historic Preservation Act of 1966. The development of a web-based GIS for use in architectural surveys was also suggested.

One stakeholder referred to a report by the AASHTO Highway Subcommittee on Bridges and Structures that identified major themes for a national bridge engineering agenda. Another stakeholder identified several useful sources for information to include in architectural surveys, but noted that significant gaps in information still exist.

Stakeholders identified the National Cooperative Highway Research Program, NPS, and FHWA as potential funding sources in this research area.

Livability

Six comments were submitted to the Livability emphasis area. Three comments were submitted by research/academic stakeholders. The remaining three comments were submitted by a local government representative, a national association representative, and an individual citizen. There were no comments from Federal, Tribal, or State government stakeholders, the private sector, or other stakeholders.

Stakeholders in this emphasis area identified a variety of research needs, including research on the effects of neighborhood- or property-level land use changes on modes of transportation, the relationship between slip ramps and walkability, and impacts of Federal transportation grant programs,

public policy, social determinants, the built transportation environment, freeway or bridge demolition, and congestion pricing on livability and community health. Two stakeholders also identified a need to develop performance indicators for livability in rural settings.

Examples of existing or planned research in this area included a project to retrofit non-motorized facilities using slip ramps at the interchange of two State facilities, a research effort to determine how the built environment affects individual health and ways to improve health by creating more walkable and bike-friendly communities, and an effort to develop a housing and transportation affordability index. Stakeholders also identified several potential sources of funding in this area, including EPA, HUD, CDC, the Robert Wood Johnson Foundation, universities, and State, regional, and local government transportation, natural resource, and housing agencies.

Bicycles/Pedestrians

Six comments were submitted to the Bicycles/Pedestrians emphasis area. One comment was submitted by a State government stakeholder and the remaining five comments were submitted by stakeholders affiliated with research/academic institutions and a national association. There were no comments from Federal, Tribal, or local government stakeholders, the private sector, individual citizens, or other stakeholders.

Several stakeholders in this area suggested research to identify strategies that promote walking and bicycling as a means of transportation as well as the health benefits of active, non-motorized transportation. One stakeholder suggested research that evaluates the merits of cycle tracks versus cycle lanes, particularly with regard to safety. Other suggested research topics included increased data collection as related to Federal funding of bicycle and pedestrian infrastructure, assessing the effects of highway features (e.g., rumble strips) that discourage non-motorized transportation, and the development of a model to determine the economic benefits of walking and bicycling at the national level.

Stakeholders described planned studies to evaluate the risk posed by riding in cycle lanes versus cycle tracks as well as the number and diversity of users and number of interactions between users in both types of features.

Potential funding sources included the National Highway Traffic Safety Administration, EPA, CDC, NIH, State DOTs, the Robert Wood Johnson Foundation, and universities.

Noise

Four comments were submitted to the Noise emphasis area. One comment was submitted by a Federal government stakeholder, two comments were submitted by State government stakeholders, and one comment was submitted by a stakeholder affiliated with a national association. No comments were submitted by Tribal or local governments, the private sector, research/academic institutions, individual citizens, or other stakeholders.

Several stakeholders suggested research initiatives that investigate innovative practices in noise mitigation, including the use of sustainable or “living” noise wall technology, reuse and recycling of existing noise walls, and a scan of noteworthy noise mitigation practices in Europe and Asia. Stakeholders also suggested research related to developing, updating, and testing the FHWA TNM.

Stakeholders highlighted ongoing activities to complete version 3.0 of the TNM and a study by the Ohio DOT on the use of sustainable or “living” noise wall technologies as examples of existing research in this

area. Stakeholder suggested FHWA, the Transportation Pooled Fund Program, and STEP as possible funding sources.

Environmental Streamlining/Stewardship

Six comments were submitted to the Environmental Streamlining/Stewardship emphasis area. Three of these comments were submitted by Federal government stakeholders, two comments were submitted by State government stakeholders, and one comment was submitted by a stakeholder affiliated with a research/academic institution. No comments were submitted by stakeholders affiliated with Tribal or local government, national associations, the private sector, individual citizens, or other stakeholders.

Stakeholders identified a need for additional training in environmental ethics as well as research on the effects of wildlife crossings over large geographic areas. One stakeholder also suggested funding liaison positions between USACE and FHWA to expedite the permit review process for transportation projects.

Stakeholders identified existing studies that have evaluated the effects of stream crossings on connectivity over limited geographic scales as well as the link between wildlife crossings with exclusionary fencing and the prevalence of wildlife-vehicle collisions. Stakeholders also identified existing funding agreements with USACE. Finally, stakeholders identified USFWS as a potential funding source for research in this emphasis area.

Context Sensitive Solutions

One comment was submitted to the Context Sensitive Solutions emphasis area by a State government stakeholder. No comments were submitted by stakeholders affiliated with Federal, Tribal, or local government, national associations, the private sector, research/academic institutions, individual citizens, or other stakeholders.

The stakeholder identified a need for research to monitor the effectiveness of newly constructed fish and wildlife crossing structures installed as part of large-scale highway projects, particularly in relation to pre-construction baseline data. The stakeholder suggested that research focus on whether wildlife crossings improve population viability, appropriate heights for “jump-outs” that allow wildlife trapped inside a fenced road corridor to escape, methods for mitigating fence gaps at access roads, and the cost-effectiveness of wildlife crossings.

The stakeholder noted that existing research studies have examined the use of wildlife crossing facilities but rarely consider baseline data. A study began in January 2010 that plans to address the research gaps identified by this stakeholder; this study is being funded by grants from USFWS and private entities.

Emphasis Areas Related to Real Estate Services

Outdoor Advertising Control

Nine comments were submitted to the Outdoor Advertising Control emphasis area. One comment was submitted by a Federal government stakeholder, six comments were submitted by State government stakeholders, and two comments were submitted by stakeholders affiliated with national associations. No comments were submitted by stakeholders affiliated with Tribal or local government, the private sector or research/academic institutions, individual citizens, or stakeholders with an “other” affiliation.

Several stakeholders suggested research on the Federal control of outdoor advertising along with its associated administrative and economic burden. Stakeholders also recommended a study focusing on methods to set permit fees that would cover States’ costs to implement and control the Federal outdoor

advertising control program. Other stakeholders suggested research involving signs, for instance at stadiums and malls, as well as the development of policy for un-zoned commercial areas. Other research suggestions included increasing public involvement in signage decisions as well as the development of context-sensitive design guidelines for State DOTs and local public agencies based on local culture, landscape, architecture, and scenic values.

Stakeholders identified several existing research efforts in this area, including initial implementation of findings from an FHWA outdoor advertising control international scan in Europe and Australia and APA reports on complete streets and transportation infrastructure. In addition to STEP, stakeholders suggested the NCHRP and the Outdoor Advertising Association of America as potential funding sources.

Real Estate Program Stewardship

Ten comments were submitted to the Real Estate Program Stewardship emphasis area. Five comments were submitted by Federal government stakeholders and three comments were submitted by State government stakeholders. The remaining two comments were submitted by stakeholders affiliated with national associations. No comments were submitted by stakeholders affiliated with Tribal or local government, research/academic institutions, or the private sector, or by individual citizens or other stakeholders.

Stakeholder suggested several lines of research in this emphasis area. Multiple comments recommended research to develop tools to oversee and evaluate the knowledge of Local Public Agencies (LPAs) that are involved in ROW acquisition using Federal funding. Multiple stakeholders also highlighted a need for research on the issuing of conditional ROW certifications, particularly in defining “very unusual circumstances” and defining and demonstrating appropriate applications. Additional research suggestions included developing training courses on the acquisition of property, particularly a course that is generic enough to apply to transportation and housing programs, as well as a pilot program to provide expedited access for contractors to railroad property for State-sponsored projects.

Existing or proposed research in this area includes a training course on the acquisition of property for public use, SHRP2 research on railroad industry and highway participation, and the development of requirements for an oversight module for a State DOT LPA information tool. SHRP2, Florida DOT, FHWA, the International Right of Way Association, and NCHRP were identified as potential funding sources for research in this area. HUD also suggested that its staff could collaborate on the development of a property acquisition training course with the NHI.

Emphasis Areas Related to Planning

Congestion

No comments were submitted to the Congestion emphasis area.

Safety Planning

No comments were submitted to the Safety Planning emphasis area.

Freight Planning

One comment was submitted to the Freight Planning emphasis area. The comment was submitted by a stakeholder with an “other” affiliation. No comments were submitted by stakeholders affiliated with Federal, Tribal, State, or local government, national associations, the private sector, research/academic institutions, or by individual citizens.

The stakeholder identified a need for research that seeks to understand economic and political reasons for the shift away from rail freight services to develop data, models, and techniques to restore freight and passenger rail service, particularly in New England.

The stakeholder identified existing research on the resurgence of rail freight in Maine and Northern New England and indicated that the private sector could provide funding for this research.

Public Involvement, Visualization in Planning/Environmental Justice

One comment was submitted to the Public Involvement, Visualization in Planning/Environmental Justice emphasis area. The comment was submitted by a stakeholder affiliated with a national association. No comments were submitted by stakeholders affiliated with Federal, Tribal, State, or local government, the private sector or research/academic institutions, individual citizens, or other stakeholders.

The stakeholder recommended that research focus on better integrating siting, design, and corridor management with adjacent local plans and planning processes. The stakeholder also suggested a scan of handbooks and other resource materials relating to context sensitive design guidelines.

The stakeholder identified a recently published APA report on the integration of urban streets into the surrounding area. The stakeholder did not identify any potential funding sources for this research.

Other Activities that Support State/Local/Tribal Planning Capacity Building

Six comments were submitted to the Other Activities that Support State/Local/Tribal Planning Capacity Building emphasis area. Three comments were submitted by stakeholders affiliated with Federal government and three comments were submitted by stakeholders affiliated with research/academic institutions. No comments were submitted by stakeholders affiliated with Tribal, State, or local government, national associations or the private sector, individual citizens, or stakeholders with "other" affiliations.

Stakeholders in this emphasis area suggested a variety of research topics, including the relationship between toll facilities, toll authorities, and the metropolitan and statewide planning and programming processes, the consolidation of data sources for determining impacts and considering alternative scenario designs, and an assessment of the effects of wildlife crossings on habitat connectivity over large geographic areas. Stakeholders also suggested that STEP research fund positions for EPA staff in FHWA Division Offices, explore examples of partnerships between transportation planning agencies and transit services providers in small communities and rural areas, and provide technical assistance to MPOs undergoing organizational changes.

Stakeholders identified several current research efforts in this area, including studies on the effectiveness of wildlife crossings over small geographic scales and a partnership between Federal and State agencies in Texas that will promote collaboration and data sharing.

Potential funding sources for research in this emphasis area include USFWS, the International Bridge, Tunnel, and Turnpike Association, the AASHTO, AMPO, MPOs, private transportation providers that operate within Federally owned lands, and private foundations.

U.S./Canada and U.S./Mexico Border Planning

One comment was submitted to the U.S./Canada and U.S./Mexico Border Planning emphasis area from a stakeholder affiliated with a research/academic institution. No comments were submitted by

stakeholders affiliated with Federal, Tribal, State, or local government, national associations or the private sector, individual citizens, or by stakeholders with an “other” affiliation.

The stakeholder suggested that research focus on the transportation-related implications of cross-border planning as identified in a 2004 National Research Council report on air quality management in the United States. The stakeholder suggested the EPA as a potential source of funding for this research.

National Security, Defense, and Interstate Planning

No comments were submitted to the National Security, Defense, and Interstate Planning emphasis area.

Emphasis Areas Related to Tools to Support Planning and Environment

Travel Modeling

No comments were submitted to the Travel Modeling emphasis area.

GIS/Spatial Information for Improved Decision Making

Five comments were submitted to the GIS/Spatial Information for Improved Decision Making emphasis area. Two comments were submitted by Federal government stakeholders and one comment was submitted by a State government stakeholder. The remaining two comments were submitted by stakeholders affiliated with research/academic institutions. No comments were submitted by Tribal or local government stakeholders, stakeholders affiliated with national associations or the private sector, individual citizens, or other stakeholders.

Stakeholders in this emphasis area suggested research projects to develop spatial information to support an assessment of the socio-economic impacts of rail transportation and tools to quantitatively assess impacts from stream-road crossings on habitat connectivity. Another suggested project was to develop a GIS that would be part of a watershed resources registry to enable watershed-driven permitting processes, early mitigation planning, and more streamlined watershed resource preservation, restoration, and enhancement processes. One stakeholder suggested that research evaluate the potential future evolution of mobile mapping technology to aid State DOTs in deciding when to commit resources to and implement mobile mapping systems.

Several existing projects are underway in this area, including efforts to evaluate the effects of stream-road crossings on habitat connectivity over limited geographic scales, the development of a pilot water resources registry for two counties in Maryland, and a pilot project to collect spatially-referenced data from a mobile laser scanning van on urban freeways. Several States are involved in exploring mobile mapping technology.

USDOT, the Department of Homeland Security, the Department of Labor, the National Aeronautics and Space Administration, USFWS, and the Intelligent Transportation Systems Institute at the University of Minnesota were all identified as potential funding sources for research in this area.

Overall STEP Comments

Five comments were submitted to the Overall STEP Comments emphasis area. One comment was submitted by a Federal government stakeholder, two comments were submitted by State government stakeholders, one comment was submitted by a stakeholder affiliated with a national association, and one comment was submitted by a stakeholder with an “other” affiliation. No comments were submitted

by Tribal or local government stakeholders, stakeholders affiliated with the private sector or research/academic institutions, or individual citizens.

Stakeholders suggested a need for methods to quantitatively assess the impacts of stream-road crossings on habitat connectivity and requested continued support for wildlife habitat connectivity as an eligible activity under the TE program. Several stakeholders requested hard copies of the *Real Estate Acquisition Guide for Local Public Agencies*.

One stakeholder noted that approaches already exist to evaluate the effects of stream-road crossings on habitat connectivity over limited geographic areas. Another stakeholder suggested USFWS as a potential funding source for research in this area.