

*Surface Transportation Environment and Planning Cooperative Research Program*

# FY 2011 Implementation Strategy

**FHWA-HEP-09-040**

# Contents

I. Purpose

II. Background

III. STEP Stakeholders

IV. STEP Research Functions

V. STEP Emphasis Areas

VI. Implementation Framework for STEP

VII. STEP Implementation Timeline

VIII. Opportunities for Stakeholder Involvement

# **STEP Implementation Strategy, Functions and Emphasis Areas**

## **I. Purpose**

The purpose of this document is to communicate the implementation strategy for the FY 2011 Surface Transportation Environment and Planning Cooperative Research Program (STEP). The strategy identifies functions, research emphasis areas, an implementation timeline, and a framework for decisions regarding project priorities and funding. The Federal Highway Administration (FHWA) is soliciting comments, in regard to this document, through a FHWA established Federal Register Docket. The STEP website is used on a continual basis, as a major mechanism for informing the public regarding the status of STEP and to solicit input on program governance. The website can be found at <http://www.fhwa.dot.gov/hep/step/index.htm>.

## **II. Background**

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 FHWA anticipates that the STEP or a similar program to provide resources for national research on issues related to planning, environment and realty is likely to be included in future surface transportation legislation. The general objective of the STEP is to improve understanding of the complex relationship between surface transportation, planning, and the environment.

SAFETEA-LU provided \$16.875 million per year for fiscal years 2006–2009 to implement this cooperative research program. Due to obligation limitations, rescissions, and Congressional designation of Title V Research in SAFETEA-LU, on average \$13 million of the \$16.875 million authorized was available each fiscal year. We anticipate similar funding levels in the next authorization. The proposed FY2011 STEP funding levels are subject to the completion of the FY2011 Department of Transportation (DOT) appropriations process. The anticipated FY2011 STEP research efforts are preliminary and subject to change.

STEP funding, even in combination with other SAFETEA-LU research funding sources, was less than what was available to the FHWA in prior years for planning and environmental research. On average, FHWA had \$27.1 million available per year for planning and environmental research for FY2003-FY2005 (including earmarks and designations). Thus, STEP funding represents a 34% reduction in FHWA environmental and planning research funding (see Figure 1 and Table 1). 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.

Figure 1: FHWA Research Funding for Planning and Environment, FY2003-FY2010 (STEP, TELUS, TRANSIMS, earmarks, etc. minus obligation limitations, rescissions, etc.)

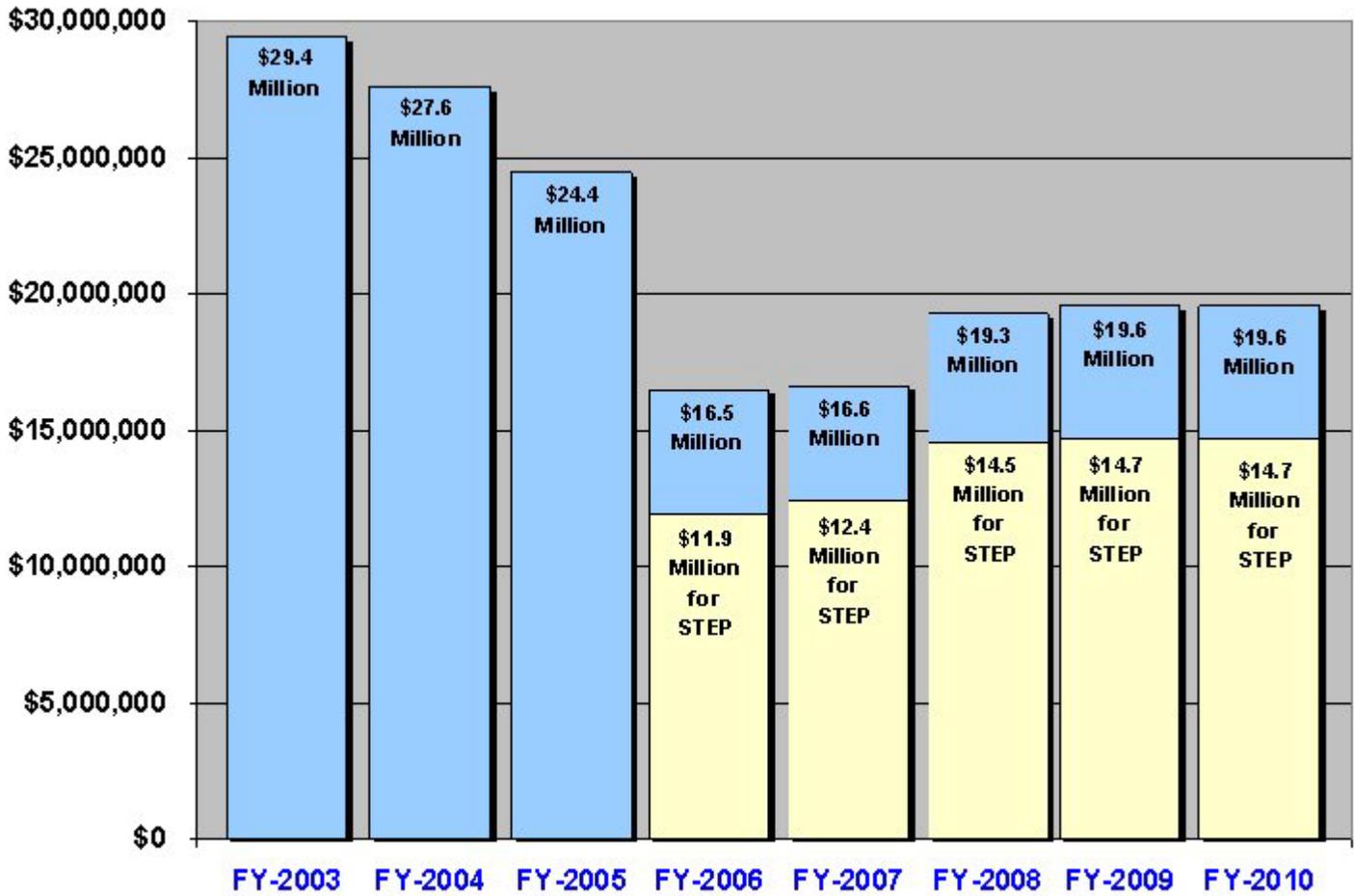


Table 1: FHWA Research Funding for Planning and Environment by Source, FY2003-FY2010 (minus obligation limitations, rescissions, etc.)

<b>Funding Sources for Planning and Environmental Research</b>	<b>2003</b>	<b>2004</b>	<b>2005</b>	<b>2006</b>	<b>2007</b>	<b>2008</b>	<b>2009</b>	<b>2010**</b>
Environmental Streamlining from Annual Appropriation Acts	\$6,945,500.00	\$6,557,237.00	\$5,301,463.00	-	-	-	-	-
Surface Transportation Research (Planning and Environment))	\$15,082,00.00	\$15,046,698.00	\$13,863,981.00	-	-	-	-	-
Technology Deployment (TD) (excluding TELUS)	\$4,229,000.00	\$5,078,260.00	\$4,446,144.00	-	-	-	-	-
TELUS (New Jersey Institute of Technology)*	\$894,000.00	\$940,419.00	\$823,360.00	\$706,022.00	\$774,518.00	\$904,540.00	\$917,280.00	\$917,280.00
Advance Travel Forecasting Procedures (TRANSIMS)	\$2,235,375.00	-	-	\$1,853,308.00	\$1,931,454.00	\$2,255,697.00	\$2,287,467.00	\$2,287,467.00
Rural Transportation Research (New England Institute of Technology)	-	-	-	\$706,022.00	-	-	-	-
Center for Transportation Advancement and Regional Development	-	-	-	\$441,264.00	\$484,074.00	\$565,338.00	\$573,300.00	\$573,300.00
Center of Environmental Excellence	-	-	-	\$882,528.00	\$919,740.00	\$1,074,141.00	\$1,089,270.00	\$1,089,270.00
Exploratory Advance Research	-	-	-	-	\$120,000.00	-	-	-
Surface Transportation Environment and Planning Cooperative Research Program	-	-	-	\$11,914,125.00	\$12,416,491.00	\$14,500,906.00	\$14,689,434.00	\$14,689,434.00
<b>Total Funds Available for Planning &amp; Environmental Research</b>	<b>\$29,394,875.00</b>	<b>\$27,622,614.00</b>	<b>\$24,434,948.00</b>	<b>\$16,503,269.00</b>	<b>\$16,646,277.00</b>	<b>\$19,300,622.00</b>	<b>\$19,556,751.00</b>	<b>\$19,556,751.00</b>

\* TELUS is the Transportation, Economic and Land Use System. Funding was included in Technology Deployment for FY03-FY05

\*\* The proposed FY2011 STEP funding levels are subject to the completion of the FY2011 Department of Transportation (DOT) appropriations process.

The STEP is the primary source of funds for FHWA to conduct research and develop tools and technologies to advance the state of the practice regarding national surface transportation and environmental decision-making. In FY 2011, FHWA expects to seek partnerships that can leverage limited research funding in STEP with other stakeholders and partners in order to increase the total amount of

resources available to meet the nation's surface transportation research needs.

In FY 2011, STEP is likely to address national research priorities that include:

- (1) Conducting research to develop climate change mitigation and adaptation strategies;
- (2) Improving state of the practice regarding livability and the impact of transportation on the environment;
- (3) Developing and/or supporting accurate models and tools for evaluating transportation measures and developing indicators of economic, social, and environmental performance of transportation systems;
- (4) Developing and deploying research to address congestion reduction efforts;
- (5) Developing transportation safety planning strategies for surface transportation systems and improvements;
- (6) Improving planning, operation, and management of surface transportation systems and rights of way;
- (7) Enhancing knowledge of strategies to improve transportation in rural areas and small communities;
- (8) Strengthening and advancing State/local and tribal capabilities regarding surface transportation and the environment;
- (9) Improving transportation decision-making and coordination across borders;
- (10) Conducting research to promote environmental streamlining/stewardship;
- (11) Disseminating research results and advances in state of the practice through peer exchanges, workshops, conferences, etc;
- (12) Meeting additional priorities as determined by the Secretary; and
- (13) Refining the scope and research emphases through active 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; and
- There is no duplication with the Future Strategic Highway Research Program (SHRP2) (23 U.S.C. 510), which will be administered by the National Research Council of the National Academy of Sciences.

### **III. STEP Stakeholders**

The number of stakeholders with an interest in environment and planning research is enormous and diverse, including these three tiers:

*Tier I - Federal Agencies and Tribes:* There are at least a score of Federal agencies with strong interest in transportation planning and environmental programs including: the Departments of Commerce, Defense, Homeland Security, Agriculture, Energy, Interior (DOI) and Housing and Urban Development, the Environmental Protection Agency (EPA), and the Centers for Disease Control and Prevention (CDC). Within each of these agencies, there are many discrete organizations/programs with an interest – e.g., National Park Service, U.S. Fish and Wildlife Service and Bureau of Land Management within the DOI. Within the U.S. Department of Transportation (USDOT), FHWA partners with the Federal Transit Administration (FTA) on virtually all planning and environmental work, including research. The FHWA also coordinates with the Federal Railroad, Aviation, Research and Innovative Technology, National Highway Traffic Safety 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), Metropolitan Planning Organizations (MPOs), local governments, state/local environmental and natural resource agencies and State Historic Preservation Officers all 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 short term and long term needs of these agencies. Universities also play a key role in conducting research that addresses emerging environment and planning issues.

*Tier III – Nongovernmental Transportation and Environmental Stakeholders:* Within the transportation and environment sector, there are hundreds and perhaps thousands of nongovernmental stakeholders such as: the American Automobile Association, American Road & 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 and others too numerous to specify here.

The FHWA faces a great challenge to involve all of the above stakeholders in STEP, considering the large number of interested organizations and the dramatic differences in their views and interests. Nonetheless, FHWA will make a strong effort to seek out and consider the views of all of the above interests in shaping STEP and carrying out the STEP.

## **IV. STEP Research Functions**

The following are the STEP research functions:

### **Outreach and Collaboration**

The FHWA will continue to conduct outreach and solicit input on STEP program direction and governance, and will seek collaborative opportunities with other entities conducting research, including Federal partners. FHWA will maintain a high degree of transparency in the research plans and research activities via outreach at several different points in the decision-making process (see Section VI below). Outreach and collaboration will take several different forms, including listening sessions, expert panels, peer exchanges, Federal Register notices, STEP feedback system, and domestic scans, among others. FHWA will also coordinate with other entities conducting research (such as the National Cooperative Highway Research Program and the Transit Cooperative Research Program (NCHRP, TCRP), SHRP2, EPA, CDC, DOI, FTA, other Federal agencies, State DOTs, and universities) to maximize collaboration and minimize duplication.

### **Conduct research**

The FHWA will conduct a needs-driven research program within STEP that builds on past and future outreach to the research and user communities as well as on documented research needs assessments. Research will be conducted via competitive bids, grants, cooperative agreements, and pooled funds, etc. The FHWA will incorporate peer reviews into STEP research as much as possible. In addition, FHWA expects to share funding for various research activities with our partners and will use a variety of mechanisms to enable joint funding.

### **Deploy results and build capacity**

For research to be meaningful to the practitioner communities, results of research must have a deployment component. Deployment and capacity building are major elements of the STEP and may be integrated into each emphasis area and project undertaken. Deployment and capacity building activities may take the form of information dissemination, training, peer-to-peer exchanges, domestic scans, workshops, technical assistance, presentations, or web-conferences, etc.

## **V. STEP Emphasis Areas**

The STEP emphasis areas reflect the SAFETEA-LU legislation, past research needs conferences and assessments, and comments received via the FHWA Federal Register docket. The FHWA has organized the STEP FY 2011 emphasis areas into five major categories: Environment; Planning; Real Estate Services; Support Tools; and Program Management and Outreach. Specific emphasis areas and proposed funding is identified within these categories. Although an additional emphasis area is proposed to be added in FY 2011, total funding available reflects the estimated potential scale of funding possible. However, depending on future authorization legislation, the emphasis areas and the level of research funding for specific emphasis areas may vary. The proposed FY 2011 emphasis areas are further described below, together with estimated FY 2011 funding levels.

### **1. Environment**

## **A. Natural Environment**

### **(1) Air Quality and Climate Change (\$1,585,000 in FY 2011)**

The goals of this emphasis area are to: (1) better understand the contribution of transportation facilities and services to air pollution and greenhouse gases and their potential implications, including environmental and human health impacts; (2) develop and assess analytical methods to adequately identify and reduce transportation emissions; (3) identify cost-effective mitigation strategies to reduce transportation emissions; and (4) develop information, guidance and communication strategies to provide useful technical assistance and training to State and local partners and stakeholders.

Potential research activities include: evaluating air quality impacts such as mobile source air toxics; diesel and other particulate matter; ozone; carbon monoxide; carbon dioxide, and methane; evaluating and improving emission and dispersion models; assessing air quality “hot spots” for emissions characteristics, health impacts and regulatory purposes; identifying cost-effective emissions reduction strategies; assessing and identifying ways to reduce emissions from freight services; evaluating greenhouse gas mitigation efforts; assessing the potential impacts of climate change on transportation; and identifying more effective ways of communicating scientific and regulatory information on transportation-air quality to our partners at State and local agencies and to stakeholders.

### **(2) Water/Wetlands/Vegetation/Wildlife/Habitat (\$1,070,000 in FY 2011)**

The goals of this emphasis area are to: (1) help transportation agencies improve analytical skills and abilities to assess impacts and implement mitigation for impacts from highway project development to aquatic resources and water quality, in particular storm water and to natural vegetation, habitats, and wildlife; (2) develop procedures and methods to streamline environmental reviews related to natural resource laws and regulations; and (3) provide improved analytical methods for addressing storm water impacts to water quality and aquatic resources; assessing the impacts of projects on wildlife and habitats, especially habitat connectivity and ecosystem integrity; (4) assist in implementing streamlined procedures and processes for environmental review of natural ecosystem impacts and develop new and better approaches for ecosystem-based mitigation, including training and outreach; and (5) enhance interagency coordination and communication.

Potential research activities in support of this emphasis area include: developing methods to measure impacts of storm water runoff; identifying and evaluating mitigation strategies for storm water runoff; assessing impacts of highway projects on ecosystems; identifying and evaluating ways to mitigate impacts; assessing impacts and evaluating controls strategies for noxious weeds; maintaining information sources, including clearinghouses and websites; distributing new information and technical information; conducting interagency projects and cooperative activities to improve and streamline compliance reviews and mitigation such as programmatic approaches; delivering training and technical assistance; developing better tools and analytical methods; and providing support for Federal reviews and incentives for exemplary practices..

## **B. Human Environment**

### **(1) Historic Preservation (\$225,000 in FY 2011)**

The overall goals of this emphasis area are to: (1) assist in providing all parties involved in the historic preservation process access to information and effective approaches to reach timely transportation decisions that support the mission of the agency and goals of stewardship; (2) identify and improve methods that

respond to the needs of planning and environmental decision making processes; and (3) develop mechanisms to ensure the quality of analysis used to support decision making and to meet local, state, and federal program requirements.

Potential research activities include: identifying best practices for all aspects of implementation of the Section 106 review process, particularly the effective use of contexts, technology to track and advance survey and planning efforts, and the application of program alternatives; identifying and meeting analytical needs; delivering training and technical assistance associated with recent research findings on treatment of historic bridges, and best practices for considering and addressing historic bridges and roads, and evaluating National Register eligibility of historic resources.

### **(2) Livability (\$400,000 in FY2011)**

Livability is about tying the quality and location of transportation facilities to broader opportunities such as access to good jobs, affordable housing, quality schools, and safe streets. The overall goals of this emphasis area are to: (1) help transform the way transportation serves the American people and transportation's contribution to communities' quality of life; (2) support activities such as websites for information dissemination, training and technical assistance, peer exchanges, conferences, workshops, and sharing notable practices through case studies on livability.

Potential research activities include research activities to support the guiding principles of the Housing and Urban Development (HUD), Department of Transportation (DOT), and Environmental Protection Agency (EPA) Interagency Partnership for Sustainable Communities. The guiding principles are to: (1) Provide more transportation choices; (2) promote equitable, affordable housing; (3) enhance economic competitiveness; (4) support existing communities; (5) coordinate and leverage federal policies and investment; and (6) value communities and neighborhoods.

### **(3) Bicycles /Pedestrians (\$375,000 in FY 2011)**

The overall goals of this emphasis area are to: (1) investigate and institutionalize the collection of bicycle and pedestrian trip/exposure data at national, State, and local levels; (2) provide technical knowledge and products needed by state and local officials in developing and implementing bicycle and pedestrian projects; (3) determine the health benefits of increased physical activity due to higher rates of bicycling and walking; (4) determine how to make the appropriate provision of bicycle and pedestrian projects a routine part of all transportation decisions; and (5) develop meaningful measures of effectiveness for bicycle and pedestrian projects and programs, such as quantifying environmental benefits due to improved walking and bicycling rates.

Potential research activities include: identifying and assessing effects of nonmotorized facilities and projects on changes in the amount of nonmotorized use; identifying mechanisms to incorporate bike and pedestrian facilities into transportation networks and to encourage their use; evaluating impacts of built environment on health; maintaining information outreach operations; delivering training and technical assistance; developing new analytical methods and use/exposure measures; conducting outreach activities; and communicating bike/pedestrian and health research results to Federal, State, and local partners.

### **(4) Noise (\$590,000 in FY 2011)**

The overall goals of this emphasis area are to: (1) continue to develop the FHWA Traffic Noise Model (FHWA TNM) to ensure that it is functional in today's changing technology; (2) provide technical knowledge to transportation agencies in conducting accurate noise analysis for determining highway traffic noise impacts

as well as noise associated with construction activities; (3) determine if the FHWA TNM is capable of incorporating additional unknown variables in the noise environment, such as atmospheric effects and pavements; (4) continue to explore the various components of quieter pavements to ensure adequate and appropriate application for which policy changes will be based upon; (5) bridge the gap between planning and environmental partners to determine how noise compatible land use planning can be implemented to avoid noise impacts; (6) develop/maintain NHI training courses associated with any aspect of this emphasis area.

Potential research activities include: develop of training for the FHWA TNM; develop educational materials for State DOTs to use regarding: (1) atmospheric effects on highway traffic noise propagation, and (2) concepts surrounding noise compatible planning; research the FHWA TNM's ability to adjust for different pavement types; and additional research and management of the quieter pavement program to assess the use of quieter pavements as a noise prevention/abatement tool.

## **C. Environmental Process Improvement**

### **(1) Environmental Streamlining/Stewardship (\$1,663,500 in FY 2011)**

The overall goals of this emphasis area are to: (1) help states implement and evaluate SAFETEA-LU environmental stewardship and streamlining measures; (2) conduct interagency initiatives to implement process efficiencies and build relationships; (3) support liaisons to develop and advance innovations; and (4) develop NEPA and collaboration competency through training and technical assistance.

Potential research activities in support of this emphasis area include: developing environmental analysis techniques that incorporate geospatial technology, ecosystem science advancements, and decision support tools; developing innovative methodologies for gathering and reporting performance on SAFETEA-LU provisions including the experiments in NEPA and Categorical Exclusion delegation, and environmental commitments; conducting pilot projects to advance the Green Highway Partnership, Integrated Planning, Eco-Logical principles, and the livability agenda; evaluating, updating, and conducting advanced NEPA training; supporting program delivery by evaluating how environmental streamlining and stewardship is accomplished under alternative financing, procurement, and revenue generation strategies.

### **(2) Context Sensitive Solutions (CSS) (\$500,000 in FY 2011)**

The goals of this emphasis area are to: (1) support Divisions, State DOTs and other stakeholders to continue CSS capacity building, awareness, and implementation strategies; (2) provide outreach and assistance to agencies, NGOs, academics institutions and other partners in the development and delivery of CSS tools for supporting the livability agenda; (3) provide training and research that responds to the needs of planning and the environmental CSS decision making processes; and (4) develop CSS mechanisms and market strategies for ensuring the quality of technical analysis used to support CSS decision making meet local, state, and federal program requirements.

Potential research activities include: documenting and deploying exemplary CSS practices and case studies; evaluating CSS performance; maintaining a CSS Clearinghouse, with a website webinar series and newsletters; delivering academic and non-academic training and technical assistance at the local, state, and national levels (including web-based training); integrating CSS into planning, design, construction, operations and maintenance activities; developing tools, techniques, and procedures for use in collaborative CSS decision making; and conducting regional and national workshops, peer exchanges, and dialogues.

## **2. Planning**

### **A. Planning Focus Areas**

#### **(1) Congestion (\$500,000 in FY 2011)**

The overall goals of this emphasis area are to reduce congestion by: (1) strengthening the linkage between transportation systems management and operations and the statewide and metropolitan transportation planning, programming, and decision-making processes; (2) establishing and building upon working relationships between transportation planning agencies/practitioners and State, regional, and local operators of transportation systems; (3) developing and marketing improved and/or new analytical methods that address transportation systems management and operations strategies in transportation planning and programming processes, products, and decisions; and (4) expanding the role of Congestion Management Processes/Systems in shaping and prioritizing regional transportation improvement strategies that address congestion.

Potential research activities include: developing and deploying improved and/or new tools, techniques, and procedures; developing and delivering training, workshops, and technical assistance; facilitating communication among and between transportation planning agencies/practitioners and State, regional, and local operators of transportation systems; identifying analytical needs; and collecting and disseminating noteworthy practices for strengthening the state-of-the-practice and addressing Federal program requirements.

#### **(2) Safety Planning (\$100,000 in FY 2011)**

A significant amount of highway safety research is conducted under other FHWA programs. STEP research would focus on the limited issue of improving safety planning by: (1) developing and improving data collection methods that respond to the needs of planning and safety decision making processes; and (2) helping planning agencies build their institutional capacity to integrate safety into the transportation planning and decision-making process. Potential research activities include: identifying analytical needs for improved safety planning; and developing tools, techniques, training and procedures for improved safety planning.

#### **(3) Freight Planning (\$200,000 in FY 2011)**

The overall goals of this emphasis area are to: (1) strengthen the linkage between freight issues and considerations and the statewide and metropolitan transportation planning, programming, and decision-making processes; (2) establish and build upon working relationships between public sector transportation agencies and freight shippers and providers of freight transportation services to ensure safe and efficient movement of freight; and (3) develop and improve analytical methods that respond to freight issues and considerations in transportation planning, programming, and decision-making.

Potential research activities include: identifying analytical needs; conducting basic research; collecting and disseminating noteworthy practices for strengthening the state-of-the-practice; developing tools, techniques, and procedures; maintaining and expanding the FHWA Freight Planning website; developing and delivering training, workshops, and technical assistance; and facilitating communication among and between the public and private sectors.

### **B. State/Local/Tribal Planning Capacity Building**

#### **(1) Public Involvement, Visualization in Planning/Environmental Justice (\$200,000 in FY 2011)**

The goals of this emphasis area are to: (1) support State DOTs, MPOs, tribes and other stakeholders to continue capacity building for public participation in all aspects of the transportation planning process; (2) assist transportation planning agencies in developing public participation plans that are comprehensive and inclusive; (3) ensure the transportation planning process is open to all regardless of race, color, national origin, or income; and (4) provide training and research on the use of visualization techniques.

Potential research activities include: documenting and deploying exemplary public participation practices; delivering training and technical assistance; developing improved tools, techniques and procedures for incorporating visualization in planning and for increasing public involvement in the transportation planning process; providing incentives for exemplary practice; and improving data collection, monitoring, and analysis tools that assess the needs of, and analyze the potential impacts on minority, low-income and other populations.

## **(2) Other Activities that Support State/Local/Tribal Planning Capacity Building (\$2,450,000 in FY 2011)**

The overall goal of this emphasis area is to provide assistance to decision makers, transportation officials, and staff to resolve the increasingly complex issues they face when addressing transportation needs in their communities. This emphasis area is targeted to (1) provide background information for State/Local/Tribal transportation officials to enhance their understanding of the transportation planning process, their role within the process, and its relationship to community and societal goals; (2) strengthen transportation planning staff skills in the areas of consensus building, understanding policy guidance, and grasping the technical elements of their job; (3) provide a means for disseminating commendable examples of transportation planning practices across the nation; (4) support the linkage of transportation planning and other topic areas; and (5) provide data to support the planning process.

Potential research activities include: developing tools, techniques, procedures; providing incentives for exemplary practice; delivering training and technical assistance; conducting a peer exchange program on planning issues; documenting and deploying interdisciplinary/interagency approaches for addressing human and natural environment; issues and interests in transportation planning processes; integrated planning; and performance based planning.

## **C. National/International Planning**

### **(1) U.S./Canada and U.S./Mexico Border Planning (\$700,484 in FY 2011)**

The overall goal of this area is to conduct research that will help enable safe, secure and efficient movement of people and goods across the border and though the bi-national border area while enhancing the community and the environment. Cooperative research activities will be undertaken with the 15 land Border States, MPOs, other US federal agencies and Mexico and Canada via the U.S./Mexico Joint Working Committee on Transportation Planning and Programming and the U.S./Canada Transportation Border Working Group. In addition support innovative solution to the border congestion issues through the U.S. Department of Transportation, Transportation Border Congestion Relief Initiative.

Potential research activities include: Starting a Green Border Initiative with other partners, developing and testing architecture for border transportation information flows; development and testing of border performance measures, develop State to State/Province Border Master Plans, developing bi-national innovative financing mechanisms for border-related improvement; identifying and assessing infrastructure needs and analyzing their impact on the bi-national transportation system; developing bi-national

Geographical Information Systems tools and applications to enhance bi-national planning, assessing methods to improve and speed information exchange and environmental assessment; exploring development of enhanced modeling techniques to improve border and bi-national decision-making; and developing bi-national border transportation performance measures.

## **(2) National Security, Defense, and Interstate Planning (\$520,000 in FY 2011)**

The overall goals of this emphasis area are to: (1) conduct research that provides analysis and assessments of the National Highway System (e.g. Interstate STRAHNET intermodal connectors) for defense planning and environmental decision making; (2) facilitate rural economic development related research activities required by the surface transportation authorization act; (3) support the national research community (e.g., TRB committee on economic development and transportation, military transportation committee, and critical transportation infrastructure protection committee); and (4) support of FHWA information needs regarding the extent and nature of state economic development programs.

Potential research activities include: the ongoing update of the digital mapping of the NHS components (which is the basis for a number of different research papers); developing material to support the research-related work of organizations such as the National Development Organization and the New England Transportation Institute (who had been designated research fund recipients in SAFETEA-LU) as well as other qualified organizations; updating databases used for research; creating content for research related websites; providing information for TRB economic development committee activities (e.g., national research meetings) and providing information for research related activities of other organizations such as the NCHRP and the Delta Regional Authority.

## **3. Real Estate Services**

### **(1) Real Estate Program Stewardship (\$460,000 in FY 2011)**

The goals of this emphasis area are to: (1) develop and support partnerships with the Divisions, State DOTs, and other stakeholders to continue to build program awareness and develop strategies that advance Real Estate Services program stewardship and delivery; (2) develop improved/innovative methods of acquiring real estate, developing appraisals and reviewing appraisals, providing relocation assistance and implementing property management for public projects subject to the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970(42 USC 46010), (*Uniform Act*); and (3) promote and enhance program stewardship activities including development of capacity building tools, developing and providing technical assistance tools and developing and providing training tools.

Potential research activities in support of this emphasis area include assessing and developing improved tools, techniques and procedures for real estate services program innovation, delivery and stewardship; and identifying and developing innovative information sharing methods among practitioners.

### **(2) Outdoor Advertising Control (\$150,000 in FY 2011)**

The goals of this emphasis area are to: (1) identify and improve methods in controlling outdoor advertising adjacent to Interstate and primary highways in accordance with 23 CFR 750, Subpart A and the provisions of the Highway Beautification Act of 1965; and (2) develop and support initiatives which remove non-conforming outdoor advertising signs, displays and devices in controlled areas adjacent to the Interstate and Primary highway systems to protect public highway investments, promote the safety and recreational value of public travel and preserve natural beauty.

Potential research activities in support of this emphasis area include studies and research concerning the

possible effects of electronic signs in regard to driver attention, distraction and safety; supporting and conducting pilot projects to remove non-conforming outdoor advertising signs and evaluating alternative systems for disseminating tourist-related travel information.

## **4. Support Tools**

### **A. Travel Modeling (\$1,170,000 in FY 2011)**

The overall goals of this emphasis area are to: (1) develop and improve analytical methods which respond to the needs of the planning and environmental decision making processes; (2) deploy these methods to planning agencies; (3) help agencies build their institutional capacity to develop and deliver traveler related information to support transportation and planning decisions; and (4) develop mechanisms to ensure the quality of transportation technical analysis used to support decision making at the local, state and federal levels.

Potential research activities include: basic research on time of day, non-motorized and freight needs in the modeling process; developing tools, techniques and procedures for surface transportation analysis; supporting deployment of research products and modifying research products based on applications experience; supporting peer reviews of model applications and identifying where research products can enhance model application; conducting outreach to make agencies aware of innovative modeling techniques and modeling issues in general; supporting regional and national peer exchanges; and identifying analytic needs to be addressed by the research program.

### **B. GIS/Spatial Information for Improved Decision Making (\$405,000 in FY 2011)**

The goal of this emphasis area is to improve and support transportation decision making through application of Geographic Information Systems (GIS). This research will focus on: (1) disseminating knowledge about geospatial technologies; (2) encouraging Federal, State DOTs, resource agencies to foster partnerships and exchange data, ideas, tools, and methodologies that will result in improved decision making; (3) supporting GIS activities; and (4) cultivating cutting-edge application of GIS/Spatial information for transportation to improve the decision making process and enhance the quality of the decision.

Potential research activities include: mining applications of geospatial technology and assessing their effectiveness for transportation; identifying emerging geospatial technology that will be implemented in the next 5 years; identifying effective business models and public-private partnerships to support enhanced GIS in transportation; address cutting edge technology such as 3D GIS and new analysis tools to address data fusion, developing focus areas for future initiatives to enhance transportation decision-making and the uses of geospatial technologies; and conducting collaborative workshops and training; and working with committees of TRB, AASHTO and other stakeholders.

### **5. Program Management and Outreach (\$1,000,000 in FY 2011)**

The goals of this emphasis area are to: (1) assess and facilitate the implementation of the STEP; (2) provide resources to support the dissemination of information related to the STEP; and (3) support stakeholder outreach associated with the STEP; and (4) develop tools to disseminate research results.

Potential activities include: program support; website; workshops; peer reviews; scans; training; technical assistance; presentations; publications; conferences; and symposia.

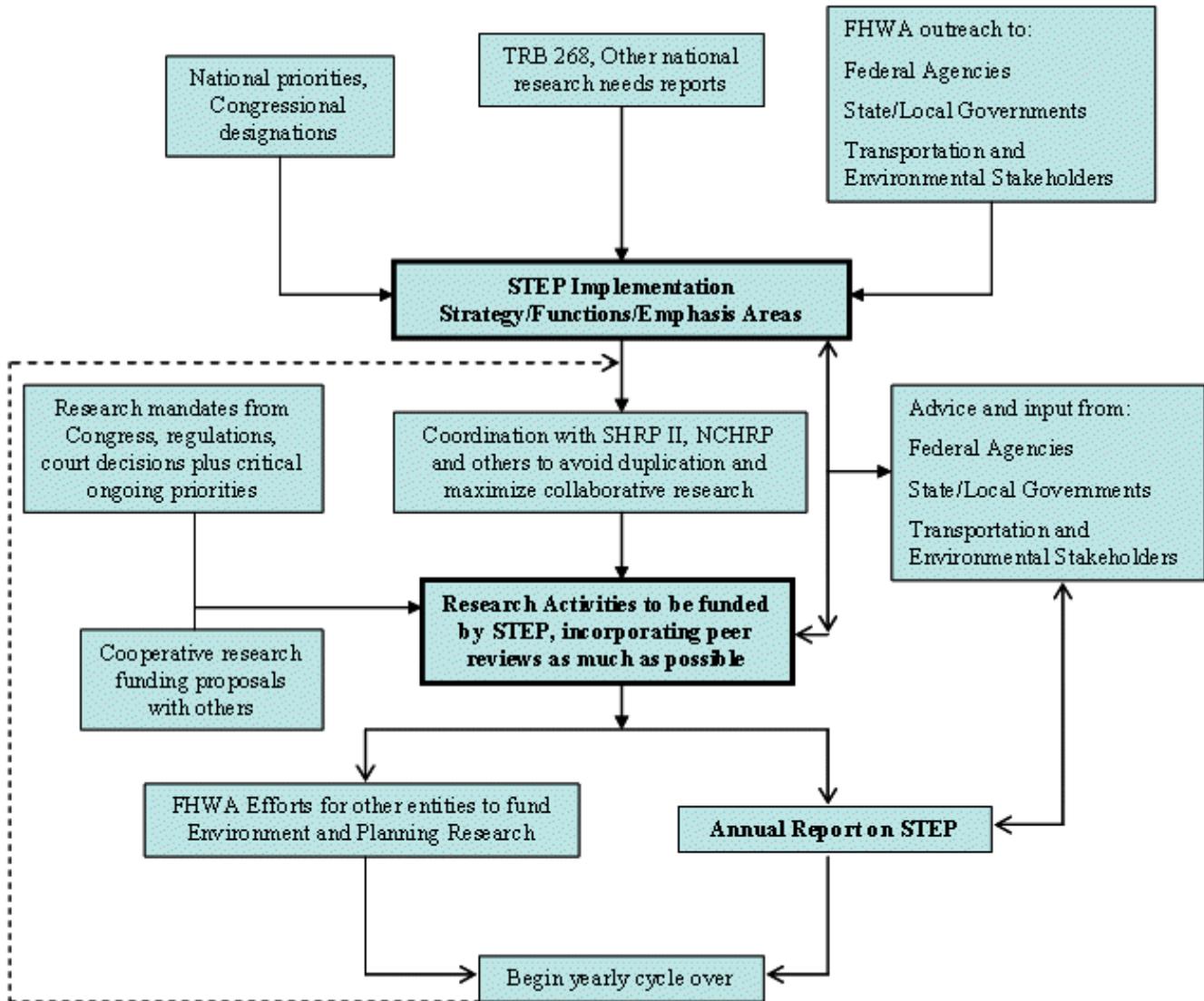
Table 2: Proposed STEP Emphasis Areas (The points of contacts listed for each emphasis area below coordinate the research activities associated with these emphasis areas)

STEP Emphasis Area	FY 2011 Proposed Funding	Lead Office/Contact
<b>1. Environment</b>		
<b>Natural Environment</b>		
Air Quality and Climate Change	\$ 1,585,000	<a href="mailto:Cecilia.Ho@dot.gov">Cecilia.Ho@dot.gov</a> <a href="mailto:Diane.Turchetta@dot.gov">/Diane.Turchetta@dot.gov</a>
Water/Wetlands/Vegetation/Wildlife/ Habitat	\$ 1,070,000	<a href="mailto:Patricia.Cazenas@dot.gov">Patricia.Cazenas@dot.gov</a>
<b>Human Environment</b>		
Livability	\$400,000	<a href="mailto:Gabe.Rousseau@dot.gov">Gabe.Rousseau@dot.gov</a>
Historic Preservation	\$ 225,000	<a href="mailto:MaryAnn.Naber@dot.gov">MaryAnn.Naber@dot.gov</a>
Bicycles/Pedestrians	\$ 375,000	<a href="mailto:Gabe.Rousseau@dot.gov">Gabe.Rousseau@dot.gov</a>
Noise	\$ 590,000	<a href="mailto:Mark.Ferroni@dot.gov">Mark.Ferroni@dot.gov</a>
<b>Environmental Process Improvement</b>		
Environmental Streamlining/Stewardship	\$ 1,663,500	<a href="mailto:Shari.Schaftlein@dot.gov">Shari.Schaftlein@dot.gov</a>
Context Sensitive Solutions	\$ 500,000	<a href="mailto:Shari.Schaftlein@dot.gov">Shari.Schaftlein@dot.gov</a>
<b>2. Planning</b>		
<b>Planning Focus Areas</b>		
Congestion	\$ 500,000	<a href="mailto:Harlan.Miller@dot.gov">Harlan.Miller@dot.gov</a>
Safety Planning	\$ 100,000	<a href="mailto:Lorrie.Lau@dot.gov">Lorrie.Lau@dot.gov</a>
Freight Planning	\$ 200,000	<a href="mailto:Spencer.Stevens@dot.gov">Spencer.Stevens@dot.gov</a>
<b>State/Local/Tribal Planning Capacity Building</b>		
Public Involvement, Visualization in Planning/Environmental Justice	\$ 200,000	<a href="mailto:Fred.Bowers@dot.gov">Fred.Bowers@dot.gov</a> <a href="mailto:Brenda.Kragh@dot.gov">/Brenda.Kragh@dot.gov</a>
Other Activities that Support State/ Local/Tribal Planning Capacity Building	\$ 2 450,000	<a href="mailto:Kenneth.Petty@dot.gov">Kenneth.Petty@dot.gov</a>
<b>National/International Planning</b>		
U.S./Canada and U.S. Mexico Border Planning	\$ 700,484	<a href="mailto:Roger.Petzold@dot.gov">Roger.Petzold@dot.gov</a>
National Security, Defense, and Interstate Planning	\$ 520,000	<a href="mailto:Stefan.Natzke@dot.gov">Stefan.Natzke@dot.gov</a>
<b>3. Real Estate Services</b>		
Real Estate Program Stewardship	\$ 460,000	<a href="mailto:Carolyn.James@dot.gov">Carolyn.James@dot.gov</a>
Outdoor Advertising Control	\$ 150,000	<a href="mailto:MaryJaneDaluge@dot.gov">Mary Jane Daluge@dot.gov</a>
<b>4. Support Tools</b>		
Travel Modeling	\$ 1,170,000	<a href="mailto:Sarah.Sun@dot.gov">Sarah.Sun@dot.gov</a>
GIS/Spatial Information for Improved Decision Making	\$ 405,000	<a href="mailto:Roger.Petzold@dot.gov">Roger.Petzold@dot.gov</a>
<b>5. Program Management and Outreach</b>	\$ 1,000,000	<a href="mailto:Felicia.Young@dot.gov">Felicia.Young@dot.gov</a>

## VI. Implementation Framework for STEP

### Proposed Framework

Figure 2 illustrates the proposed framework for STEP research. The framework corresponds to the implementation timeline found in the next section. Major products for which FHWA will seek public and stakeholder feedback are bolded in Figure 2. The figure reads from top to bottom.



**1. Initial Round of Input on Research Needs and Priorities:** In formulating a proposed STEP framework, FHWA relied on three major sources:

- National priorities as reflected in legislation enacted by Congress and Executive Branch policies;
- Research needs recommendations reflected in TRB reports and national conferences (e.g., those cited in IV. Relevant Past Work);
- FHWA's initial meetings and STEP outreach with (a) Federal agencies; (b) State/local governments; and (c) transportation and environmental stakeholders; and
- Comments submitted to the STEP Federal Register Docket.

**2. STEP Implementation Strategy, Functions, etc.:** Based on the initial input, FHWA formulated a STEP implementation strategy, functions, and emphasis areas.

**3. Second Round of Input:** FHWA is considering the advice and input received from #2 above, together with any cooperative research funding proposals we receive from others and also any legally binding research mandates in SAFETEA-LU, regulations, and court decisions, as well as critical ongoing collaborative research priorities, such as the Transportation Planning Capacity Building Program, supported by FHWA, FTA, American Association of State Highway and Transportation Officials, Association of Metropolitan Planning Organizations, American Public Transportation Association, and National Association of Regional Councils. Special priority will be given to cooperative research proposals, where other entities are willing to provide meaningful funding for STEP research needs.

**4. Coordination with SHRP2, NCHRP and Other Relevant Research Programs:** The FHWA will coordinate with: SHRP2, NCHRP, State Planning Research, Transportation Pooled Fund Program, University Transportation Centers, and other relevant research programs to avoid duplication and maximize collaborative research opportunities.

**5. Proposed STEP Research Activities:** Based on the above, FHWA will develop a set of research activities to be funded by STEP each year. Generally, the proposed STEP Research Activities will be made available for comment; then finalized and implemented. The FHWA will incorporate peer reviews as much as possible and involve other Federal agencies, state/local government staff, and transportation and environmental stakeholders in the review, dissemination, and evaluation of the research results.

At this time, FHWA is requesting suggestions for the lines of research that should be pursued within each emphasis area. For example, stakeholders who have an interest in the "Tools to Support Environment and Planning" emphasis area might suggest that is important to research ways to identify business models to enhance transportation decision-making using geospatial data. Feedback on suggested lines of research for the FY 2011 STEP Research Plan should be submitted by September 30, 2010 via the feedback system on the STEP website at: <http://knowledge.fhwa.dot.gov/cops/step.nsf/home>.

The FHWA does not seek specific, detailed research proposals and discourages researchers from submitting proposals of that nature. Rather, the FHWA staff that serve as contacts for each emphasis area will work with stakeholders to identify and prioritize lines of research within each area and to subsequently develop specific work activities.

1. **Annual Report:** The FHWA will produce an annual report on the use of STEP funds and make it available on the STEP website and through other means.
2. **Ongoing Participation of Federal Agencies, state/local governments, and transportation and environmental stakeholders:** The FHWA will provide ongoing outreach and opportunities for stakeholders to participate in STEP through shaping research priorities, providing funding for collaborative research, shaping specific research activities, and evaluating the results of STEP-funded research. As needed, FHWA will revise the STEP framework and mechanisms to facilitate the ongoing stakeholder involvement in STEP.
3. **Influencing Other Research Programs:** The research needs for environment and planning far exceed the funding available through STEP. Other Federal agencies, organizations, and research programs also bear a responsibility and provide opportunities to help meet environment and planning research needs. The FHWA will seek to influence these other research programs to help meet the research needs identified through our STEP outreach.

## VII. STEP Implementation Timeline

The following is a proposed timeline for the implementation of STEP:

<b>Winter</b>	Begin to implement current fiscal year, through appropriate procurement methods, agreements and partnerships. (May shift depending on appropriations)
<b>Spring/Summer</b>	Refine STEP Implementation Strategy/Goals/Emphasis Areas; publish Federal Register Notice and update website information to solicit feedback on next fiscal year STEP activities. Conduct outreach for next fiscal year by emphasis area, review research needs and identify gaps.
<b>Spring/Summer</b>	Develop priorities for and fund critical research. Develop next draft fiscal year STEP Plan for comment.
<b>Fall/Winter</b>	Post current fiscal year plan on STEP website. (May shift depending on appropriations)

## VIII. Opportunities for Stakeholder Involvement

Several stakeholders expressed an interest in the ways in which they can provide input. Within the proposed framework for implementing STEP, FHWA envisions several key points in the process where various forms of stakeholder input will be needed. These will likely include, but not be limited to:

- Input and feedback on STEP programmatic structure, governance, implementation strategy, goals, and emphasis areas;
- Input from potential funding partners on collaborative research opportunities;
- Input, advice, and feedback on yearly-proposed Research Activities (both programmatically and by emphasis area);
- Input and advice during listening and outreach sessions at the TRB Annual Meeting, and other venues; and
- Input and feedback on the STEP Annual Report.

A variety of opportunities for stakeholder feedback, input and advice for STEP will occur. FHWA envisions a variety of stakeholder input opportunities that will vary by emphasis area.

Within STEP, FHWA anticipates that requests for proposals or other competitive contracting mechanisms, including broad agency announcements for grants and cooperative agreements to conduct research, will be developed to address emphasis areas. FHWA intends to encourage development of proposals for potential cooperative and jointly funded projects using a variety of competitive arrangements. Therefore, unsolicited proposals will not be the likely mechanism for receiving funding under STEP. However, as with any research envisioned by external parties, FHWA receives unsolicited proposals through an existing formal FHWA process (see “A Guide to Federal Highway Administration Policies and Procedures for Submitting Unsolicited Proposals,” <http://www.fhwa.dot.gov/aaa/gtup.htm>).

FHWA expects to follow the same, or a very similar, timeline as that described in section VII above. The timeline, and any updates or revisions will also be posted on the STEP website to inform stakeholders of key points in time when they can provide input.

Feedback on suggested lines of research for the proposed FY 2011 STEP Research Plan should be submitted by September 30, 2010 via the feedback system on the STEP website at: <http://knowledge.fhwa.dot.gov/cops/step.nsf/home>.