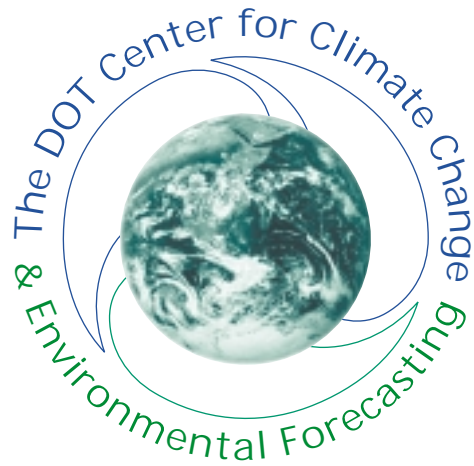




U.S. Department of Transportation



STRATEGIC PLAN for 2001-2005

July 2000

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EXECUTIVE SUMMARY

In May 1999, Rodney E. Slater, the 13th Secretary of Transportation, announced the creation of the Department of Transportation's (DOT) Center for Climate Change and Environmental Forecasting (the Center). Recognizing transportation's relationship to energy consumption and climate change, DOT is committed to addressing these serious issues for the nation's future.

The earth is warming at an accelerating rate due in part to increasing levels of greenhouse gases (GHGs) in the earth's atmosphere. Transportation is a major source of GHGs producing approximately one-quarter of U.S. emissions. Because transportation is the nation's fastest growing sector, transportation's share of GHG emissions is increasing. Therefore, reductions in transportation emissions will be an important component of national approaches to avert climate change. Strategies to reduce GHG emissions will certainly affect transportation providers and consumers.

Equally important to the mobility of the nation are the effects of climate change that may jeopardize portions of our transportation infrastructure. These potential impacts must be identified and analyzed so that the DOT can develop strategies to protect and maintain our transportation networks, as necessary.

While the transportation sector will be affected by climate change policies, transportation organizations and their customers have often not been major contributors to the dialogue regarding effective climate change strategies. Center activities will ensure that transportation interests are understood and incorporated into national and international policies regarding climate change.

FY 2001 - 2005 GOALS AND OBJECTIVES

Based on these challenges, the Center has identified three goals for its work in FY 2001 – 2005:

- Goal 1:* To support the capacity of the DOT to address environmental and climate change concerns through an intermodal, transportation systems approach that promotes energy efficient and sustainable transportation services that foster livable communities and healthy economies.
- Goal 2:* To enable the transportation sector to responsibly contribute to national goals and commitments for GHG reductions.
- Goal 3:* To ensure that the nation's transportation systems are prepared to address the potential long-range effects of global climate change.

These overall goals will be supported through the accomplishment by FY 2005 of the following five objectives:

Objective 1: Establish DOT leadership on transportation and climate change issues.

Objective 2: Recommend transportation strategies to reduce GHG emissions.

Objective 3: Prepare for the potential effects of climate change on the transportation system.

Objective 4: Participate in international policy assessment and technical assistance.

Objective 5: Ensure ongoing leadership, staffing, and resources.

KEY WORK AREAS AND PRIORITY ACTIVITIES

To accomplish these objectives, the Center will pursue work in four cross-cutting areas of effort.

Research and Analysis

More than half of the Center's efforts will focus on research and analysis necessary to provide the Center with the technical understanding, data, and analytical capabilities required to develop effective strategies and policies. Six to ten research projects will be undertaken annually. Research will continue to focus on transportation strategies to reduce GHG emissions, including research ranging from new technologies, to travel behavior, to state and local strategies, and the data to support these strategies. In addition, research will be initiated in FY 2001 to identify facilities that may be at risk due to the potential impacts of climate change. The Center will develop key research partnerships with other Federal and non-Federal organizations, to ensure high caliber research products and effective use of resources.

Policy Assessment and Leadership

The Center will ensure a DOT voice in climate change policy through active participation in domestic and international policy activities in coordination with the State Department. This will include preparation for United Nations Framework Convention on Climate Change activities and related international meetings. The Center will analyze, develop, and recommend policies, supported by sound data, that are consistent with DOT goals regarding transportation strategies to reduce GHGs, and will promote mechanisms for emissions trading that represent transportation interests and concerns.

Outreach, Partnerships, and Communications

The Center will build DOT capacity and awareness by conducting educational forums for DOT managers and staff, and by establishing a clearinghouse for research and policy coordination among DOT's operating administrations. The Center will reach out to state and local agencies, environmental advocates, industry, academia, and elected officials to gain their perspectives on climate change issues and to build broad and effective alliances to address the challenge of climate change.

Strategic Planning and Operations

Responding to the challenge of climate change is a dynamic field of endeavor. Our scientific understanding of climate change is rapidly evolving, and new technologies are advancing daily, often in unanticipated ways. Public views and perspectives reflected by elected officials and policymakers are also changing, and participation in the debate about climate change strategies is becoming increasingly diverse. To respond to this dynamic technological and policy environment, the Center will regularly assess and redirect its activities through an ongoing strategic planning process. The Center will develop and apply performance measures to evaluate the effectiveness of transportation strategies and to guide the selection of future research and policy priorities.

ORGANIZATION: A ONE-DOT VIRTUAL CENTER

The Center functions as a ONE-DOT, virtual organization, led by a Steering Committee comprised of senior-level representatives from nine operating administrations and the Office of the Secretary. The Steering Committee is chaired by the Office of Transportation Policy in the Office of the Secretary. Operating administrations support the Center's work through contributions of funds, staffing, and technical expertise; and by participating in Center efforts to share information, build partnerships, and coordinate activities related to climate change.

Support from the Research and Special Programs Administration's Volpe National Transportation Systems Center (Volpe Center) builds upon the Volpe Center's work and experience with relevant programs across the Department as well as its expertise in climate-related areas. A cross-modal, virtual structure helps to ensure strong participation throughout the DOT, while avoiding unnecessary administrative and institutional costs.

I. INTRODUCTION

With the establishment in 1999 of the Department of Transportation's (DOT) Center for Climate Change and Environmental Forecasting (the Center), Secretary Slater recognized the important responsibility of the Department to participate in the Nation's effort to address climate change. Because transportation is a major source of greenhouse gas (GHG) emissions, the Department is called upon to develop strategies to reduce transportation-related emissions. Because the effects of climate change may jeopardize portions of our transportation infrastructure, the Department is called upon to analyze these potential impacts and develop strategies to minimize risks. Because the national and international policies developed to address climate change are likely to affect transportation providers and consumers, the Department must ensure that the perspectives of our stakeholders are heard as these policies are developed. To this end, the Center was created to ensure that the Department is able to undertake each of these important responsibilities.

There is a need for continued focus on greenhouse gases and global warming. The transportation sector currently contributes about one-quarter of anthropogenic emissions - and it is one of the fastest growing sectors in the U.S. Concentrations of carbon dioxide have increased and could almost double by 2100. This problem could be exacerbated by the economic growth we hope to see, both in the United States and in rapidly developing countries around the world.

The Center functions as a ONE-DOT, virtual organization, led by a Steering Committee comprised of senior level representatives from nine operating administrations and the Office of the Secretary (Figure 1). The Steering Committee is chaired by the Office of Transportation Policy in the Office of the Secretary. Operating administrations support the Center's work through contributions of funds, staffing, and technical expertise, and by participating in Center efforts to share information, build partnerships, and coordinate activities related to climate change. Support from the Research and Special Programs Administration's (RSPA) Volpe National Transportation Systems Center (Volpe Center) builds upon the Volpe Center's work and experience with relevant programs across the Department, as well as its expertise in climate-related areas. A cross-modal, virtual structure helps to ensure strong participation throughout the DOT, while avoiding unnecessary administrative and institutional costs.

In the Center's first year, the Steering Committee has built the foundation for this new organization. It has articulated the Center's Mission and Vision, designated Core Staff drawn from several of the operating administrations, and initiated a first-year Action Plan. Building on this experience, in January 2000 the Steering Committee undertook a strategic planning process to define goals and objectives for the years 2001 through 2005. This Strategic Plan establishes a clear direction for the Center over the next 5 years, and a framework for ongoing strategic planning and refinement.

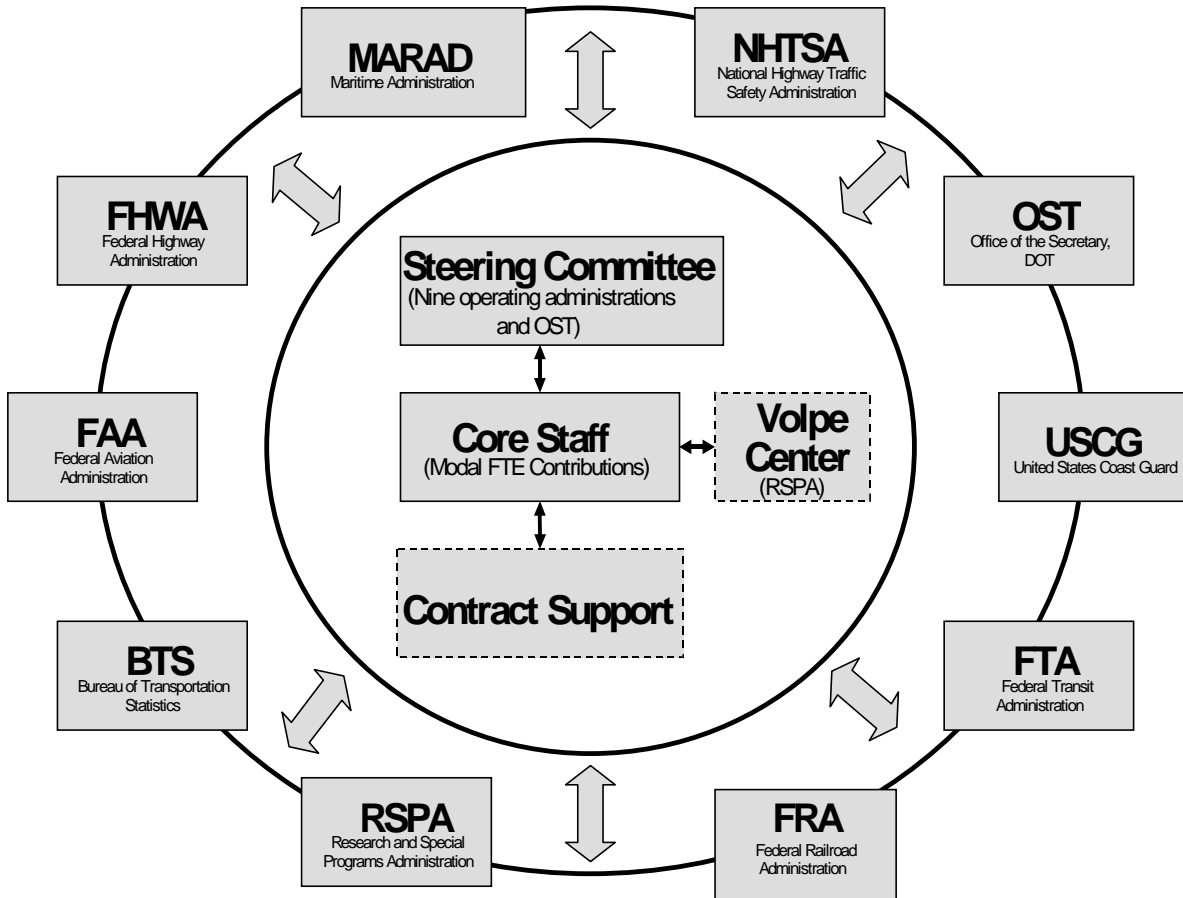


Figure 1: DOT Center for Climate Change and Environmental Forecasting: A Virtual ONE-DOT Center

The Center's Mission and Vision Statement, and a summary of the Center's three goals and five objectives are listed on the following pages. Section II presents a discussion of the context and justification for each of the objectives, and the key strategies the Center will employ to achieve the objective in the next 5 years. These strategies reflect work in four key areas of effort that cut across all objectives:

- Research and Analysis,
- Policy Assessment and Leadership,
- Outreach, Partnerships, and Communications, and
- Strategic Planning and Operations.

Section III discusses the approach that will be taken to implement this Strategic Plan over the 5-year period.

A. VISION STATEMENT

The Center advances timely and effective transportation initiatives to reduce the buildup of greenhouse gases. The Center identifies and evaluates strategies and technologies for advancement that encourage livable communities by fostering economic development, mobility, safety, and social equity; protecting the environment; and ensuring national security.

B. MISSION STATEMENT

The Center is the focal point in the DOT of technical expertise on transportation and climate change. Through strategic research, policy analysis, partnerships, and outreach, the Center creates comprehensive and multi-modal approaches to reduce transportation-related greenhouse gas emissions.

C. GOALS AND OBJECTIVES

GOAL: To support the capacity of the DOT to address environmental and climate change concerns through an intermodal transportation systems approach that promotes energy efficient and sustainable transportation services that foster livable communities and healthy economies.

GOAL: To enable the transportation sector to responsibly contribute to national goals and commitments for GHG reductions.

GOAL: To ensure that the nation's transportation systems are prepared to address the potential long-range effects of global climate change.

OBJECTIVE 1: *Establish Leadership on Transportation and Climate Change Issues.*

Establish the Center as a respected and credible resource of information, data, technical assistance, and policy guidance regarding transportation and climate change issues, serving DOT operating administrations, other Federal agencies, Congress, state and local transportation agencies, stakeholders, and the public.

OBJECTIVE 2: *Recommend Transportation Strategies to Reduce Greenhouse Gas Emissions.*

Identify, evaluate, and promote transportation strategies, supported by sound data, that will reduce GHG emissions from transportation sources and that promote energy efficient and environmentally sound transportation services in partnership with DOT operating administrations, the Environmental Protection Agency, the Department of Energy, industry, academia, state and local governments, and other partners.

OBJECTIVE 3: *Prepare for the Potential Effects of Climate Change on the Transportation System.*

Develop an understanding of potential long-range effects of global climate change on the nation's transportation systems, and develop strategies to avoid, reduce, or mitigate negative effects.

OBJECTIVE 4: *Participate in International Policy Assessment and Technical Assistance.*

Advise the Department of State in the successful development of international emissions trading mechanisms and other policies that are consistent with the DOT's strategic goals (mobility, economic development, safety, environmental protection, and national security). Provide technical assistance and data to support transportation projects undertaken by other countries to promote efficient transportation, protect the environment, and reduce GHG emissions.

OBJECTIVE 5: *Ensure Ongoing Leadership, Staffing, and Resources.*

Ensure that the Center has the ongoing leadership, staffing, and resources necessary to effectively achieve its objectives.

II. CENTER STRATEGIES TO MEET OBJECTIVES

A. OBJECTIVE 1: *Establish DOT Leadership on Transportation and Climate Change Issues.* Establish the Center as a respected and credible resource of information, technical assistance, and policy guidance regarding transportation and climate change issues, serving DOT operating administrations, other Federal agencies, Congress, state and local transportation agencies, stakeholders, and the public.

1. Discussion

As a newly created DOT organization, the Center is challenged to quickly develop its capacity to address the serious work ahead. Climate change research and policy are rapidly evolving, and the scientific, technological, and political contexts of decision making are complex. Over the past decade, significant proposals have been developed with little participation by the transportation sector. To effectively engage in climate change issues, the Center needs to establish itself as the national resource regarding transportation and climate change issues. To establish this leadership position by 2005, the Center will need to develop its technical and analytic capacity related to climate change, building upon the related technological, data system, and policy expertise that exists today within the operating administrations of the DOT. Further, it must ensure its role as an honest broker of information and data regarding transportation and climate change by maintaining high standards of scientific research and demanding accurate, objective analysis. In this way, the Center can best help to increase knowledge and understanding of transportation's role in climate change, both within DOT and across the Department's broad range of stakeholders and decision makers, and promote effective solutions consistent with DOT's goals.

Where to begin? As a ONE-DOT initiative, the Center's primary challenge is to tap the expertise within each of the operating administrations, build upon this network of knowledge, and coordinate research and policy assessment that draws fully upon the experience and technical expertise of the DOT family. On the technology front, DOT's years of experience in promoting advanced technologies to achieve fuel efficiency has produced a wealth of expertise that can be applied to efforts to improve efficiency to reduce GHG emissions from mobile sources. Efforts such as:

- DOT's participation in the Partnership for a New Generation of Vehicles (PNGV),
- FAA's work with NASA to reduce aviation exhaust emissions,
- FTA's Advanced Bus Technology Program,
- MARAD's leadership of the Interagency Marine Fuel Cell Program, and
- The Advanced Vehicle Program (AVP), the Department's research program to improve efficiency and reduce emissions from medium and heavy duty vehicles

indicate impressive levels of related technology expertise within the Department.

On the policy side:

- DOT's Flagship Initiative to support Livable Communities,
- FHWA's experience with transportation and air quality related to criteria pollutants,
- NHTSA's experience with fleet efficiency standards,
- FHWA and FTA's efforts to improve state and local transportation planning process, promote livable communities and ensure environmental justice, and
- FHWA and FTA's Congestion Mitigation and Air Quality Improvement Program (CMAQ)

are but a few examples of the Department's success in meeting environmental goals while supporting mobility. RSPA's Volpe Center has broad experience working with relevant programs throughout the Department, and has specific climate-related expertise. The Center has an exciting opportunity to leverage this "intellectual capital" within the DOT to address the challenge of climate change.

Mobilizing this expertise will require a new organizational focus on knowledge management and communication. The Center will need to develop efficient means of communicating with offices throughout the Department, conduct an ongoing inventory of research and policy activities that relate to global change, and serve as a clearinghouse of ideas, research products and data, information, and expertise. The Center will need to facilitate a Department-wide dialogue on climate change issues, research priorities, and promising strategies to reduce transportation GHG emissions. Through focused communication and capacity building within the Department, the Center will most rapidly develop the foundation for its leadership in the broader community.

2. Strategies

Research and Analysis

- Establish technical expertise on key climate change issues and provide research data, information and products to DOT operating administrations, other Federal agencies, partners, policymakers, and stakeholders.

Policy Assessment and Leadership

- Analyze policy options and develop recommendations for DOT's senior management on climate change issues.

Outreach, Partnerships, and Communication

- Increase awareness within DOT about the relationship between transportation and climate change through educational forums, information sharing, and other communications strategies.
- Promote a dialogue on climate change concerns and opportunities with other Federal agencies, state and local partners, the private sector, and academia.
- Develop partnerships with other Federal agencies, private sector entities, and stakeholders to jointly pursue common goals.

Strategic Planning

- Monitor developments in climate change research, technology, and policy to maintain up-to-date information on activity related to climate change.
- Routinely assess Center priorities to ensure that the Center is most effectively targeting its efforts and resources.

B. OBJECTIVE 2: *Recommend Transportation Strategies to Reduce Greenhouse Gas Emissions.* Identify, evaluate, and promote transportation strategies, supported by sound data, that will reduce GHG emissions from transportation sources and that promote energy efficient and environmentally sound transportation services, in partnership with DOT operating administrations, other Federal agencies, industry, academia, state and local governments, and other partners.

1. Discussion

Advancing comprehensive and multi-modal strategies to reduce transportation-related GHG emissions is at the heart of the Center's mission. Yet the objective of developing and recommending robust strategies by FY 2005 - strategies that will achieve meaningful reductions in emissions, can be effectively implemented, and that are consistent with DOT's other environmental, social, and economic goals - is not an easy task. While there are myriad potential strategies under discussion, most require considerable further research or analysis to resolve data, technical, political, or economic obstacles. Furthermore, both the scientific understanding of climate change, and advancements in technology are changing rapidly. Substantial research efforts related to energy efficiency and GHG reduction are well underway, led by other key Federal agencies, operating administrations within DOT, private sector companies, and academia. This presents a challenge to the Center to stay abreast of a broad array of technological and policy developments, and to focus its resources and attention on activities that will best inform its work.

To be able to recommend transportation strategies by FY 2005, the Center must first identify its "niche": On what strategies should the Center focus its analysis? Which strategies will be consistent with and support DOT's environmental, social, and economic goals? How can the Center add value to existing research efforts? With which agencies and organizations should the Center develop strategic partnerships for research and policy assessment? In 2001, the Center will conduct further strategic planning to answer these questions. This will enable the Center to target its resources on activities and partnerships most likely to produce results. This planning will include an inventory of current research activities of DOT operating administrations, other Federal agencies, and other stakeholders; outreach to experts in transportation technology, climate change, and energy research to solicit input regarding DOT research and policy priorities; and an assessment of potential partnerships. The Center also will develop performance measures to evaluate the effectiveness of strategies in reducing GHG emissions.

By developing a focused program of research and policy assessment, and by working closely with selected partners, the Center will be prepared to develop and recommend sustainable strategies and technologies that will reduce GHG emissions while also supporting other DOT goals of energy efficiency, livable communities, environmental protection, economic development, and mobility. By focusing on “win-win” strategies that support multiple goals, the Center can forge alliances across a broad spectrum of constituencies and successfully generate support from policymakers, stakeholders, and the general public.

The Center must make the best use of its limited resources by seeking opportunities to add value to existing research initiatives and pursuing research issues of particular concern to DOT’s operating administrations and stakeholders. For example, research and development work led by the Department of Energy (DOE) in partnership with vehicle manufacturers, the Environmental Protection Agency (EPA), and DOT - such as the PNGV research initiative - is making strong progress in the development of high-efficiency vehicles. The Center could contribute to the success of such technology work by conducting policy research and analysis to identify potential policies or regulatory mechanisms that will promote the effective implementation and market penetration of high-efficiency vehicles and technologies as they are developed. In addition, the Center could promote multi-modal advancements by assessing the applicability of new vehicle technologies to rail, aviation, and marine transport. The Center should conduct policy, data, and economic research and analysis to identify potential transportation program initiatives, policies, or regulatory mechanisms that would promote GHG reductions.

2. Strategies

Research and Analysis

- Conduct, support, and coordinate research to identify and evaluate transportation strategies to reduce GHG emissions from transportation sources in partnership with selected research partners. Potential research activities to be considered will include, but will not be limited to, research in the following areas:
 - Advanced technologies research,
 - Fuel efficiency and alternative fuels,
 - Transportation system efficiency and intermodal strategies,
 - Transportation programs and policies,
 - Travel demand and travel behavior, and
 - State and local strategies.

Policy Assessment and Leadership

- Analyze policy options and recommend DOT and Federal policies that promote the implementation of transportation strategies to reduce GHG emissions.
- Participate in the development of administration policies to reduce GHG emissions.

Outreach, Partnerships, and Communication

- Serve as a clearinghouse for research coordination among DOT operating administrations by providing data, information, research products, and technical assistance on transportation strategies to reduce GHG emissions.
- Conduct outreach to experts in transportation technology, climate change, and energy research to solicit input regarding DOT research and policy priorities, and to explore potential partnerships.
- Develop targeted strategic partnerships with EPA, DOE, industry, or other organizations to jointly pursue relevant research.

Strategic Planning

- Determine strategic research priorities for the Center that make the best use of scarce Center resources through an ongoing process of data and information gathering, evaluation, and prioritization.
- Develop performance measures to evaluate the effectiveness of transportation strategies in reducing GHGs while supporting other DOT goals.

C. OBJECTIVE 3: *Prepare for Potential Effects of Climate Change on the Transportation System.* Develop an understanding of potential long-range effects of global climate change on the nation's transportation systems, and develop strategies to avoid, reduce, or mitigate negative effects.

1. Discussion

Most climatologists agree that the world's climate has changed over the past century, and that changes will continue to occur. The International Panel on Climate Change (IPCC) has projected significant increases in temperature and sea level over the next 100 years, as well as likely increases in precipitation intensity.¹ While our scientific knowledge and understanding of climate feedback processes is still being developed, the potential impact of these climate changes cannot be ignored. Possible results of changes in temperature, sea levels, and precipitation

¹The IPCC *Special Report on The Regional Impacts of Climate Change and Assessment of Vulnerability* (1996) states: "... These changes in GHGs and aerosols, taken together, are projected to lead to regional and global changes in temperature, precipitation, and other climate variables—resulting in global changes in soil moisture, an increase in global mean sea level, and prospects for more severe extreme high-temperature events, floods, and droughts in some places. Based on the range of sensitivities of climate to changes in the atmospheric concentrations of GHGs (IPCC 1996, WGI) and plausible changes in emissions of GHGs and aerosols (IS92a-f, scenarios that assume no climate policies), climate models project that the mean annual global surface temperature will increase by 1–3.5°C by 2100, that global mean sea level will rise by 15–95 cm, and that changes in the spatial and temporal patterns of precipitation would occur. The average rate of warming probably would be greater than any seen in the past 10,000 years, although the actual annual to decadal rate would include considerable natural variability, and regional changes could differ substantially from the global mean value."

include increased incidences of severe weather, erosion and inundation of coastal areas, changes in natural resources, and shifts in ecological zones. While work is underway to reduce the anthropogenic contributors to these climate changes, including reductions of CO₂ emissions from transportation, some level of climate change is expected to continue.

To date, little work has been done to assess the potential long-range effects of global climate change on our nation's transportation systems, nor to enable transportation agencies to prepare for these effects. Over time, incremental changes in coastal areas, fresh water distributions, and storm frequency and severity may pose risks to transportation infrastructure. Planning for new facilities, management and operation of existing facilities, and transportation planning for future transportation systems could be influenced by better information and data about potential climate shifts. To meet its responsibilities for national mobility and security, DOT needs to develop an understanding of the potential long-range effects of global climate change on the nation's transportation systems. This is a necessary first step to determine the range of possible risks, identify priority areas and transportation systems of concern, and ultimately, to develop strategies to avoid, reduce, or mitigate negative effects.

By FY 2005, the Center will have developed this baseline understanding of potential climate change impacts on transportation, provided this information to DOT's operating administrations, and will have initiated a cross-modal planning process to prepare our transportation systems to respond to potential risks.

2. Strategies

Research and Analysis

- Conduct, support, and coordinate research on the potential long-range effects of global climate change on the nation's transportation systems in partnership with DOT operating administrations, EPA, DOE, industry, academia, and other research partners.
- Identify transportation systems and facilities that may be at risk due to changes in climate.
- Develop data collection systems, analysis and planning tools, and methodologies to incorporate climate change considerations into transportation systems planning.
- Begin to identify and evaluate potential strategies to avoid, reduce, or mitigate negative effects of climate change on transportation systems and facilities.

Policy Assessment and Leadership

- Analyze policy options and recommend DOT and Federal policies to avoid, reduce, or mitigate potential negative effects of climate change on transportation systems and facilities.

Outreach, Partnerships, and Communication

- Develop targeted strategic partnerships with EPA, DOE, industry, academia, and other organizations to conduct relevant research.
- Serve as a clearinghouse for research coordination and policy assessment among DOT operating administrations by providing data, information, research products, and technical assistance on potential impacts of climate change on transportation systems.

Strategic Planning

- Conduct ongoing strategic planning to define the Center's long-term role related to climate change impacts on the transportation system.
- Test the viability of impact mitigation as a core Center message with policymakers as a focus of Center activities.

D. OBJECTIVE 4: *Participate in International Policy Assessment and Technical Assistance.* Advise the Department of State in the successful development of international emissions trading mechanisms and other policies that are consistent with the DOT's strategic goals (mobility, economic development, safety, environmental protection, and national security). Provide data and technical assistance to support transportation projects undertaken by other countries to promote efficient transportation, protect the environment, and reduce GHG emissions.

1. Discussion

The global nature of climate change inherently requires a global approach to reducing GHG emissions. The United Nations Framework Convention on Climate Change (UNFCCC), negotiated in 1992, established a framework to develop global strategies to stabilize atmospheric GHG concentrations. The Convention includes a wide range of commitments for activities such as emissions inventories, reporting, and cooperation on promoting sustainable development, technology transfer, adaptation, and scientific research. The Convention, which has been ratified by 176 countries, also established a non-binding goal of GHG reductions. The United States continues to play a leadership role in advancing understanding of the global impacts of climate change, and in forging stronger international agreements on how to respond to this challenge.

Because transportation emissions account for approximately one-quarter of GHG emissions in the United States, the commitments to reductions that are established through international negotiations will almost certainly have a profound impact on the transportation sector. The Kyoto Protocol, which has been signed but not ratified by the United States Senate, targets an emissions reduction of 7 percent below 1990 levels. If each sector were expected to reduce emissions in proportion to its contribution to total emissions, this would translate for the transportation sector to approximately a 30- to 40-percent reduction below 2010 levels, accounting for growth. While proportional targets by sector are not likely, the transportation sector can expect – under any agreement – to be challenged to support the achievement of

national commitments. This speaks to the clear need for DOT participation in the international policy arena. DOT must stay well informed about international policy discussions, and actively participate in the development of United States policies and proposals to provide a voice for the transportation constituency.

The proposed strategy for addressing climate change emphasizes a market-based approach to limiting future emissions, implemented through a domestic and international emissions trading program. A monetized approach to emissions reduction could produce higher fuel prices, particularly for high carbon fuels. The DOT needs to assess how different approaches to emissions trading could affect the transportation sector, and work with the Department of State to design trading proposals that would not undermine our nation's transportation systems.

The use of "flexible mechanisms" to achieve emission reductions - by funding projects in other countries that would reduce emissions - provides another potential avenue for contribution from the transportation sector. The Center needs to examine how joint implementation and clean development mechanism approaches could be applied to transportation-related projects in other countries, and in what ways the DOT could support these projects through technical and data assistance or the facilitation of private-public partnerships.

The Office of the Secretary and DOT's individual operating administrations already have been participating in several aspects of international discussions. The FAA leads DOT participation in the International Civil Aviation Organization (ICAO) regarding emissions from aviation bunker fuels. The Maritime Administration and the U.S. Coast Guard are participating in parallel discussions regarding marine bunker fuels through the International Maritime Organization (IMO). The International Office of FHWA's Policy Unit is working closely with the Department of State, the World Bank, and other agencies regarding international technical assistance and development for advanced infrastructure projects.

In September 1999, DOT hosted a seminar at the Volpe Center to examine transportation-related issues associated with both credit for early action and emissions trading. In FY 2000, the Center initiated research projects, conducted by Volpe Center staff, on both early action and emissions trading. In 1999, Volpe Center staff participated in an interagency effort directed at providing technical assistance enabling the government of Argentina to follow through on plans to develop a national emissions target. Since 1999, DOT has been represented at sessions of the Conference of Parties to the UNFCCC and those of its subsidiary bodies, and has participated in related technical meetings.

These efforts are important steps in developing the Center's capacity in international policy issues. However, if the DOT is to play an influential role in shaping the nation's policies, the Center must devote a substantial level of effort to the international policy arena. This will require research and analysis to develop specific policy options supported by sound data, and active participation in policy discussions to ensure that transportation considerations are understood and incorporated into international negotiations and development activities.

2. Strategies

Research and Analysis

- Conduct cutting-edge policy research and economic analysis to assess emissions trading mechanisms, international policy proposals and related domestic policy proposals (e.g., early action), and their potential impacts on transportation.
- Conduct research to identify and evaluate potential transportation projects in other countries that would effectively promote efficient transportation, protect the environment, and reduce GHG emissions.

Policy Assessment and Leadership

- Represent the DOT in UNFCCC, IPCC, and other international policy development activities, in coordination with the Department of State.
- Assess, develop, and recommend emissions trading mechanisms and other policies that will support GHG reductions and are consistent with DOT's strategic goals.
- Provide technical assistance and data to other countries on transportation-related projects or policies to reduce GHG emissions.

Outreach, Partnerships, and Communication

- Establish working relationships with staff and policymakers within the Department of State, other Federal agencies, and Congress
- Conduct outreach to DOT customers and stakeholders regarding policy perspectives and concerns
- Serve as a clearinghouse among DOT operating administrations to provide information, data, and recommendations regarding international policy mechanisms.

Strategic Planning

- Conduct ongoing strategic planning to define the Center's priorities related to international policies and transportation projects.

E. OBJECTIVE 5: *Ensure Ongoing Leadership, Staffing, and Resources.* Ensure that the Center has the ongoing leadership, staffing, and resources necessary to effectively achieve its objectives.

1. Discussion

Supporting a viable Center capable of meeting the objectives and strategies outlined above will require substantial resources through contributions from operating administrations of funding, dedicated staff, leadership from senior management, and participation in Center activities. It is

clear that the Center's work, over the long term, will be critical to the DOT's ability to support transportation goals while contributing to the reduction of GHGs.

The Center will continue to operate as a virtual, ONE-DOT organization. A virtual organizational structure supports the Center's efforts to promote multi-modal solutions, maintain clear and direct ties to operating administrations, and ensure that independent modal efforts to reduce GHGs continue, supplemented by Center operations.

2. Strategies

Research and Analysis

- Develop and disseminate high quality data and research materials that build DOT capacity on climate change issues.

Policy Assessment and Leadership

- Promote the active involvement of each operating administration in the assessment of Center policy recommendations.
- Ensure active senior level participation and leadership from all operating administrations through an actively engaged Steering Committee.

Outreach, Partnerships, and Communication

- Leverage Center resources through strategic partnerships and collaboration in research, outreach, and policy assessment.
- Conduct outreach to interested policymakers and stakeholders to provide information on the Center's research activities, highlighting the need for feasible approaches to GHG reduction that are developed in partnership with the transportation community.
- Develop efficient mechanisms to routinely communicate Center activities throughout DOT and to encourage broad participation by staff from all operating administrations.

Strategic Planning

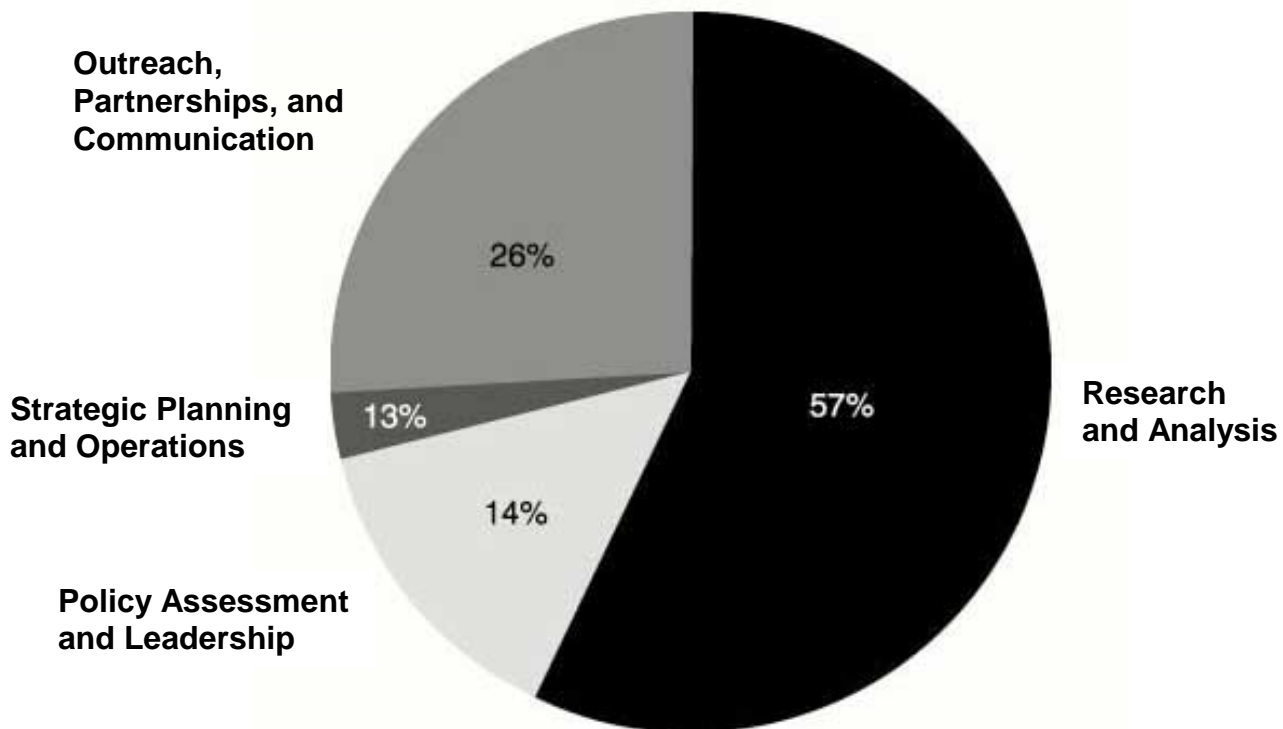
- Develop a stable level of support for Center activities through operating administration contributions that provide adequate resources for Center objectives.

III. IMPLEMENTATION

The strategies outlined in this plan provide a strong framework for action. Success will require vigorous effort by DOT to implement these strategies. As noted in this report, to enable the Center to pursue its objectives most efficiently, this plan has organized Center strategies under four major areas of effort that cut across and support the Center's objectives:

- Research and Analysis
- Policy Assessment and Leadership
- Outreach, Partnerships, and Communication
- Strategic Planning and Operations

More than half of the Center's resources will be directed to research and analysis activities necessary to provide the Center the technical understanding and analysis capabilities required to develop effective strategies and policies. Figure 2 illustrates the relative proportion of investment by the Center into these four interrelated areas of effort.



**Figure 2. Approximate Levels of Investment in Four Strategic Areas of Effort
FY 2001 - 2005**

The specific activities to be undertaken in each of these work areas will be identified through the development of annual Action Plans that lay out work objectives and milestones of achievement for the coming year, consistent with the overall strategic direction of this plan and the resources available. In FY 2001 and FY 2002, the Center's action plans will incorporate the following activities:

A. Research And Analysis

As a research-focused organization, the Center will invest over half of its resources in research and analysis. This priority area is fundamental to the Center's ability to build the capacity of DOT on climate change issues, develop a thorough understanding of climate change impacts, and assess the potential effectiveness of transportation strategies to reduce mobile source emissions of GHGs. Six to ten projects per year will be conducted on topics such as fuel efficiency, new technologies, system efficiency, travel behavior, and state and local strategies. As discussed above, the Steering Committee will determine the specific research topics to be pursued each year as part of its strategic assessment process, being informed by the input of the operating administrations, stakeholders and potential research partners.

In addition, in FY 2001, the Center will initiate a major research initiative regarding the potential impacts of climate change on transportation, including an assessment of the transportation facilities and geographic regions throughout the nation that are at most risk due to these effects. The Center will develop key research partnerships with other Federal and non-Federal organizations to ensure high caliber research products and effective use of resources.

B. Policy Assessment And Leadership

Most of the Center's work in policy assessment and leadership will be conducted by Center core staff whose time is contributed by the operating administrations, and by other Departmental personnel. This work will be supplemented by policy analysis and draft document review by experts in the field from the Volpe Center and contracting consultants. This analysis will support the Center in assessing and recommending policies that will support the development and implementation of effective transportation strategies to reduce GHGs.

Work in this area also will include in-depth participation in international and domestic policy assessment efforts in cooperation with the Department of State and other Federal partners, including preparation for and participation in Sessions of the Conference of Parties to the UNFCCC and related activities. A primary focus of policy assessment over the next 2 years will be on emissions trading mechanisms, to ensure that these mechanisms are designed with an understanding of the impacts on the transportation sector.

Finally, the Center will consider providing technical assistance activities to developing and developed countries regarding strategies to reduce GHG emissions. This may include project level support to enable the implementation of promising transportation-related projects through joint implementation or clean development mechanisms.

C. Outreach, Partnerships, and Communications

To be successful in meeting its objectives, the Center must be actively engaged in education and outreach activities, both within DOT and with the Department's partners and stakeholders. The Center will invest approximately one-quarter of its resources to this area. The Center will work to build capacity within DOT by providing education forums, information, and technical support to DOT staff. Six to ten DOT forums will be held annually for the DOT community, featuring speakers from other Federal Agencies, research organizations, industry, and environmental groups. In FY 2001, the Center will initiate a clearinghouse to coordinate information and activities on climate change research and policy assessment.

To promote understanding of transportation and climate change issues among DOT stakeholders, the Center will develop and implement a communications strategy based on an in-depth analysis of the Center's priority targeted audiences, the perspectives and concerns of each constituency, and the most effective mechanisms for promoting dialogue with these stakeholder groups. Communications with the general public, industry, state and local governments and planning organizations, other Federal agencies, academia, research organizations, advocacy groups, and Congress will be assessed. This program of targeted outreach will include further development and management of the Center's web site; sponsorship of workshops, conferences, and special events; participation in key events sponsored by other organizations; and the design and dissemination of outreach and educational materials in a variety of formats.

Further, the Center will undertake the strategic development of partnerships. In FY 2001, the Center will engage in an analysis of the broad range of opportunities available to DOT to determine how the Center should focus its partnership development efforts. The Center will initiate talks with potential partners to share information about the Center's activities and interests, and to learn more about the efforts of other organizations. This initial period of information gathering and assessment will enable the Center to refine its plans for partnership development. Partnership development activities will focus in large part on the identification of feasible research partnerships to advance the Center's research objectives.

D. Strategic Planning and Operations

Finally, the Center will pursue an ongoing process of assessment and redirection to keep pace with changes in technology, policy developments, and the Center's own expanding expertise. The Center will develop performance measures to evaluate the effectiveness of transportation strategies and to guide the selection of future research and policy priorities.