

2009



Surface Transportation Environment and Planning Cooperative Research Program (STEP)

Annual Report

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

Surface Transportation Environment and Planning Cooperative Research Program (STEP)

Fiscal Year (FY) 2009 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 program for 2006-2009. SAFETEA-LU 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, \$14.5 million was available for the FY2009 STEP.

FY2009 STEP Accomplishments

- ✦ FHWA improved the state of the practice in planning, environment, and reality through investment in 67 projects identified in the FY2009 STEP Research Plan that fall into three broad research categories: environment, planning, and tools to support environment and planning (see figure).
- ✦ STEP continued to be a model for stakeholder collaboration, outreach, and feedback. Using a Web-based system, stakeholders provided over 400 pieces of feedback on research needs during the FY2009 comment period between June 23 and September 22, 2008. Stakeholders also directly participated in prioritizing research needs through meetings and study reviews.
- ✦ FHWA addressed questions and concerns about how air quality and climate change impacts transportation, including evaluating transportation-related strategies to address greenhouse gas emissions.
- ✦ FHWA enhanced transportation demand management through improvements in travel modeling tools, peer program events, and research on geographic information systems.
- ✦ FHWA built professional capacity in planning and environment through outreach and training.

Impacts

- ✦ The STEP process has allowed FHWA to build partnerships that encourage collaboration, leverage diverse funding sources, and offer a fresh perspective on emerging research topics.
- ✦ Through the STEP, stakeholders have engaged in the development and implementation of projects, exchanged information on initiatives, and shared lessons learned about research findings, critical success factors, and effective practices.

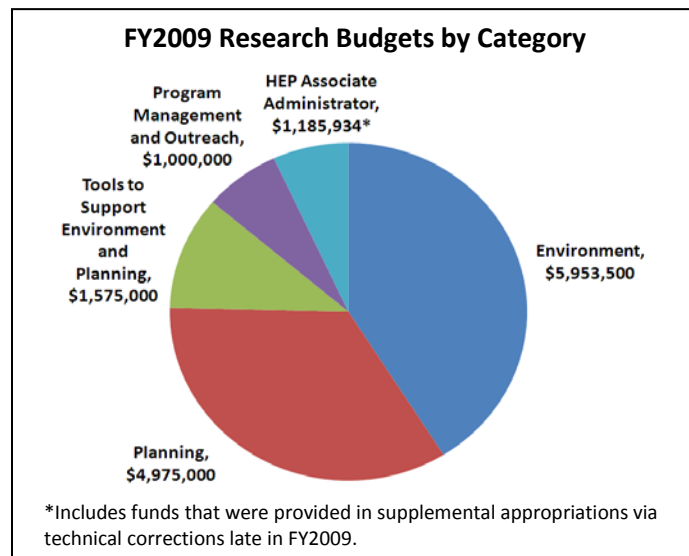


Figure 1: FY2009 Research Budgets by Category

*STEP is the **primary 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)

Section I

Background – 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) 2009. 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 DOTs, 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 the STEP program for 2006-2009. 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 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, \$14.5 million was available for the FY2009 STEP.

Through STEP, FHWA invests in projects in 17 “emphasis areas” that fall into three broad research categories: environment, planning, and tools to support environment and planning (see figures). The 67 projects funded in FY2009 enhance the state-of-the-art and practice in planning, environment, and realty.

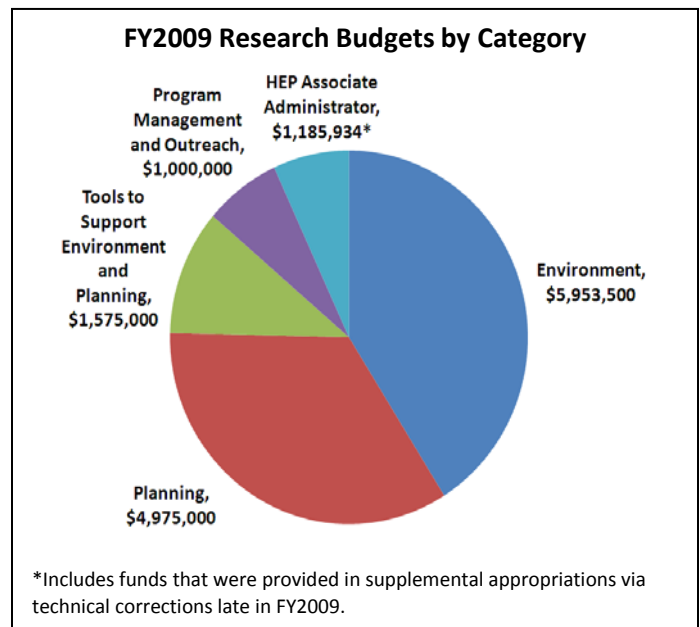


Figure 1: FY2009 Research Budgets by Category

STEP EMPHASIS AREAS

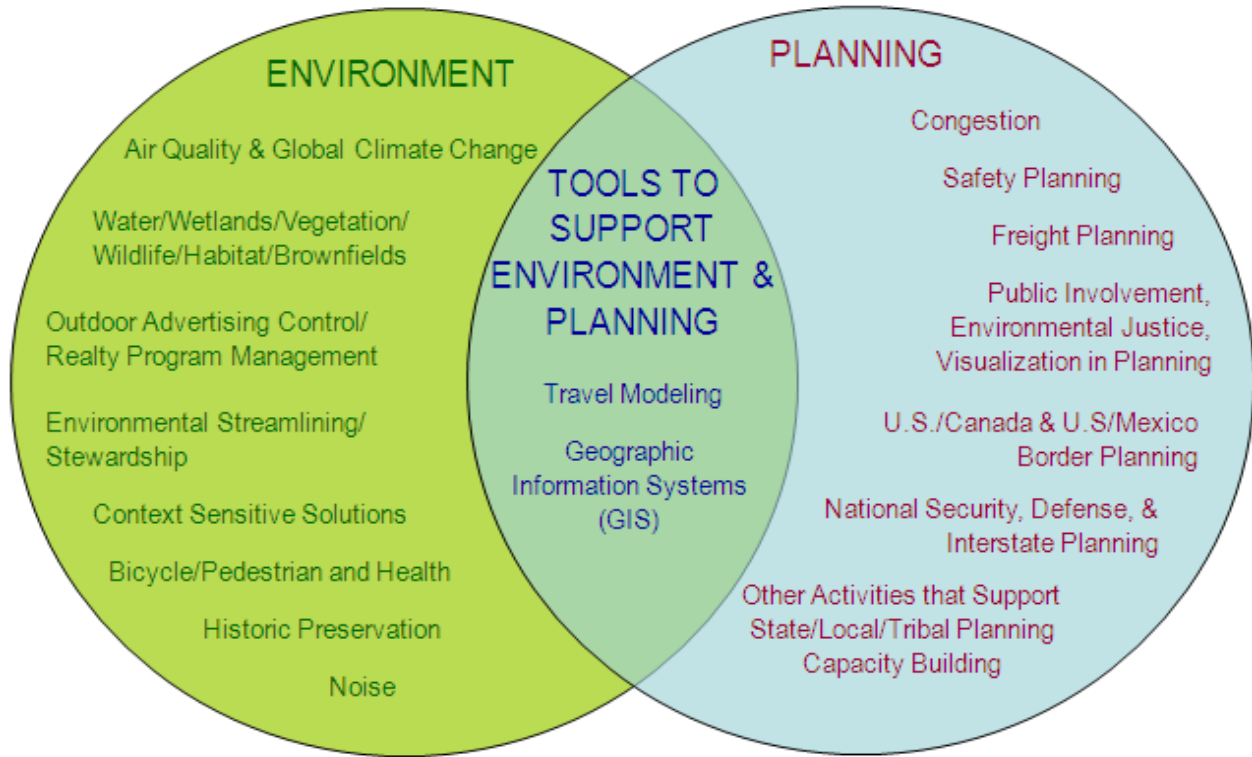


Figure 2: STEP Emphasis Areas

Highlights of FY2009 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. FY2009 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 driver attention issues and potential risks to safety through **field measurements of driver behavior**.
- Analyzed economic impacts of travel time at **international border points of entry** and evaluated cross-border travel to improve information exchange and traffic forecasting.
- Assessed and documented methodologies, best practices, and innovations on a wide variety of transportation project and planning topics, including **contracting practices, environmental mitigation, and megaregions**.
- Evaluated the impact of investing in bicycling and walking infrastructure and programs on travel behavior, energy consumption, physical activity, and environmental quality as part of the **Nonmotorized Transportation Pilot Program**.

Developing and Deploying Tools, Technologies and Practices

- Created a decision-support tool to evaluate the potential for **large-scale carbon sequestration activities** in several States.

- Improved state-of-the-art **highway traffic noise prediction and noise barrier design model** based on input from the user community.
- Disseminated information on transportation applications of **geospatial technologies** through peer exchanges, case studies, and a quarterly webcast series.
- Developed multiple tools to improve the **quality and efficiency of environmental decision-making**, including publication of a monthly environmental streamlining newsletter.
- Produced multiple reference guidebooks to promote the **integration of freight in the transportation planning and programming processes** at the State and metropolitan levels.
- Improved **National Highway System** network data and maps.
- Conducted webinars and peer reviews to provide **travel modeling technical assistance** to transportation stakeholders.

Connecting the Community and Transferring Knowledge

- Facilitated workshop with 11 Federally recognized Native American Tribes to discuss and share multicultural approaches to **intergovernmental communication, consultation, and cooperation**.
- Collaborated with the American Association of State Highway and Transportation Officials (AASHTO) and the Federal Transit Administration (FTA) to document and share strategies with State Departments of Transportation (DOTs) on **coordinating planning and operations activities**.
- Conducted a domestic scan tour to document and disseminate best management practices in addressing **water quality issues** in highway system management.
- Compiled noteworthy practices, updated reference material, and identified performance measures to build State DOTs' and metropolitan planning organizations' (MPOs) capacity in **safety planning**.
- Promoted effective statewide, metropolitan, rural and tribal transportation planning practices through nationwide **Transportation Planning Capacity Building Program** events.
- Implemented a workshop series and developed several publications to share effective professional practices related to **Context Sensitive Solutions**, including applications and programs from around the country.

Stakeholder Collaboration

Stakeholder outreach, feedback, and participation in research efforts are critical to successful implementation of the STEP. Throughout FY2009, 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. For the past four fiscal years, FHWA has also collected stakeholder feedback through a Web-based system. Using this system, stakeholders can target their feedback towards one of the 17 emphasis areas or submit general comments. Additionally, hundreds of individuals were reached through email communication or meetings, conferences, and other events.

“This is an excellent program to identify research and training needs.”

-- Arizona Department of Transportation stakeholder

Section II

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.

FY2009 REPORT

The purpose of this report is to provide an overview of the Federal Highway Administration (FHWA) STEP program accomplishments, stakeholder outreach and feedback, and STEP research activities for Fiscal Year (FY) 2009. The report includes an overview of the STEP program and lessons learned in STEP implementation.

STEP FUNDING

SAFETEA-LU authorized \$16.875 million per year for FY2006-FY2009 to implement this new program. However, due to obligation limitations, rescissions and the over-designation of Title V Research in SAFETEA-LU, \$14.5 million of the \$16.875 million authorized was available in FY2009. 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 STEP will be the funding source for those projects. STEP will also address priorities identified in the U.S. Department of Transportation (USDOT) Research and Development Strategic Plan (Section 508 of Title 23 U.S.C.). STEP funding, even in combination with other SAFETEA-LU research funding sources, is less than what was available to the FHWA in prior years for planning and environmental research. This means FHWA will have to make difficult choices among the many competing needs for planning and environmental research, and will not be able to 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 multiyear budget is used;
- Stakeholders are involved in governance of program.
- There is no duplication with the Future Strategic Highway Research Program (SHRP II) (23 U.S.C. 510), which will be administered by the National Research Council of the National Academy of Sciences.

In FY2009, the STEP program 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).
Spring/Summer	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.
Spring/Summer	Develop priorities for and fund critical, short-term research. Develop draft next FY STEP Plan for comment.
Fall/Winter	Post current FY plan on STEP website. (This milestone may shift depending on appropriations).

EMPHASIS AREAS

Seventeen emphasis areas were identified under the four broad program categories of environment, planning, tools to support environment and planning, and 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 over saw the development of the research plan.

The table below displays the 17 emphasis areas organized within program themes as well as a list of FHWA emphasis area contacts.

1. Environment	
Air Quality and Global Climate Change	Cecilia.Ho@dot.gov Diane.Turchetta@dot.gov
Water/Wetlands/Vegetation/Wildlife/Habitat/ Brownfields	Patricia.Cazenas@dot.gov
Historic Preservation	MaryAnn.Naber@dot.gov
Bicycle/Pedestrian and Health	Gabe.Rousseau@dot.gov
Noise	Mark.Ferroni@dot.gov
Outdoor Advertising Control/Realty Program Management	Carolyn.James@dot.gov MaryJane.Daluge@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, Environmental Justice, Visualization in Planning	Frederick.Bowers@dot.gov Brenda.Kragh@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. Tools To Support Planning and Environment	
Travel Modeling	Sarah.Sun@dot.gov
GIS/Spatial Information for Improved Decision Making	Mark.Sarmiento@dot.gov
4. Program Management and Outreach	Felicia.Young@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 (USDA), Energy, Interior (DOI), and Housing and Urban Development (HUD), the U.S. Environmental Protection Agency (USEPA), and the Centers for Disease Control and Prevention. Within each of these agencies, there are many discrete organizations and programs with an interest in STEP, e.g., the National Park Service, U.S. Fish and Wildlife Service (USFWS) and Bureau of Land Management (BLM) within the DOI. Within the USDOT, FHWA partners with the Federal Transit Administration (FTA) 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 Departments of Transportation (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 (SHPOs) 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, League of American Bicyclists, National Trust for Historic Preservation, International Right of Way Association, National Alliance of Highway Beautification Agencies (NAHBA) and others too numerous to specify here.

Section III

Research Highlights

STEP emphasis area contacts and program staff identified research activities for FY2009 based on stakeholder feedback and other national priorities. A summary table is provided below. Complete descriptions of each research activity recommended in FY2009 can be found on the STEP website at <http://www.fhwa.dot.gov/hep/step/fy09rp.htm>.

Emphasis Area	Number of Research Recommendations	FY2009 STEP Budget
ENVIRONMENT EMPHASIS AREAS		
Air Quality and Global Climate Change	4	\$1,250,000
Water/Wetlands/Vegetation/Wildlife/Habitat/ Brownfields	9	\$1,070,000
Historic Preservation	2	\$225,000
Bicycle/Pedestrian and Health	3	\$270,000
Noise	1	\$390,000
Outdoor Advertising Control/Realty Program Management	6	\$585,000
Environmental Streamlining/Stewardship	8	\$1,663,500
Context Sensitive Solutions	2	\$500,000
PLANNING EMPHASIS AREAS		
Congestion	1	\$750,000
Safety Planning	1	\$100,000
Freight Planning	1	\$200,000
Public Involvement, Environmental Justice, Visualization in Planning	1	\$200,000
Other Activities that Support State/Local/Tribal Planning Capacity Building	9	\$2,600,000
U.S./Canada and U.S./Mexico Border Planning	2	\$525,000
National Security, Defense and Interstate Planning	4	\$600,000
TOOLS TO SUPPORT PLANNING AND ENVIRONMENT EMPHASIS AREAS		
GIS/Spatial Information for Improved Decision Making	5	\$405,000
Travel Modeling	1	\$1,170,000
PROGRAM MANAGEMENT AND OUTREACH	3	\$1,000,000
HEP ASSOCIATE ADMINISTRATOR		\$1,185,934
TOTAL	67	\$14,689,434

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 FY2009 research accomplishments by emphasis area, including those funded with FY2006, FY2007, or FY2008 funds, 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 FY2009 but are not yet complete and some accomplishments occurred in FY2009 but were funded in prior years.

Emphasis Areas Related to Environment

Air Quality and Global Climate Change

Emphasis Area Contacts: Cecilia Ho and Diane Turchetta

Level of FY2009 Funding: \$1,250,000

- **Air Quality and Climate Change Research, Outreach, and Communication. (FY2009: \$300,000).** Accomplishments included development of the FHWA Highways and Climate Change website and brochure, the *10 Simple Steps to Reducing Climate Change* flyer, the USDOT Transportation and Climate Change Clearinghouse website, and research on air quality health effects and highway proximity.
- **Carbon Sequestration Pilot Program. (FY2009: \$80,000).** Work was conducted in close partnership with the New Mexico and Minnesota DOTs to develop a decision-support tool that evaluated the potential for large-scale sequestration in these States and others. In addition, the agencies developed national-level estimates of right-of-way (ROW) acreage and identified the percentages of these areas that are available for sequestration activities.
- **Improving Vehicle Fleet, Activity, and Emissions Data for On-Road Mobile Sources Emissions Inventories. (FY2009: \$340,000).** Through this research effort, FHWA evaluated data and developed tools for estimating better vehicle fleet data (i.e., fleet composition, age, and mileage accumulation) as well as heavy-duty truck operating activities (i.e., miles traveled and idling hours). Ultimately, the products of this research will help transportation practitioners implement the new regulatory emissions model, MOVES, which is used for transportation conformity analyses.
- **Modifying Link-Level Emissions Modeling Procedures for Applications within the MOVES Framework. (FY2009: \$142,008).** This research provided methods for converting data for use with the MOVES model and general information regarding anticipated emission inventory changes related to the current model. Furthermore, the research identified additional data collection and research needs to fully utilize the modeling capabilities of MOVES.
- **Advances in Project Level Analysis. (FY2009: \$109,000).** This research developed and evaluated appropriate input data specific to MOVES. Ultimately, the research products will provide transportation practitioners with alternatives to using default data. These alternatives are expected to produce more accurate estimates of the localized air quality impacts of transportation projects.

- **Evaluating Traffic, Emission, and Dispersion Characteristics Related to Categorical Hot-Spot Findings. (FY2009: \$94,430).** This research supported assessment of dispersion models with respect to MOVES, characterization of traffic, emissions, and concentration impacts, and exploration of the potential for a categorical finding based on project parameters.
- **Moving Cooler Support. (FY2009: \$75,000).** This study provided information on the greenhouse gas (GHG) reduction potential of approximately 50 strategies related to travel behavior and system efficiency. The study also estimated costs and cost savings from these strategies, the GHG reduction from bundles of related strategies, and the equity impact of these measures.

The following research activities had accomplishments in FY2009 but were funded through prior years of STEP funding.

- **Congestion Mitigation and Air Quality (CMAQ) Evaluation and Assessment Study. (Prior Year Funding: \$310,000 (Phases 1 and 2)).** Through Section 1808 of SAFETEA-LU, Congress required the USDOT and USEPA to study the impacts of CMAQ projects on air quality and congestion. This study satisfies the legislative requirement by assessing a cross-section of CMAQ-funded projects and conducting seven field studies of State and local CMAQ practices. In FY2009, Phase 1 of the study was completed and results published. Phase 2 was drafted and edited; the final version was published online at <http://www.fhwa.dot.gov/environment/cmaqpgs/fhwahep09026/index.htm>.
- **Evaluation and Dissemination of Conformity Practices. (Prior Year Funding: \$272,377).** The FHWA Resource Center and USEPA continued to develop a conformity practices website. The website serves as an easily searchable repository of examples of transportation conformity documents and processes that could be replicated in other areas of the country. Carbon monoxide screening protocols were added to the examples and further enhancements were made to the website. The website was highlighted at several conferences and announced monthly in the *Transportation Conformity Highlights* newsletter. The website is available at <http://www.fhwa.dot.gov/environment/conformity/practices/index.cfm>.
- **National Near Road Mobile Source Air Toxics (MSAT) Study. (Prior Year Funding: \$298,000).** This effort was conducted to determine if data enhancements and cost savings could be realized by purchasing gas chromatographs (GC) and installing them in the study's monitor trailers, with the goal of reducing the use of resource intensive canister and cartridge monitoring methods. The first part of the effort involved purchasing, installing, running, and analyzing one GC. Due to the success of the first GC, three additional GCs were purchased and installed and are now running in all four trailers.

Water/Wetlands/Vegetation/Wildlife/Habitat/Brownfields**Emphasis Area Contact:** Patricia Cazenias**Level of FY2009 Funding:** \$1,070,000

- **Supporting Peer and Research Exchange at Conferences, Workshops, and Technical Panels, (FY2009: \$100,000).** To promote peer and research exchanges, funding support was provided to develop or host the following conferences:
 - 2009 National Wetlands Award Program.
 - 2009 Natural Areas Association Symposium.
 - 2009 National Mitigation and Ecosystem Banking Conference; and
 - 2009 Transportation Liaison Peer Exchange Workshop at the International Conference on Ecology and Transportation (ICOET).

FHWA participated in a domestic scan tour focused on best management practices (BMPs) in addressing the national pollutant discharge elimination system and other water quality issues in highway system management. The scan was conducted in cooperation with AASHTO and the National Cooperative Highway Research Program (NCHRP). The purpose of the scan was to facilitate information sharing and technology exchange among transportation agencies and explore innovation and alternative methods of practices.

- **Research and Innovation Agreements with the U.S. Fish and Wildlife Service (USFWS) and the U.S. Army Corps of Engineers (USACE). (FY2009: \$250,000).** FHWA extended an existing research and innovation agreement with USFWS. The purpose of the agreement is to conduct research and promote innovation into the highway program with respect to fish and wildlife laws. This research effort developed programmatic guidance and facilitated improvements to the environmental review process. The effort also enhanced inter-agency coordination among FHWA, USFWS, and State DOTs.
- **Advancing Tools Used for Decision Support and Impact Analyses for Transportation, Wildlife, and Ecological Systems. (FY2009: \$100,000).** FHWA continued developing and enhancing ESAFHWA.org, a Web-based streamlining tool developed to improve the Endangered Species Act Section 7 consultation process. The purpose of the website is to improve the quality and consistency of biological assessments and communication among the FHWA, State DOTs, and resource agencies. This Web-based tool is now being used nationally and has received excellent user reviews.

The following research activities had accomplishments in FY2009 but were funded through prior years of STEP funding.

- **International Stormwater BMPs Database. (Prior Year Funding: \$150,000).** This research and database provided currently available information on BMPs for use in selection, design, and performance of stormwater management facilities. FHWA continued to operate and maintain the database, clearinghouse and webpage. This research is currently accessible through the website at <http://www.bmpdatabase.org>.
- **Structural Acoustic Analysis of Piles. (Prior Year Funding: \$25,000).** The purpose of this research project, for which FHWA provided support, was to evaluate the effectiveness of the

modified Temporary Noise Attenuation Pile (TNAP) to reduce underwater sound levels from pile driving operations. The goal was to decrease the noise from pile driving by at least 35 decibels ten meters from the pile. This modified TNAP will be tested at the Vashon ferry terminal dolphin replacement project.

- **FHWA Pollutant Loadings Model. (Prior Year Funding: \$150,000).** FHWA and the U.S. Geological Survey are cooperating on a national project to evaluate and update the existing 1990 FHWA Pollutant Loadings Model, which predicts pollutant loadings and impacts from highway stormwater runoff. The model is being finalized and training materials are being developed. This effort builds on and enhances the 1990 FHWA model.
- **Wildlife Vehicle Collision (WVC) Reduction Study; Deer-Vehicle Crash (DVC) Information and Research Center Support; and Improvements to Fish and Wildlife Habitat Connectivity. (Prior Year Funding: \$34,000 from STEP and \$37,500 from pooled funds).** The report on WVCs was submitted to the U.S. Congress. The *WVC Best Practices Manual* was completed. The third component of the study, the development of a training course to accompany the manual, will also be completed. Additional activities included:
 - Investigation of methods to identify and prioritize DVC locations of concern. This project continued to document current methods used by State DOTs to identify DVC “hot spots,” evaluated these methods, and recommended a set of best practices for advancing DVC-related safety management systems. This evaluation was focused on the nine States that contribute funds to the DVC Information and Research Center and 15 additional States selected by the Contracting Officer’s Technical Representative.
 - Road Kill Observation Collection System (ROCS). This project systematically collected WVC data to help quantify the magnitude of the problem and help record potential changes in WVCs over time. Desktop software was developed for the ROCS system to display data on maps or other images, summarize data, and support data analysis and reporting. A central repository for ROCS digital data was established. The repository is securely stored for contributors from multiple agencies or multiple jurisdictions within the same agency.
- **Protocol and Tool for Corridor Vegetation Inventories. (Prior Year Funding: \$50,000).** This project tested a protocol and Global Positioning System (GPS) equipment to determine the effectiveness of a handheld tool for inventorying vegetation on highway corridors. The GPS tool is compatible with other protocols for vegetation management, which helps ensure that the tool can address invasive plants and native plant restoration.
- **Cooperative Weed Management Seminars. (Prior Year Funding: \$50,000).** The seminars focused on sharing with States some emerging solutions to the spread of invasive plants or noxious weeds. In addition, the seminars focused on how to examine, analyze, and document the effectiveness of various solutions in controlling weeds. The effort also provided an opportunity to leverage research and technology transfer funds with other agencies and local governments that are participating in cooperative weed management.

Historic Preservation

Emphasis Area Contact: MaryAnn Naber
Level of FY2009 Funding: \$225,000

- **Research and Innovation Agreement with the Advisory Council on Historic Preservation (ACHP). (FY2009: \$200,000).** FHWA promoted environmental stewardship and streamlining by developing and executing statewide agreements and research on concrete bridges. FHWA created and enhanced an ACHP webpage for FHWA program issues and implemented demonstration research and demonstration projects to resolve complex consultation issues.
- **Workshop on Communicating, Consulting, and Cooperating with Indian Tribes on State Transportation Projects: The Role of the National Environmental Policy Act (NEPA). (FY2009: \$6,750).** This research effort provided practical assistance to inform State and Tribal transportation department personnel on multicultural approaches to intergovernmental communication, consultation, and cooperation on transportation in a peer exchange setting. Participants included 11 Federally recognized Tribes and staff from FHWA, State DOTs, the Bureau of Indian Affairs, and other Federal agencies.
- **Peer Exchange for State DOT and SHPO Liaisons at the Summer Meeting of the TRB ADC50 Committee on Archeology and Historic Preservation. (FY2009: \$6,000).** This effort provided funding for several State Historic Preservation Office (SHPO) liaisons in State DOTs to attend the Transportation Research Board (TRB) Summer Meeting. The meeting supported information-sharing among the SHPOs and the realization that liaisons' decisions have significant consequences for transportation planning and project delivery. Additionally, agency representatives developed a mutual understanding that encouraged cooperation and fostered innovations for maintaining lines of communication. Ideas presented during the meeting included development of an online toolkit, webinars geared to SHPOs, technology transfer among agencies, and peer exchanges to maintain dialogue and consistency on key issues.

Bicycle/Pedestrian and Health

Emphasis Area Contact: Gabe Rousseau
Level of FY2009 Funding: \$270,000

- **Outreach and Best Practices on Bicycle and Pedestrian Issues. (FY2009: \$200,000).** In conjunction with AASHTO and the NCHRP, FHWA funded and conducted the International Scan on Pedestrian and Bicyclist Safety and Mobility. The final report on the scan is available at http://international.fhwa.dot.gov/links/pub_details.cfm?id=662. STEP funds also continued to support the National Transportation Enhancements Clearinghouse at <http://www.enhancements.org>.
- **Evaluating the Health and Environmental Benefits of Increased Walking and Bicycling. (FY2009: \$40,000).** Research efforts continued on the Nonmotorized Transportation Pilot Program (NTPP), which studies how improved rates of walking and bicycling promote better health and a cleaner environment. Short summaries about the efforts were published online at <http://www.fhwa.dot.gov/environment/bikeped/ntpp.htm>.

Improved Data and Modeling for Walking and Bicycling Trips. (FY2009: \$30,000). Research efforts continued on the NTPP. The NTPP is using various types of data collection to better

measure walking and bicycling trips. Short summaries about these research efforts, including walking and bicycling counts, were published online at <http://www.fhwa.dot.gov/environment/bikeped/ntpp.htm>.

Noise

Emphasis Area Contact: Mark Ferroni
Level of FY2009 Funding: \$390,000

- **Testing and Validation of FHWA Traffic Noise Model (TNM) Version 3.0. (FY2009: \$390,000).** This effort involves continued development of the FHWA TNM version 3.0. It includes, but is not limited to, developing and refining the multi-lane input tool for TNM roadways, improving TNM report outputs into multiple file formats, and developing various cross-sectional views of analysis areas, such as the skew view. Testing and validation will begin and will be ongoing in FY2010.

Outdoor Advertising Control/Realty Program Management

Emphasis Area Contact: Carolyn James and MaryJane Daluge
Level of FY2009 Funding: \$585,000

- **Support of Stakeholder and Partner Outreach and Informational Dissemination Programs. (FY2009: \$50,000).** Outreach efforts included co-sponsorship of two national meetings, which were attended by ROW and outdoor advertising control professionals, 12 Federal agencies, and 24 State agencies. Outreach also included sponsorship of the Real Estate Community of Practice, which is available at <http://knowledge.fhwa.dot.gov/cops/rex.nsf/home>.
- **Development of a ROW Competency Navigator and Capacity Building and Training Curriculum Clearinghouse provided on the FHWA Website. (FY2009: \$100,000).** Research efforts resulted in the development of a Competency Navigator Tool to help identify training resources and competency building tools for ROW and outdoor advertising control functions. The Navigator will further agencies' efforts to develop ROW professional competency. It will also serve as a resource for partners as well as internal and external customers in defining and developing ROW core competencies. The Navigator can be found at: <http://www.realty.fhwa.dot.gov/navigator.aspx>.
- **Real Estate Acquisition Guide. (FY2009: \$23,000).** An update was completed to the *Real Estate Acquisition Guide* for LPAs. The LPA guide functions as a desktop reference guide for LPAs who acquire realty from Federal-aid projects. The guide can also serve as a self-directed and abbreviated instructional course for LPAs. The revised guide is available online at <http://www.fhwa.dot.gov/realestate/lpaguide>.
- **Use of Incentive Payments in ROW Acquisition and Relocation Programs. (FY2009: \$25,000).** A study was conducted on the use of new tools to streamline acquisition and relocation through voluntary incentive payments. Through this research, FHWA identified criteria used by State DOTs or LPAs to implement incentive programs and evaluated program results or savings. FHWA shared BMPs, criteria, guides, and tools with States considering an incentive program. A report was posted at <http://www.fhwa.dot.gov/realestate/incpeerexch.htm>.

Environmental Streamlining/Stewardship**Emphasis Area Contact:** Shari Schaftlein**Level of FY2009 Funding:** \$1,663,500

- **Assessment of the Surface Transportation Project Delivery Pilot Program: Evaluating FHWA's role in the NEPA Process. (FY2009: \$50,000).** Through this research, FHWA performed two onsite audits of the California Department of Transportation (Caltrans) under the pilot program. In addition, the effort included audit planning, preparing the audit team, developing logistics for the onsite audit, and interviewing Caltrans staff. The audit team reviewed documents, compiled and finalized the findings, and drafted and finalized audit reports for publication in the Federal Register.
- **Environmental Streamlining Outreach and Technology Transfer. (FY2009: \$163,500).** FHWA has made substantial investments in developing methods, tools, and techniques to improve the quality and efficiency of environmental decision-making. Through this research effort, FHWA supported several ongoing technology transfer and outreach initiatives:
 - Maintained and updated the Environmental Review Toolkit, which is available on the FHWA website. The toolkit was accessed by 181,834 users. Please visit <http://www.environment.fhwa.dot.gov/>.
 - Provided continued support for Re: NEPA, the FHWA's extremely active community of practice with over 1,500 environmental professionals as registered users. Please visit <http://nepa.fhwa.dot.gov/>.
 - Published 12 issues of *Successes in Stewardship*, a newsletter that highlighted current environmental streamlining practices from around the country. Please visit <http://www.environment.fhwa.dot.gov/strmlng/es4newsltrs.asp>.
- **Advancing Innovations in FHWA's Environmental Review Process. (FY2009: \$350,000).** FHWA undertook a number of initiatives to advance innovations in the environmental review process:
 - Monitored and documented the impact of the SAFETEA-LU environmental review process. Compiled an internal report on the effectiveness of SAFETEA-LU Section 6002 environmental provisions.
 - Continued the development of performance measurement systems, including the Environmental Document Tracking System, to gather timeliness and project management data.
 - Provided support to the Adaptation Working Group to develop the FHWA strategy on adaptation.
 - Supported the development of a training course on the consideration of environmental factors in construction.

The following research activities had accomplishments in FY2009 but were funded through prior years of STEP funding.

- **Leveraging FHWA and State DOT Environmental Research Projects. (Prior Year Funding: \$105,000).** FHWA undertook the following efforts that leveraged environmental research activities underway by other Federal and State entities:
 - Provided \$100,000 in support of the NCHRP Project 25-33, *Evaluation of Methodologies for Visual Impact Assessments (VIA)*. The objectives of this research were to: 1) evaluate

State DOT VIA procedures, methods, and practices that satisfy or exceed NEPA and other requirements; 2) document the use of the FHWA methodology and methodologies from other agencies, as well as other approaches used by State DOTs; 3) describe decision-making frameworks used by State DOTs to undertake specific VIA techniques for specific projects; 4) document proven successful methods; 5) describe best practices illustrated by model case studies; and 6) document promising new developments and lessons learned.

- Co-sponsored NCHRP20-68A Scan 07-01, the *Domestic Scan on Best Practices in Project Delivery Management*. Six States shared innovations in project management, performance measures, contracting practices and community involvement. Numerous FHWA office representatives participated in the scan and FHWA provided facilities to support a series of five webinars on the findings.
- Organized and supported an advisory panel to review and comment on a Mississippi-led remote sensing research project funded by USDOT and the Research and Innovative Technology Administration. The effort compared and quantified benefits of new and innovative approaches versus traditional methods for completing tasks in transportation planning and completing environmental studies integral to the project development process.
- **Environmental Competency Building (ECB). (Prior Year Funding: \$55,000).** This research effort addressed the current and future multidisciplinary professional development needs of transportation and environmental professionals. FHWA provided continued support to the ongoing ECB program and developed a field entrants' guide for FHWA environmental practitioners. The guide is available at <http://www.environment.fhwa.dot.gov/ecb/search.aspx>.
- **Advancing Innovations in FHWA's Environmental Review Process. (Prior Year Funding: \$480,000).** FHWA undertook a number of new initiatives to advance innovations in the environmental review process:
 - Supported the development of a watershed resource registry, which piloted a tool to evaluate watershed conditions and created a database of watershed sites for the protection of high quality resources, restoration of impaired resources, and the establishment of treatment systems and BMPs.
 - Initiated a contract to provide additional support to the Section 4(f) implementation study team, which is developing two reports to Congress on the implementation of Section 4(f) statute changes.
 - Supported a range of activities to promote and enhance coordination with other State and Federal resource and permitting agencies. These activities included:
 - Completed the State Transportation Liaison Funded Positions Study. The report is available at <http://environment.fhwa.dot.gov/strmlng/index.asp>.
 - Hosted two national liaison peer exchanges in conjunction with research meetings (including the TRB ADC10 summer meeting and ICOET).
 - Established a new USEPA Headquarters research and innovation liaison position within the USEPA Office of Water. This position helps coordinate and monitor policy initiatives and programs, coordinates research, supports outreach on best practices and training opportunities, and supports USEPA regions.

- **Planning and Environmental Linkages (PEL).¹ (Prior Year Funding: \$195,000).** Provided assistance to decision makers, transportation officials, and staff to resolve complex issues faced when addressing transportation needs in support of planning and environmental linkages. FHWA conducted the following activities in support of this research effort:
 - Developed a paper entitled *Eco-Logical: An Ecosystem Approach to Developing Transportation Infrastructure Projects in a Changing Environment*. The paper, which was presented at ICOET, was developed as an output of the Eco-Logical grant program and the interagency working group. The paper and presentation focused on three case studies to understand how the Eco-Logical approach is working in practice.
 - Developed a guide to assist State DOTs and MPOs in developing programs to measure progress toward linking transportation planning and environmental analysis. The guide outlined a framework for establishing measures that transportation agencies can utilize to develop their own measurement programs. To illustrate implementation of the framework, the guide provided four sample objectives. The guide is available at http://www.environment.fhwa.dot.gov/integ/meas_progress.asp.
 - Conducted three sessions of a web conference titled *PEL 101 Webcast: The Tools for Adopting and Implementing a PEL Approach*.
 - Hosted an environmental consultation peer exchange to showcase examples of how State DOTs and MPOs conduct consultations with resource agencies. The peer exchange also identified approaches and notable practices that can facilitate integration of transportation planning and the environmental review process, while fully meeting the consultation requirements of SAFETEA-LU Section 6001.
 - Hosted four Linking Conservation and Transportation Planning workshops.
 - Through a USFWS service agreement, support was provided to develop and present transportation and conservation planning modules through courses and workshops offered by the Conservation Fund's Conservation Leadership Network.

Context Sensitive Solutions

Emphasis Area Contact: Shari Schaftlein

Level of FY2009 Funding: \$500,000

The following research activities had accomplishments in FY2009 but were funded through prior years of STEP funding.

- **Context Sensitive Solutions (CSS) Clearinghouse. (Prior Year Funding: \$450,000).** Since the new CSS Clearinghouse concept was initiated, substantial progress was made in advancing CSS as a tool for efficient program delivery and developing quality projects in support of livable communities and sustainable transportation. The Clearinghouse successfully raised the profile of FHWA's CSS initiative and reached out to other organizations to leverage resources and build new partnerships. The Clearinghouse is available at <http://www.contextsensitivesolutions.org>.

The Clearinghouse launched its new Professional Seminar Series and hosted three webinars on sustainable stormwater management, complete streets, and livability. A fourth webinar was

¹ This was a cross-cutting project in both Environmental Streamlining/Stewardship and Other Activities that Support State/Local/Tribal Planning Capacity Building emphasis areas. Therefore, the project accomplishments listed here reflect accomplishments made within both emphasis areas.

conducted to unveil the new *Guide to Building CSS Knowledge and Skills for Successful Project Delivery* (the "CSS Training Guide").

Three newsletters were written and distributed. The newsletters focused on design flexibility, CSS in corridor planning, sustainability, the CSS Training Guide, complete streets, bicycle/pedestrian activities, and the CSS National Dialog. Additionally, new content was added to the CSS website, including 17 new case studies, 42 calendar items, 68 news items, 80 publications, and 15 web links.

- **CSS National Dialog. (Prior Year Funding: \$100,000).** The CSS National Dialog was launched. A 34-member steering committee was formed to guide the National Dialog. The committee is comprised of a wide range of partner agencies, State DOTs, and other organizations committed to CSS principles. The CSS National Dialog website is available at <http://www.cssnationaldialog.org/index.asp>.

The project served as a catalyst for exchanging ideas and will build momentum for wider implementation of CSS in the transportation industry. The steering committee conducted a nationwide solicitation of CSS best practices, garnering 92 submissions that will be shared with transportation professionals and stakeholders via the CSS Clearinghouse. The committee reviewed submissions, chose several to highlight, and shaped agendas for a series of one-day National Dialog workshops.

The workshops will be held in various locations nationwide. Each workshop will highlight several of the CSS best practices submittals. Transportation projects, plans, and programs will be used to initiate discussion and interaction.

- **CSS Primer. (Prior Year Funding: \$111,000).** The *CSS Primer*, a new, colorful, concise, and useful publication, was finalized and disseminated. The primer contained fundamental information about the definition, principles, benefits, and application of CSS at multiple jurisdictional and procedural levels. The document was intended as an outreach and education tool for broad distribution at conferences, training events, and other forums. The *CSS Primer* is available at http://www.fhwa.dot.gov/context/css_primer.
- **Institute of Transportation Engineers (ITE) Publication – *CSS in Designing Major Urban Thoroughfares for Walkable Communities*. (Prior Year Funding: \$108,000).** An ITE guidebook on CSS for walkable urban thoroughfares was developed and adopted as a proposed recommended practice. The guidebook is available at http://www.contextsensitivesolutions.org/content/reading/ite036_css/

Emphasis Areas Related to Planning

Congestion

Emphasis Area Contact: Harlan Miller
Level of FY2009 Funding: \$750,000

- **Statewide Opportunities for Integrating Operations and Safety into Multimodal Planning. (FY2009: \$290,000).** FHWA and AASHTO developed *Statewide Opportunities for Linking Planning and Operations: A Primer* to raise awareness of the benefits and opportunities of coordinating planning and operations activities within State DOTs. As a follow up, FHWA collaborated with FTA to develop a reference manual titled *Statewide Opportunities for Integrating Operations and Safety into Multimodal Planning*. An initial peer exchange workshop was conducted with a select group of State DOT stakeholders with expertise in operations and safety. The peer exchange workgroup assisted in the development of an outline for the reference manual. A draft version of the reference manual was prepared. Three peer exchange webinars are planned with two stakeholder groups comprised of State DOT representatives. The webinars will focus on discussion of the draft reference manual.
- **Innovative Methods of Applying Analysis Tools in Planning for Operations. (FY2009: \$100,000).** To promote the use of innovative tools as well as demonstrate and encourage innovation in the use of analysis methods for linking planning and operations, case studies were developed with an executive brochure. To encourage message delivery, an innovative analysis workshop was developed and a pilot workshop held to gauge delivery of the product to stakeholders.
- **Defining and Demonstrating Model Transportation Plans Incorporating Management and Operations (M&O) and Associated Safety Benefits. (FY2009: \$250,000).** An initial peer exchange workshop was conducted with a group of MPO stakeholders. The peer exchange workgroup assisted in the development of an outline for an associated reference manual. A draft version of the manual was prepared. A second peer exchange workshop with the same stakeholders was conducted to review the draft manual, which is currently being finalized.
- **Advancing Planning For Operations: A Guidebook for an Objectives-Driven, Performance-Based Approach to Integrating Operations in Metropolitan Transportation Planning. (FY2009: \$108,000).** In collaboration with AMPO, FHWA and FTA conducted the final review of the combined interim guidebooks on M&O and the congestion management process (CMP). In addition, the following activities were conducted:
 - Workshops. A workshop was held to advance the integration of the CMP and M&O strategies in metropolitan transportation planning. The workshop participants shared information that will equip transportation planners and operators from MPOs, State DOTs, transit agencies, and local operating agencies to lead transitions toward an objectives-driven, performance-based approach in their regions, in accordance with SAFETEA-LU in advancing planning for operations. Participants were provided with opportunities to discuss the initiative with FHWA, FTA, and peers; additionally, participants provided feedback on the interim guidebooks.
 - National Highway Institute (NHI) courses. FHWA and FTA continued updating NHI courses to feature an objectives-driven, performance-based approach to transportation planning for operations and the CMP. Additionally, plans were developed to create and develop a one-and-a-half-day course on advancing planning for operations in metropolitan areas.
 - Professional Capacity Building. To aid in outreach, several materials were developed, including fact sheets, case studies, slideshows, and other compilations of examples of the objectives-driven performance-based approach. These materials are linked to the Professional Capacity Building website to facilitate easy access by the transportation community.

- Executive Brochure. To coincide with the development of the guidebooks, an executive brochure is being developed. The brochure focuses on raising awareness about the objectives-driven, performance-based approach at the executive management level.

Safety Planning

Emphasis Area Contact: Lorrie Lau
Level of FY2009 Funding: \$100,000

- **Making the Case for Transportation Safety—Ideas for Decision Makers. (FY2009: \$60,000).** FHWA compiled noteworthy transportation safety practices that were implemented by stakeholders, executives, managers, and practitioners. The noteworthy practices include 20 case studies detailing what States, Tribal governments, MPOs, transit agencies, and their partners have implemented, and described key accomplishments, results, and additional resources. The report is available at http://www.trb.org/Main/Blurbs/Making_the_Case_for_Transportation_Safety_Ideas_for_160275.aspx
- **Safety Performance Measures Primer. (FY2009: \$33,000).** The report, which was titled *A Primer on Safety Performance Measures and the Transportation Planning Process*, documented how to employ safety performance measures during the transportation planning process. The report outlines the benefits of using safety performance measures in planning, as well as basic information providing background on these measures. Seven case studies were included that highlighted the experience and application of States and MPOs in the development and use of safety performance measures. The report also included a high-level, step-by-step approach for developing safety performance measures. The report is available at <http://safety.fhwa.dot.gov/hsip/tsp/fhwahep09043/>.
- **Safety Desk Reference. (FY2009: \$100,000).** The Safety Desk Reference was updated to serve as a companion to NCHRP Report 500 (*Guidance for Implementation of the AASHTO Strategic Highway Safety Plan*). The document describes an overview of transportation safety planning, the potential roles that transportation planners can advance, a framework for incorporating safety into the transportation planning process, available resources, and a menu of safety strategies. The document is available at http://nijc.org/datasheets/ttap/TTAP_Resourceitem.asp?Resource_ID_Number=790
- **NHI/National Transit Institute Transportation Safety Planning Course. (FY2009: In-kind support).** The Safety Conscious Planning two-day course was updated to include SAFETEA-LU requirements on the State Highway Safety Plan and safety planning. All technical reviews and a pilot will be completed; the course will be offered through the NHI website.
- **Safety Fact Sheets. (FY2009: In-kind support).** The fact sheets highlighted biennial data reported by individual States on safety conditions, tracked fatality and injury rates, and provided information on the leading safety issues for each State.
- **Strategic Highway Safety Plan (SHSP) Implementation Process Model (IPM). (FY2009: In-kind support).** Through this effort, FHWA produced the IPM, a model and template that helps States to implement their SHSP. The IPM also provides guidance to States to collaborate with

partners—including safety organizations, enforcement agencies, and MPOs—to develop a strategic plan.

Freight Planning**Emphasis Area Contact:** Spencer Stevens**Level of FY2009 Funding:** \$200,000

- **Freight Planning. (FY2009: \$200,000).** FHWA conducted research to promote activities on the integration of freight into the transportation planning and programming processes at the State and metropolitan levels. Examples of such research include:
 - Delivery of the Financing Freight Improvements workshop.
 - Development of a *Guidebook for Engaging the Private Sector in Freight Transportation Planning*. The guidebook is available at <http://www.fhwa.dot.gov/freightplanning/guidebook/index.cfm>.
 - Integration of the "Evaluation of Freight Corridor Projects" research into the CMP.
 - Development of a *Freight and Land Use Resource Guide/Handbook* and related workshops.
 - Development of a *Freight and the Environment Guidebook*.
 - Development of a *Freight and Air Quality Handbook*.
 - Planning for the 2010 International Scan on Policy and Program Structure of National and International Freight Corridor Programs.
 - Planning for the FHWA/AASHTO Freight Partnership IV meeting, which will be hosted by the Mid-America Regional Council in Kansas City, Missouri.

The following research activities had accomplishments in FY2009 but were funded through prior years of STEP funding. Accomplishments can be reported for four freight projects, all of which have been arranged through the BAA process.

- **Freight Analysis and Planning Model. (Prior Year Funding: \$152,705).** This research enhanced work previously conducted on the Argos freight model for the Southern California region in estimating intra-metropolitan and regional freight flows. The research provided a functional model that can be integrated with an existing travel demand forecasting software package.
- **Developing a Guidebook for Engaging the Private Sector in Freight Transportation Planning. (Prior Year Funding: \$75,000).** A best practices guidebook was developed that complemented the FHWA Resource Center's workshop on engaging the private sector in freight planning. The guidebook is available at <http://www.fhwa.dot.gov/freightplanning/guidebook/index.cfm>.
- **Building Capacity between Public and Private Sectors in the Freight Community. (Prior Year Funding: \$100,000).** Through this effort, the National Association of Regional Councils (NARC) in coordination with FHWA:
 - Hosted two peer exchanges and a Web-based freight summit meeting.
 - Developed a resource manual.
 - Identified possible performance measures in involving the private sector in freight planning.

NARC also distributed to its stakeholders *Building Planning Capacity Between Public and Private Sector Partners in the Freight Industry: A Resource Manual*. The document was released and is available in portable document format (PDF) on NARC's website at http://ops.fhwa.dot.gov/freight/resources/current_news/news.cfm?ID=305

- **Integrating the Evaluation of Freight Corridor Projects into the CMP and Long-Range Transportation Planning. (Prior Year Funding: \$60,000).** Through this research supported by FHWA, the Puget Sound Regional Council (PSRC) collected truck data in the Puget Sound Region, developed freight performance measures, and incorporated the data into the CMP and metropolitan transportation plan using simulation tools and other congestion management strategies. The PSRC also documented the effort so that it can be replicable in other regions. PSRC distributed the final report to its stakeholders and presented results at various conferences.

Public Involvement, Environmental Justice, Visualization in Planning

Emphasis Area Contact: Frederick Bowers and Brenda Kragh

Level of FY2009 Funding: \$200,000

- **Community Impact Assessment (CIA) Website Support. (FY2009: \$13,000).** FHWA supported the CIA website (www.ciatrans.net), which is administered by the Center for Urban Transportation Research at the University of South Florida. The CIA website serves as an information clearinghouse for transportation officials, regional development professionals, and public stakeholders who are interested in evaluating the effects of transportation planning and project implementation on a community and its quality of life.

The following research activities had accomplishments in FY2009 but were funded through prior years of STEP funding.

- **Public Involvement Website Support. (FY2009: In-kind support).** FHWA supported the Public Involvement website, which provides information to stakeholders on potential transportation project impacts to the community. The website also provides information on how project sponsors can incorporate early and continuing public involvement to better identify potential impacts to the community and address these issues early in project development. Early and continuing public involvement can help support attempts to avoid or minimize impacts in a manner that is acceptable to all parties involved.
- **Guide to Transportation Decisionmaking. (FY2009: In-kind support).** FHWA updated the *Guide to Transportation Decisionmaking* to help interested parties understand how transportation decisions are made at the local, State, and national levels and help stakeholders take advantage of opportunities to contribute ideas. The guide is available at <http://www.fhwa.dot.gov/planning/decisionmaking/>

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

Emphasis Area Contact: Kenneth Petty

Level of FY2009 Funding: \$2,600,000

- **Best Practices in Transportation Planning: Performance Measures, Environmental Mitigation, and Fiscal Constraint. (FY2009: \$360,000).** In FY2009, research examined how States and MPOs responded to SAFETEA-LU requirements and identified best practices in transportation planning, specifically in the areas of performance measures, environmental mitigation, long-range transportation planning, and fiscal constraint.

- **Peer Exchange Executive Roundtable: Performance-Based Planning and Programming. (FY2009: \$141,000).** The objective of the executive roundtable was to organize, facilitate, and report on performance-based transportation planning and programming. The roundtable provided an opportunity for FHWA and its partners to identify a workable definition for performance-based planning and programming by framing a realistic, achievable, performance-based planning and programming approach.

Management Practices in Developing Fiscal Constraint for Statewide Transportation Improvement Programs (STIPs), Transportation Improvement Programs (TIPs), and Metropolitan Transportation Plans (MTPs). (FY2009: \$25,000). The objective of the domestic scan on management practices was to identify best practices and research the economic forecasting processes necessary to develop accurate financial forecasts. The audience included all transportation professionals involved in estimating project costs, forecasting revenue, developing financial plans, TIPs, STIPs, and MTPs, and demonstrating statutorily required financial constraint.

- **Transportation Planning Capacity Building (TPCB) Peer Program Development and Coordination. (FY2009: \$100,000).** Professionals at all levels need resources that help them gather knowledge, build skills, and stay aware of the state-of-the-practice. The TPCB Peer Program responded to this need by organizing, facilitating, and documenting events to share noteworthy practices among agencies facing an increasingly complex transportation planning environment. During peer events, transportation planning staff interacted with peers to share information, accomplishments, and lessons learned from the field and address shared planning challenges.
- **TPCB Program Website. (FY2009: \$115,000).** The TPCB Program is a joint venture of FHWA and FTA. TPCB delivered products and services that provided information, training, and technical assistance to the transportation professionals responsible for planning for the capital, operating, and maintenance needs of the nation's surface transportation system. The TPCB website served as a one-stop clearinghouse for state-of-the-practice transportation planning information and resources. The website offered planning news and events, regulations, policies, training information, technical resources, and peer exchange reports. The website is available at <http://www.planning.dot.gov/>.
- **Capturing and Reflecting True Transportation System Operating and Lifecycle Costs in the Planning Process. (FY2009: \$42,000).** The concept of transportation asset management is a relatively new concept in the transportation field. However, the concept has many, well-documented benefits. This working paper provided a comprehensive synthesis of literature on transportation asset management and how it has affected the conditions of highway infrastructure and the financial health of transportation agencies.
- **Land Use Toolkit Support. (FY2009: \$30,000).** FHWA updated the FHWA-hosted Linking Land Use and Transportation Planning Toolkit with current information about consensus, collaboration building, and development of outreach and information dissemination strategies. The toolkit is available at <http://www.fhwa.dot.gov/planning/ppasg.htm>.

- **Megaregions. (FY2009: \$30,000).** FHWA developed a white paper on issues related to development of a Federal megaregions planning framework and policies that considered key concepts. The white paper also discussed examples of successful megaregion planning, issues related to developing a megaregion planning framework, observations, and implications for emerging Federal and State policies related to livability, sustainability, performance measures, and climate change. The white paper is available at <http://www.fhwa.dot.gov/planning/megaregions.htm>.
- **Assessment Survey of the Statewide Long-Range Transportation Plans. (FY2009: \$75,000).** Through this research, FHWA examined how States responded to SAFETEA-LU requirements and identified best practices in transportation planning as reflected in State long-range transportation plans.
- **Scenario Planning Workshops. (FY2009: \$105,000).** The project involved development of the next generation of scenario planning workshops that are participative and include interactive exercises. The project also included research on emerging transportation trends and innovative scenario planning practices. Data collected will be used to redesign and pilot a new scenario planning workshop. More information on scenario planning workshops is available at <http://www.fhwa.dot.gov/Planning/scenplan/index.htm>.
- **Visualization. (FY2009: \$100,000).** FHWA developed and tested a pilot project that incorporated benefit and cost analysis in the visualization of transportation alternatives.
- **Tribal Modules. (FY2009: \$50,000).** FHWA developed the Tribal Transportation Planning Module Training Series to provide modules for eight planning topics. The modules were designed to assist transportation professionals on planning for capital, operating, and maintenance needs on Tribal lands.

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

Emphasis Area Contact: Roger Petzold

Level of FY2009 Funding: \$525,000

- **U.S./Mexico Transportation Joint Working Committee. (FY2009: \$250,000).** See www.borderplanning.fhwa.dot.gov/mexico.asp for additional information. Project accomplishments included the following:
 - Conducted border travel time studies to provide baseline information. These baseline data will be used to develop performance measures to evaluate the success of improvement projects, policies, and strategies. The following four pilots are underway:
 - El Paso Border Wait Time Study.
 - San Diego Border Wait Time Study (completed).
 - Nogales Border Wait Time Study.
 - Pharr Border Wait Time Study.
 - Completed Bottlenecks Study Phase II+ for Nogales, Arizona and Nogales, Sonora, Mexico.
 - Conducted two traffic studies (for Nogales, Arizona and Pharr, Texas).
 - Hosted a traffic forecasting and travel demand modeling peer exchange meeting to improve planning along the U.S./Mexico border.

- Completed the regional border master plan along the U.S./Mexico border between California and Baja California. This is the first in a series of comprehensive transportation border master plans for the border regions.
- **U.S./Canada Transportation Border Working Group (TPWG). (FY2009: \$275,000).** Project accomplishments included:
 - Conducted a study on the cost of delay to transportation along the U.S./Canada border. This study developed a methodology to quantify delay cost on a regional basis.
 - Conducted a border data needs workshop. The workshop evaluated currently available data, potential new data sources, and identified data gaps. Based on this input, a report was developed on actions to take to fill the data gaps.
 - Conducted a study of data needs and sources along the U.S./Canada border for enhanced transportation planning and operations. This study is a follow up to the enhanced border data needs workshop.
 - Enhanced information exchange by developing a TBWG “Border Glossary” website section and updating the “Links” and “Library” sections of the website.
 - Developed an online inventory of land border crossings. Completed data entry for 120 land border crossings (including facilities and infrastructure projects) to coordinate infrastructure investments along the border.
 - Conducted a regional border workshop. Quebec and New York conducted a workshop to discuss ways to enhance transportation in the border region. A second workshop is scheduled.
 - Conducted the binational border wait time study with the USDOT, Transport Canada, the U.S. Bureau of Customs and Border Protection, and the Canadian Border Service Administration. This joint study defined a standard way to measure border wait time. Two pilots will be conducted.

The following research activities had accomplishments in FY2009 but were funded through prior years of STEP funding.

- **National Border Planning Activities. (Prior Year Funding: \$30,000).** Project accomplishments included conducting a national conference titled “North American Freight Flow Conference: Understanding Changes and Improving Data Sources.” This conference was held in Irvine, California, with participation from transportation agencies from the U.S./Mexico and U.S./Canada regions. The purpose of the conference was to identify improved ways to change freight plans between the three countries.

National Security, Defense, and Interstate Planning

Emphasis Area Contact: Stefan Natzke

Level of FY2009 Funding: \$600,000

- **National Highway System (NHS) Designation and Product Development. (FY2009: \$160,000).** In FY2009, this research continued to update NHS maps and the NHS geospatial information system network. Official NHS maps for numerous States were updated. The updates are available at <http://www.fhwa.dot.gov/Planning/nhs/>.

The following research activities had accomplishments in FY2009 but were funded through prior years of STEP funding.

- **Monitoring of Case Studies: Interstate and NHS Economic Development. (Prior Year Funding: \$97,000).** A report was developed including an inventory and review of websites and information as well as recommendations for improvement. Research is being conducted in coordination with the Strategic Highway Research Program 2 (SHRP2) Project C03 (*Interactions between Transportation Capacity, Economic Systems, and Land Use merged with Integrating Economic Considerations Project Development*) and Project C11 (*Development of Improved Economic Analysis Tools Based on Recommendations from Project C03*). The report findings and coordinated SHRP2 research resulted in the selection and enhancement of two study corridors for use on the FHWA economic development website. These enhancements will be highlighted on updated study webpages. Upon approval, these webpages will be posted and used as templates for other studies.

Emphasis Areas Related to Tools to Support Planning and Environment

Travel Modeling

Emphasis Area Contact: Sarah Sun
Level of FY2009 Funding: \$1,170,000

- **Support Ongoing Travel Model Improvement Program (TMIP) Efforts. (FY2009: \$500,000).** TMIP outreach consisted of providing travel modeling webinars, supporting the TRB transportation planning conference, providing virtual technical support, and supporting the travel modeling document clearinghouse, the TMIP website, and email list. Detailed descriptions of activities are available at <http://tmip.fhwa.dot.gov/>.
- **Peer Review Program and Peer Exchange. (FY2009: \$250,000).** Travel models help practitioners make well-informed transportation policy decisions by illustrating the likely effects of policy changes on the transportation network. Travel models can also show how changes in employment, population, land use, development patterns, and investments in transportation infrastructure might affect travel in a region. A model's data and design have to be sufficient to generate reasonable forecasts under a variety of scenarios. A peer review is one of the best ways to assess a model's capabilities. A peer review also provides opportunities to obtain feedback on how to address the modeling requirements necessary to support informed policy decisions. TMIP's Peer Review Program works with modeling experts around the country to review transportation planning agencies' models. These experts make recommendations on how agencies should proceed with model enhancements to ensure that techniques being developed or implemented meet current and future needs. The TMIP Peer Review Program supported four peer reviews in 2009. Reports are available at http://tmip.fhwa.dot.gov/resources/peer_review/status.
- **Census and National Household Travel Survey Microdata Research and Technical Assistance. (FY2009: \$90,000).** Four out of five profile sheets were prepared and are posted on the AASHTO webpage at <http://ctpp.transportation.org/Pages/profiles.aspx>. These profiles incorporate data from the American Community Survey (2005-2007) three-year data, the CTPP 2000, and the 2000 Census. The remaining profile is being prepared by the Census Bureau. When completed, all materials will be converted to hypertext markup language and posted on the FHWA webpage.

- **Travel Forecasting Resources. (FY2009: \$220,000).** FHWA and TRB are building a dynamic, community-developed reference for travel forecasting. It is a unique initiative for both organizations. The effort began in 2009 and consensus building and coordination continued into 2010. A rollout is planned for the January 2011 TRB Annual Meeting.

GIS/Spatial Information for Improved Decision Making

Emphasis Area Contact: Mark Sarmiento

Level of FY2009 Funding: \$405,000

- **Best Practices and Case Studies. (FY2009: \$90,000).** Four case studies are planned. The first case study was developed and focused on best practices, benefits, challenges, and lessons learned in the use of web 2.0 transportation-related technologies. The report is available at <http://www.gis.fhwa.dot.gov/reports.asp>.
- **Peer Exchanges. (FY2009: \$140,000).** FHWA conducted two peer exchanges focused on geospatial technology applications in transportation, including bicycle/pedestrian applications and geospatial applications used in an ecosystem approach to develop infrastructure projects. Summary reports of the peer exchanges were completed and are available at <http://www.gis.fhwa.dot.gov>. Three remaining peer exchanges are planned.
- **Webcasts on the Application of GIS and Spatial Information. (FY2009: \$25,000).** Four quarterly webcasts were delivered on the following topics:
 - Enterprise GIS (by Florida DOT).
 - Multi-level linear referencing systems (by Iowa DOT).
 - The evolution of the Maryland State Highway Administration's (SHA) road centerline and the One Maryland, One Map initiative (by Maryland SHA and the Maryland Governor's Office).
 - Multi-level linear referencing systems and the Event GeoLocator application (by Nevada DOT).
- **Enhancement of the GIS Screening Tool. (FY2009: \$100,000).** FHWA is supporting the USEPA Region 6 to expand their GIS screening tool to add data on four states bordering Texas, including Arkansas, Louisiana, Oklahoma, and New Mexico. The purpose of the tool is to assist USEPA's Region 6 NEPA Program in expanding its capability to assess and evaluate potential environmental impacts resulting from highway construction activities.

The following research activities had accomplishments in FY2009 but were funded through prior years of STEP funding.

- **Applications of Three Dimensional (3D)/GIS Visualization Peer Exchange. (Prior Year Funding: \$30,000).** A peer exchange was held in Raleigh, North Carolina, and focused on applications of 3D/GIS visualization technologies and techniques. The peer exchange was hosted by the North Carolina DOT with representatives from North Carolina as well as the Baltimore Metropolitan Council, Caltrans, Minnesota DOT, New York State DOT, Volusia County MPO, and Washington State DOT. A summary report of the peer exchange was developed.

Program Management and Outreach**Emphasis Area Contact:** Felicia Young**Level of FY2009 Funding:** \$1,000,000

- **STEP Program Outreach. (FY2009: \$350,000).** Several STEP outreach efforts occurred including:
 - The STEP/SHRP/NCHRP coordination meeting.
 - The University Transportation Center (UTC)/STEP coordination meeting.
 - Presentations at numerous national meetings.
 - STEP webinar.
 - Submittal of information regarding current STEP research to the Research in Progress Database.

Additionally, coordination efforts were undertaken to assist in developing and implementing research initiatives within the SHRP2 Capacity Research Plan and the NCHRP. A Federal Register Notice was issued to solicit feedback for the FY2010 STEP.

- **Website Support for HEP Research and Programs. (FY2009: \$300,000).** The following STEP documents were posted on the STEP website:
 - Federal Register Notice.
 - FY2010 STEP implementation strategy.
 - STEP FY2010 Bulletin.
 - STEP FY2008 annual report.
 - STEP: Transportation and Climate Change Bulletin.
 - FY2008 accomplishments fact sheet.
 - STEP 5/13/2009 webinar PowerPoint presentation.
 - STEP brochure.
 - STEP PowerPoint presentation.
 - STEP frequently asked questions.
 - FY2009 STEP research plan overview.
 - FY2009 STEP research plan.
 - FY2009 STEP emphasis area contact list.
 - FY2009 STEP related proposal requests.
- **Financial Management Support for STEP and Planning and Environment Research and Program Initiatives. (FY2009: \$350,000).** Approximately 122 procurement requests and two allocation memos were processed 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 A

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.

In FY2009, 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 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

Stakeholder outreach, feedback, and participation in research efforts are critical to successful implementation of the STEP. In FY2009, stakeholder outreach included use of the Web-based feedback system. Using this system, stakeholders targeted feedback towards one of the 17 emphasis areas or submitted general comments. FHWA staff representatives for each emphasis area consulted the stakeholder feedback to coordinate and develop the FY2009 STEP research plan, which listed research priorities for the coming year and corresponding funding amounts. FHWA received over 400 pieces of feedback in FY2009 from the Web-based system.

STEP emphasis area contacts communicated by phone and email to encourage stakeholders to use the Web-based feedback system. The purpose of this outreach was to underscore the importance of submitting feedback and research suggestions through the online feedback mechanism during the FY2009 comment period (June 23 through September 22, 2008). Emphasis area contacts also

Notable Quotes from Stakeholders

"Thank you for the opportunity to provide input. The STEP program represents a rare opportunity for an individual citizen to suggest research priorities for the Federal government."

-Individual citizen

"The STEP program is a great idea."

-Local government stakeholder

"Keep up the good work."

-Individual citizen

represented the STEP program on websites and in various publications. Information reached hundreds of stakeholders.

Stakeholders were directly involved in prioritizing research needs during stakeholder outreach meetings, committee meetings, or by commenting on the progress of research studies. Through all of these activities, FHWA ensured that feedback informed technical research, findings were applied and implemented, and the transportation community was connected, informed, and successful.

Stakeholder Outreach Activities Conducted

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 for the FY2009 STEP follows below.

Outreach efforts centered on attendance at events, conferences, workshops, roundtables, task groups, and in-person meetings. Information was delivered through email and other electronic forums, including webinars, online newsletters, and online clearinghouses. Web-based outreach also included a series of virtual office sessions that communicated technical knowledge to a broader stakeholder community. Outreach activities reached all stakeholder tiers, including Federal agencies, State DOTs, MPOs, the academic community, and non-profit environmental organizations.

Meetings and conference participation included summer and annual TRB meetings and other events, such as the International Conference on Ecology and Transportation (ICOET), the TRB National Transportation Planning Applications Conference, the Freight Partnership III workshop sponsored by FHWA and AASHTO, the National Mitigation Banking Association meeting, the 2009 Mid-Atlantic Regional Planning Roundtable, the National Conference of State Historic Preservation Organizations' (SHPO) annual meeting, the United Southern and Eastern Tribes' annual meeting, the National Trust for Historic Preservation annual conference, the Transportation, Planning, Land Use and Air Quality conference, and several binational working group meetings focused on cross-border issues.

The purpose of these in-person meetings and conference presentations was 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.

Telephone outreach included conference calls as well as one-on-one calls. These efforts connected FHWA staff with representatives from staff at non-governmental and professional organizations, advocacy groups, and Federal partner agencies. Email and website outreach also connected FHWA staff with representatives from State DOTs, MPOs, rural planning organizations, researchers, and other stakeholder groups. Email outreach included messages disseminated through stakeholder group listservs and email distribution lists.

STEP information was distributed through several publications, including FHWA's online monthly publication, *Transportation Conformity Highlights*, which is widely distributed to all transportation and air quality agencies, and the monthly *Transportation and Climate Change* newsletter. Emphasis area contacts also provided STEP information through websites, such as the FHWA-sponsored Pedestrian and Bicycle Information Center and the AASHTO Center for Environmental Excellence's Transportation Environmental Research Ideas Database.

Program managers and STEP program support staff undertook outreach via online publication of several STEP documents, including the FY2010 STEP Implementation Strategy, the STEP FY2010 Bulletin, the FY2008 Annual Report, the FY2009 Research Plan, and a bulletin on STEP research efforts relating to transportation and climate change. Additional outreach activities included two webinar presentations on STEP that provided an overview of the program and research activities.

FEEDBACK OVERVIEW

Over 400 comments were received by the Web-based feedback system between June and September 2008. In some cases, organizations or associations submitted feedback to several different emphasis areas that pertain to their work.

Some emphasis areas (e.g., Bicycle/Pedestrian and Health) received a great deal of comments and most of the 17 emphasis areas received at least one comment. No comments were received under the National Security, Defense, and Interstate Planning emphasis area.

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

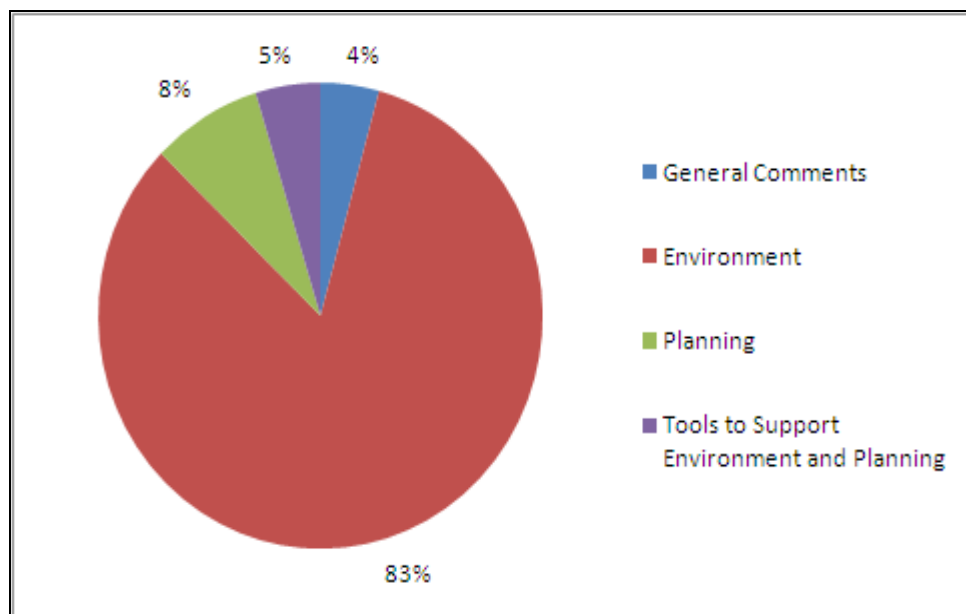


Figure 3: Distribution of Feedback by Program Area (FY2009)

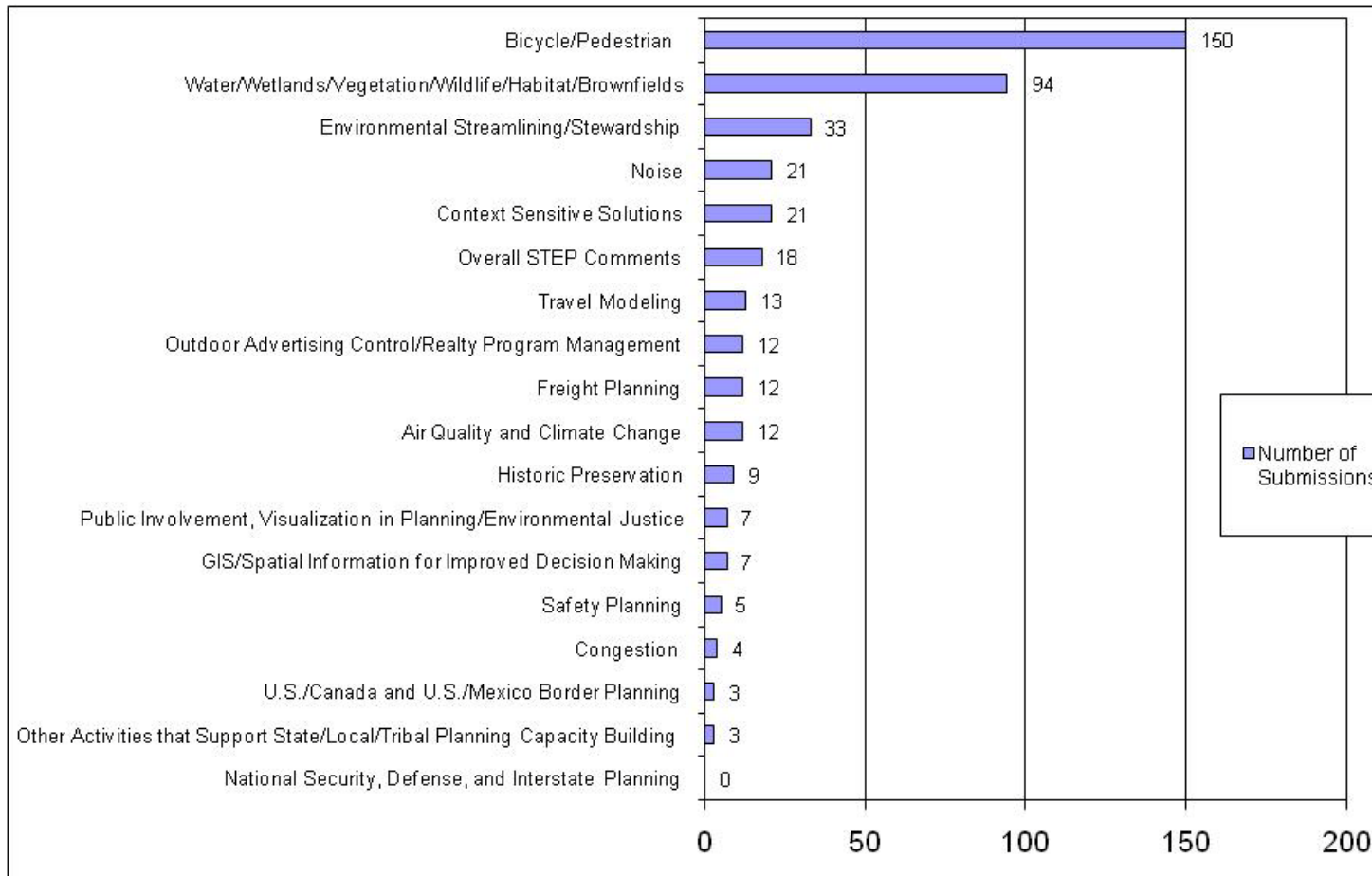


Figure 4: Distribution of Feedback by Individual Emphasis Area (FY2009)

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 FY2009 comments; see the tables that follow for a distribution of comments.

Table 1: Distribution of Feedback by Affiliation Type

	424	100%
Federal and Tribal Government	64	15%
State Government	108	25%
Local Government	53	13%

National Association	26	6%
Private Sector	47	11%
Research/Academic	37	9%
Individual Citizen	62	15%
Other	27	6%

Table 2: Distribution of Feedback by Tier

	424	100%
Tier 1	64	15%
Tier 2	161	38%
Tier 3	199	47%

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 2008 that pertains to each of the 17 emphasis areas as well as overall feedback on the STEP.

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

Environment Emphasis Areas:

- [Air Quality and Global Climate Change](#)
- [Water/Wetlands/Vegetation/Wildlife/Habitat/Brownfields](#)
- [Historic Preservation](#)
- [Bicycle/Pedestrian and Health](#)
- [Noise](#)
- [Outdoor Advertising Control/Realty Program Management](#)
- [Environmental Streamlining/Stewardship](#)
- [Context Sensitive Solutions](#)

Planning Emphasis Areas:

- [Congestion](#)
- [Safety Planning](#)
- [Freight Planning](#)
- [Public Involvement, Environmental Justice, Visualization in Planning](#)
- [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](#)

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 Global Climate Change

Twelve comments were submitted to the Air Quality and Global Climate Change emphasis area. Approximately 8% of comments came from Tier I stakeholders and 58% of comments came from Tier II. The remaining 33% of comments came from Tier III, with feedback from the private sector, research/academic institutions, individual citizens, and other sources. There were no comments from national associations in this emphasis area.

Many of the research suggestions in this area focused on efforts that linked the transportation system with local or regional development patterns, climate change issues, and air pollution, especially pollution related to greenhouse gases. Suggestions specifically focused on using a megaregion approach to develop climate change adaptation strategies or implementing project-level air quality monitors to supplement the regional air quality monitoring network. One stakeholder suggested researching the capability of social marketing strategies to reduce air emissions. Similarly, another stakeholder suggested research on how 'person-to-person' marketing can help employers develop transit incentive programs for employees.

There is some current and planned research in this area, including several research initiatives on megaregions. For example, a symposium series on megaregion planning coordinated by the Center for Quality Growth and Regional Development at the Georgia Institute of Technology. Other current research efforts include a state project to gather fuel data relevant for use in emissions models, as well as state-level research on social marketing.

Several potential funding sources were identified, including possible partnerships with the public health community, such as the Robert Wood Johnson Foundation. Federal sources could include the National Resources Conservation Service (NRCS), USFWS, the U.S. Forest Service (USFS), USEPA, and BLM. Other suggested funding sources included AASHTO, The Nature Conservancy (TNC), and the Shell Foundation.

Water/Wetlands/Vegetation/Wildlife/Habitat/Brownfields

A total of 94 comments were submitted to the Water/Wetlands/Vegetation/Wildlife/ Habitat/ Brownfields area. Approximately 35% (33) of comments came from Tier I stakeholders, 31% (29) of comments came from Tier II stakeholders, and 34% (32) of comments came from Tier III stakeholders.

Research suggestions in this area focused on continuing support for the AASHTO National Stormwater Conference, studying the environmental effects of bridge and road chemicals, and evaluating the impact of roads and road construction on water quality, plant life, and both wildlife habitat and connectivity. Many stakeholders recommended studies on best practices for managing stormwater runoff and mitigating wildlife-vehicle interactions. Managing threats to plant and wildlife from invasive species was another common research theme, as was the use of native plants for wildlife and ecological restoration projects or roadside revegetation. Soil was an additional area of comment; several stakeholders mentioned research to develop construction techniques or other best practices to minimize soil erosion. Finally, several research suggestions focused on sustainable and cost-effective landscape design. For example, a Tier I stakeholder proposed a study on roadway vegetation that can illustrate cost-savings from mowing minimization as well as benefits from reducing emissions.

Stakeholders mentioned many current and planned research projects in this area, including work in the Federal arena, such as USEPA, BLM, and USFWS, as well as at State DOTs. In addition, there are ongoing initiatives in the research/academic sectors and at national associations. For example, TNC is working on watershed-based mitigation planning in South Carolina. There are a few statewide efforts sponsored by State DOTs, such as research on native plant species at the Alaska Department of Natural Resources.

Many potential funding sources were cited, including the USEPA, the National Oceanic and Atmospheric Administration National Marine Fisheries Service, USFS, NRCS, the U.S. Geological Survey, USDA, State departments of agriculture or natural resources, State DOTs (especially Transportation Enhancement funds), the National Fish and Wildlife Foundation, TNC, and other public and private sources.

Outdoor Advertising Control/Realty Program Management

Twelve comments were submitted to the Outdoor Advertising Control/Realty Program Management emphasis area. Approximately 25% (3) of comments came from Tier I stakeholders. Approximately 33% (4) of comments came from Tier II stakeholders and 42% (5) of comments came from Tier III stakeholders. There were no comments from local government, the research/academic sector, individual citizens, or other sources. Four comments in this emphasis area came from one stakeholder and two comments came from another stakeholder.

Research suggestions focused on developing tools and resources to consider the social and economic impacts of land acquisition and displacement, studying best practices for procuring rights-of-way, especially in the context of a design/build project, and supporting the NAHBA annual conference. Several stakeholders mentioned supporting peer exchanges on design/build and right-of-way visualization techniques. Finally, a Tier II stakeholder suggested research on developing a 'how-to' guide for resolving outdoor advertising control issues.

There was some current and planned research in this area, including an effort from AASHTO to survey State DOTs on outdoor advertising control issues. Several projects are being conducted at State DOTs including one at the Rhode Island DOT that focuses on visualization of property acquisition. The NAHBA annual conference to discuss Federal regulation of outdoor advertising is another current activity. Stakeholders identified Federal or State DOT funds as potential funding sources.

Environmental Streamlining/Stewardship

A total of 33 comments were submitted to the Environmental Streamlining and Stewardship emphasis area. Approximately 21% of comments came from Tier I and 52% of comments came from Tier II stakeholders. Approximately 27% of comments came from Tier III, with feedback from the private and research/academic sectors as well as national associations and other sources. There were no comments from individual citizens.

Many research suggestions in this area focused on support of the AASHTO National Stormwater Conference. Several Tier III stakeholders also mentioned research to improve understanding of approaches to integrate watershed and habitat fragmentation considerations into transportation planning and development. Other areas of comment were on implementing NEPA and streamlining highway project development. Studies on wildlife/landscape and wildlife/highway interactions, specifically wildlife crossing sites, were also recommended. Finally, several stakeholders mentioned research on green infrastructure building/planning and environmental mitigation strategies. One stakeholder suggested a comparative cost study of green transportation infrastructure with a 'business as usual' scenario.

There was some current and planned research in this area, including planned AASHTO National Stormwater Conferences and several university studies on wildlife/vehicle interactions, mapping invasive species on U.S. highways, and other areas. A few local governments and several State DOTs have also planned or conducted research in this area. State DOT research has focused on collaboration efforts for gathering environmental data or construction to minimize wildlife/vehicle impacts. The U.S. Institute for Environmental Conflict Resolution has engaged in a number of research activities related to environmental streamlining and stewardship, such as conducting training courses and workshop planning. The TRB Committee on Environmental Analysis in Transportation has also identified emerging areas of interest in this area.

Potential funding sources included FHWA, the Bureau of Indian Affairs, State DOTs, national foundations, or universities. From the private sector, car insurance agencies were mentioned as another potential funding source. Other sources included Robert Wood Johnson Active Living by Design grants and McIntyre-Stennis funds.

Context Sensitive Solutions (CSS)

A total of 21 comments were submitted to the CSS emphasis area. Approximately 24% of comments came from Tier I and 43% of comments came from Tier II stakeholders. Tier III represented the remaining 33% of comments, with feedback from the private and research/academic sectors as well as national associations and other sources. There were no comments from local governments or individual citizens.

The research suggestions in this area focused on compiling, evaluating, and disseminating CSS principles, best practices, and lessons learned to stakeholders. Several comments focused specifically on researching state or local approaches to implementing CSS as well as states' performance measures for CSS efforts. Other areas of comment were on using CSS as a mitigation strategy for climate change, integrating CSS with FHWA's PEL approach, and using CSS to facilitate the public involvement process for transportation planning. Finally, several stakeholders mentioned using CSS for Federal land management. For example, one Tier I stakeholder recommended developing and delivering a CSS pilot

course applicable to Federal Lands Highway and the Federal land management agencies that serve as partners in delivery of the Federal Lands Highway Program.

There was some current and planned research in this area. Stakeholders reported several CSS-related efforts in the academic sector and at two State DOTs. The National Highway Institute offers several courses related to CSS.

Several potential funding sources were mentioned, including the National Institutes of Health, the World Bank, Federal and State agencies, environmental or educational grants, state historic preservation offices, and the private sector. Other suggestions related to funding sources were developing multi-state pooled studies or citizen subscription models.

Bicycle/Pedestrian and Health

A total of 150 comments were submitted to the Bicycle/Pedestrian and Health emphasis area. Approximately 5% of comments came from Tier I stakeholders and 23% of comments came from Tier II. The remaining 72% of comments came from Tier III, with feedback from the private sector, research/academic institutions, individual citizens, national associations, and other sources.

The research suggestions in this area focused on several key themes, including increasing support for general non-motorized transportation research and exploring links between non-motorized transportation and safety, the environment, health, congestion, and climate change. Another key theme focused on integrating non-motorized infrastructure with other transportation modes, such as designing bicycle storage areas at transit locations or adding bicycle lanes to roads. Many stakeholders commented on supporting data collection on bicycling to better quantify bicycling needs at the local, city, and statewide levels. An additional area of suggestion was on promoting bicycle education, especially on the Safe Routes to School program and 'sharing the road' principles for both vehicle drivers and bicyclists. Finally, many comments focused on improving the safety of non-motorized users and routes, such as by maintaining or updating bike paths and pedestrian trails.

There is some current and planned research in this area, including several research initiatives underway in Federal and city government, State DOTs, the private and academic sectors, and at national associations and independent foundations working on a regional level. Research is also ongoing at the local grassroots level. Some school districts are engaged in research specifically focused on Safe Routes to School programs and bicycle safety. Several stakeholders mentioned research occurring in Europe that is focused on bicycle and pedestrian activities.

Stakeholders identified many potential funding sources, including FHWA, USEPA, State DOTs, city and local government agencies, MPOs, UTCs, the National Highway Traffic Safety Administration, the Centers for Disease Control and Prevention, and health organizations such as the Robert Wood Johnson Foundation. Other potential sources included the private sector (such as bicycle retailers and advertising agencies).

Historic Preservation

Nine comments were submitted to the Historic Preservation emphasis area. No comments were received from Tier I stakeholders. Approximately 44% of comments came from Tier II and 56% of comments came from Tier III stakeholders, including the private sector, individual citizens, and other sources. There were no comments from local government, national associations, or the research/academic sector.

Research suggestions in this area focused on support for SHPOs to attend meetings such as the TRB conference, and linking historic sites to recreational trails, especially horseback-riding trails. Another stakeholder mentioned research that could identify points in the transportation planning process that would benefit from considering historic preservation issues. Several comments focused on historic bridges. For example, one Tier II stakeholder suggested a study of the marketing and donation of historic bridges. Another Tier III stakeholder suggested an analysis and summary of historic bridge management plans and programmatic agreements.

There was some current and planned research in this area, including projects at State DOTs to develop historic resource evaluation criteria and efforts coordinated by AASHTO.

Potential funding sources included the AASHTO, TRB, NCHRP, the National Conference of SHPOs, or other sources from the private sector, such as SRI.

Noise

A total of 21 comments were submitted to the Noise emphasis area. Approximately 10% (2) of comments came from Tier I stakeholders. Approximately 62% (13) of comments came from Tier II stakeholders and 29% (6) of comments came from Tier III stakeholders. There were no comments from local government, the research/academic sector, individual citizens, or other sources.

Many research suggestions in this area focused on updating the Traffic Noise Model (TNM) version 2.5 as well as completing TNM version 3.0. Stakeholders also recommended exploring links between road surface materials, road noise, and impacts to neighboring communities and wildlife. For example, a Tier III stakeholder suggested research to test low-cost, sound absorptive products made from recycled materials that can abate rail and highway noise. Other suggestions focused on more accurate assessments of noise levels associated with multimodal transportation projects.

There was some current and planned research in this area, including private sector projects to measure tire/pavement noise and evaluate noise absorptive products. Research on TNM version 3.0 is ongoing at the Federal level. Some potential funding sources may include Federal agencies, State DOTs, NCHRP, city, county, or state health agencies, or others in the private sector. Several stakeholders also mentioned pooled-funded studies as a useful funding mechanism.

Emphasis Areas Related to Planning

Congestion

Four comments were submitted to the Congestion emphasis area. Exactly 25% of comments came from Tier II and 75% of comments came from Tier III stakeholders. The Tier II comment came from local government while all of Tier III comments came from individual citizens. There were no comments from Federal agencies, State government, national associations, the private or research/academic sectors, or other sources.

The research suggestions in this area focused on encouraging support for 'clean' commutes, such as by developing inter-city or –town bicycle lanes to facilitate bicycle commuting, and studies exploring complete costs per mile for multimodal transportation infrastructure. Another stakeholder mentioned research on how to encourage carpooling and use of public transportation.

No current and planned research in this area was reported. One stakeholder suggested FHWA as a potential funding source.

Safety Planning

Five comments were submitted to the Safety Planning emphasis area. Exactly 40% (2) of comments came from Tier II stakeholders and 60% (3) of comments came from Tier III stakeholders. There were no comments from the Federal government, state government, the private or research/academic sectors, individual citizens, or other sources.

Research suggestions in this area focused on bicycle and pedestrian safety, particularly on pedestrian trails and at intersections between road arterials and bicycle paths. For example, a Tier III stakeholder suggested developing a central database to track accidents that occur on recreational trails. A Tier II stakeholder also suggested focusing on rural safety planning, including the ways in which technology and intelligent transportation systems can aid rural safety.

There were a few current and planned research projects in this area, including an effort from a local government agency to complete guidelines on intersection design. The American Trails Foundation is one potential funding source.

Freight Planning

Twelve comments were submitted to the Freight Planning emphasis area. No comments were received from Tier I stakeholders. Approximately 83% of comments came from Tier II and 17% of comments came from Tier III stakeholders, with feedback from the research/academic sector as well as national associations. There were no comments from the private sector, individual citizens, or other sources.

Research suggestions in this area included studies on addressing greenhouse gas emissions from freight vehicles, for example, conducting studies on retrofitting freight vehicles to be cleaner and identifying best practices to reduce freight vehicle idling. Another stakeholder mentioned research on improving cross-border freight emissions planning and monitoring, especially at highly congested freight gateway areas. Other suggestions focused on data collection for freight, such as research on freight movement patterns, uses of geospatial information systems (GIS) for truck routing, developing road alignment standards, and generating truck trip generation data.

There was some current and planned research in this area, including efforts in the academic sector. Stakeholders reported several local government initiatives, such as development of a local toolbox for evaluating freight movement and localized freight forecasting, idle reduction programs for heavy duty trucks and school buses, and a study of the effect of manufacturing and industrial centers on freight mobility.

Potential funding sources include FHWA, State DOTs, MPOs, Congestion Mitigation and Air Quality (CMAQ) program funds, and organizations such as the American Trucking Association, the National Cooperative Freight Research Program, NCHRP, and AASHTO.

Public Involvement, Environmental Justice, Visualization in Planning

Seven comments were submitted to the Public Involvement, Environmental Justice, Visualization in Planning emphasis area. There were no comments from Tier I stakeholders. Approximately 86% (6) of the comments came from Tier II stakeholders and 14% (1) of comments came from a Tier III stakeholder.

There were no comments from the Federal government, the research/academic or private sectors, individual citizens, or other sources. Four (4) comments were submitted by the same stakeholder.

Many research suggestions in this area focused on techniques to generate and sustain public involvement in transportation planning. For example, a Tier II stakeholder suggested research on the participation of the public in designing bicycle and pedestrian infrastructure and developing disaster preparedness plans. Others mentioned research on best practices for developing and maintaining Safe Routes to School programs as well as a survey of university-level education in public involvement. Finally, one stakeholder suggested evaluating the effects of tolling on drivers with limited English proficiency.

There was some current and planned research in this area, including an effort at the state level to focus on tolling and low-income populations' decision making, work by local nonprofits on public involvement and land use issues, and some studies to address disaster preparedness.

Potential funding sources included the NCHRP and the Transit Cooperative Research Program.

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

Three comments were submitted to the U.S./Canada and U.S./Mexico Border Planning area. Approximately 33% (1) of comments came from Tier I stakeholders, 33% (1) of comments came from Tier II stakeholders, and 33% (1) of comments came from Tier III stakeholders. There were no comments from State government, the private or research/academic sectors, individual citizens, or other sources.

Research suggestions in this area focused on improving the border planning mechanism, particularly where there is a reconfigured point of entry planning process, and linking ecological considerations with border security planning and border transportation planning. For example, a Tier I stakeholder mentioned the need to develop a process for better invasive species containment at border stations.

Stakeholders mentioned several current and planned research projects in this area. For example, one national association is working with a State natural resources agency to identify the movement of animals along the U.S./Mexico border and improve cross-border wildlife management. Additionally, several city and local government agencies in southern California are collaborating to develop studies on cross-border, multimodal transportation planning processes that reduce congestion and preserve border security while addressing access and mobility.

Potential funding sources included USFWS, U.S. Customs and Border Protection, the U.S. Department of Defense, USDA, or State departments of agriculture and natural resources.

National Security, Defense, and Interstate Planning

No feedback was received for this emphasis area in FY2009.

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

Three comments were submitted to the Other Activities that Support State/Local/Tribal Planning Capacity Building emphasis area. Two comments (67%) were submitted by Tier II stakeholders in local government. The remaining comment (33%) came from a Tier III stakeholder in the research/academic sector. There were no comments from the Federal government, state government, national associations, the private sector, individual citizens, or other sources.

Research suggestions in this area included developing best practice models for coordinating rural regional transportation planners, using GIS-based scenario building tools to collaborate with local and regional planning agencies, and assessing the impact of growth control policies on travel behavior.

Current and planned research includes an effort by a local government agency to develop GIS-based scenario building models and an effort by a State DOT to find models for building a coalition of rural planners. In addition, there have been many empirical studies from the research/academic sector on growth management, transportation and land use, and smart growth policies.

Stakeholders identified several potential funding sources, including USEPA, MPOs, State DOTs, city and regional government agencies, Compass Blueprint Regional Planning Grants, the National Science Foundation, the Brookings Institution, and the Lincoln Institute of Land Policy.

Emphasis Areas Related to Tools to Support Planning and Environment

Travel Modeling

Thirteen comments were submitted to the Travel Modeling emphasis area. Approximately 69% (9) of comments came from Tier II stakeholders and 31% (4) of comments came from Tier III stakeholders. There were no comments from the Federal government, the research/academic sector, national associations, individual citizens, or other sources.

Many research suggestions in this area focused on refining and improving the travel modeling process, such as accounting for all private car costs when developing travel models, considering freight needs, gas pricing, and land density in models, and supporting better data collection efforts. Other suggestions focused on how to best manage, promote, and share effective modeling practices. For example, one stakeholder mentioned creating a guidebook to make the modeling process more understandable to planning practitioners, while another stakeholder mentioned promoting peer reviews of model applications. Another area of comment was better analysis of transportation modes and needs, such as researching household vehicle fleet management to support greenhouse gas emission modeling.

Stakeholders mentioned several current and planned research projects in this area, including a project at a State DOT, an effort from the private sector to model commuter decision making, and a project at a local government agency to improve GIS-based applications used to develop and manage transportation networks in the regional travel model. Other ongoing research work was mentioned that focuses on static and dynamic travel modeling. Several stakeholders mentioned that travel modeling research is occurring in Europe. Gas pricing surveys have been conducted by the National Household Travel Survey and the American Community Survey.

Potential funding sources included the FHWA and FTA, MPOs, State DOTs, and private sector consultants.

GIS/Spatial Information for Improved Decision Making

Seven comments were submitted to the GIS/Spatial Information for Improved Decision Making emphasis area. One comment (14%) came from Tier I stakeholders. The remainder of comments (86%) came from Tier II stakeholders at State DOTs. There were no comments from Tier III stakeholders.

Research suggestions in this area included promoting GIS to comply with Section 106 and NEPA and improving data resolution for GIS screening tools. Several comments in this area focused on the need to

standardize geospatial data across multiple jurisdictions, promote standards of accuracy for these data, and create workable agreements to encourage data-sharing among organizations. Another stakeholder suggested collecting data on sources of available geospatial data and levels of accuracy required for various applications. Finally, a Tier II stakeholder mentioned a need to improve a GIS-based method for estimating "near-road" impacts of vehicle-related pollutants.

Stakeholders reported some current and planned research in this area, including an effort by USEPA Region 6 to increase data resolution for a GIS screening tool and a project at a SHPO to build a GIS-based system for sites on the National Register of Historic Places. Several State DOTs are engaged in GIS-related projects, such as building a comprehensive state land inventory for transportation-related analyses. The National States Geographic Information Council and the Missouri DOT are involved with efforts to assess use of GIS to assess functional classification of Highway Performance Monitoring System data.

Potential funding sources include FHWA's Eco-Logical initiative, TRB, State DOTs, and USEPA.

Overall STEP Comments

Eighteen comments were submitted to Overall STEP Comments. Four comments (22%) were submitted by Tier I stakeholders. Six comments (33%) were submitted by Tier II stakeholders. The remaining eight comments (44%) came from national associations, individual citizens, the private sector, and other sources in Tier III. There were no comments from local government or the research/academic sector.

Research suggestions in this area included cross-cutting issues such as supporting research on non-motorized transportation issues and carpooling as a strategy to reduce congestion and greenhouse gas emissions while improving safety. Other suggestions involved research focused on transportation liaison staff positions and support for the National Transportation Enhancements Clearinghouse (NTEC).

Current and planned research includes the bi-annual Transportation Enhancement conference and the NTEC, which provides information on use of TE funds from a national perspective. Several stakeholders mentioned work done by trails organizations, such as the Illinois Trails Conservancy. A Tier III stakeholder mentioned a private sector study on carpooling.

Stakeholders identified a few potential funding sources, including public agencies and State DOT funds, as well as rails-to-trails conservancy foundations.