

# Climate Change & Livability Scan

## Virginia



Prepared by:

FHWA Virginia Division Office  
September 2010

# Virginia Climate Change and Livability Scan

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## Executive Summary

This scan and report was undertaken to assess the status of climate change and livability efforts in Virginia and in so doing, establish a baseline to work from. The report addresses activities that were included in the Virginia Division 2010 Unit Plan related to climate change and livability including bicycle and pedestrian issues and transportation and land use coordination. The structure of the scan and resulting report was based on a template suggested by the HQ Office of FHWA.

The report identifies the key climate change and livability partners and stakeholders in Virginia. It also documents the efforts that are under way to address climate change and livability at the federal, state and local levels by highlighting the more noteworthy examples. Climate change effects and livability benefits are described, as are the efforts underway to address these issues in the statewide and metropolitan planning processes in Virginia. Finally, the report documents how climate change is being addressed in the project development process and what can be done to move forward.

In overview, many partners and stakeholders are involved in Virginia's efforts to address climate change and advance the principles of livability. While there are a lot of partners and stakeholders involved, coordination among them in an effort to amplify or leverage their resources and expertise is somewhat limited. Likewise, there are numerous efforts under way to address climate change and livability at the federal, state and local levels. At the federal level, there has been a lot of research and dissemination of information related to climate change while the HUD/DOT/EPA Partnership for Sustainable Communities is working to advance the livability initiative at the regional and local level. At the state level, Virginia's climate related hallmark has been to develop and adopt the Virginia Climate Change Action Plan which includes an ambitious goal of reducing greenhouse gas emissions from the "Commonwealth's transportation sector to 30% below the business-as-usual projection of emissions by 2025", which is basically equivalent to the 2000 level of emissions. There is little organized focus regarding the overall livability initiative at the state level. However, in recent years the state has directed significantly more funding to support and expand mass transit. Also, the state has incorporated into their planning and project development process several programs that advance livability principles like transportation and land use coordination, connectivity of secondary roads, context-sensitive solutions, traffic calming, and bicycle and pedestrian development but not under a comprehensive livability "umbrella". Finally, the state has developed performance measures that assess the state of the overall transportation system in Virginia. Some of those performance measures encompass climate change and livability principles. At the local level, some of the larger regions of the state as well as those located near coastal areas are taking up the issue of climate change. The Hampton Roads region has invested significantly in hurricane evacuation planning. There are many localities in Virginia that are pursuing initiatives that enhance and improve the livability of their communities and cities and support livability principles, but this is not new; those involved in transportation planning will explain that they have always tried to make their cities and communities more livable by trying to coordinate decisions that impact the public while maximizing and leveraging limited resources.

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Within the statewide transportation planning process, the transportation-related recommendations of the Virginia Climate Change Action Plan have been incorporated into the update of the statewide multimodal transportation plan which was completed and submitted to the Governor earlier this year. Likewise, livability principles form the basis for some of the long range goals of the plan. In the metropolitan transportation planning process, a few of the MPOs are funding climate change and livability-related activities with planning funds and considering climate change in the update of their long range plans. Generally speaking, climate change and livability are not being used as a basis to program or prioritize projects in the planning process.

To reduce the length of the report, hyperlinks and references to websites have been provided where other reports, studies, memorandum, manuals, publications, etc. can be accessed if the reader would like more in-depth information on a particular subject or issue.

Any comments or questions on this report can be directed to Edward Sundra, Planning and Environment Program Manager, [ed.sundra@dot.gov](mailto:ed.sundra@dot.gov).

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## Acronyms

AASHTO - American Association of State Highway Transportation Officials  
AMPO - Association of Metropolitan planning Organizations  
APTA - American Public Transit Association  
BAC - Bicycle Advisory Committee  
BART - Bicycle Accommodations Review Team  
BOS – Board of Supervisors  
CCCEF - Center for Climate Change and Environmental Forecasting  
CCSC – [WashCOG] Climate Change Steering Committee  
CEEPC - [WashCOG] Climate, Energy and Environment Policy Committee  
CEQ – Council on Environmental Quality  
CFL – Compact Fluorescent Light  
CLRP – Constrained Long Range Transportation Plan  
COG – Council of Governments  
CoSS - Corridors of Statewide Significance  
CTAA - Community Transportation Association of America  
CTB – Commonwealth Transportation Board  
DOT – Department of Transportation  
EIP - [Fairfax County] Environmental Improvement Program  
EPA – Environmental Protection Agency  
FHWA – Federal Highway Administration  
FTA – Federal Transit Administration  
HUD – [U.S. Department of] Housing and Urban Development  
ITF - Internal Bicycle and Pedestrian Task Force  
LEED - Leadership in Energy and Environmental Design  
MPO – Metropolitan Planning Organization  
NADO - National Association of Development Organizations  
NARC - National Association of Regional Councils  
PDC – Planning District Commission  
SSAR - Secondary Street Acceptance Requirements  
TIP – Transportation Improvement Program  
TLC – [WashCOG] Transportation/Land Use Connection  
TPB – [WashCOG] Transportation Planning Board  
UDA - Urban Development Areas  
UPWP – Unified Planning Work Program  
USDA – U.S. Department of Agriculture  
VDCR – Virginia Department of Conservation and Recreation  
VDEQ – Virginia Department of Environmental Quality  
VDGIF – Virginia Department of Game and Inland Fisheries  
VDHDC - Virginia Department of Housing and Community Development  
VDOT – Virginia Department of Transportation  
VDRPT – Virginia Department of Rail and Public Transportation  
VMT – Vehicle Miles Traveled  
VTrans2035 – Virginia Transportation 2035 (Statewide Multimodal Transportation Plan)  
VTRC – Virginia Transportation Research Council  
WashCOG – Washington Council of Governments

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## 1. Introduction

The Federal Highway Administration is committed to improving transportation mobility and safety while protecting the environment, reducing greenhouse gas emissions, and preparing for climate change effects on transportation systems. FHWA is also actively involved in efforts to initiate, collect, and disseminate climate-change-related research and to provide technical assistance to stakeholders.

The Federal Highway Administration also believes that it is important to improve the relationship between infrastructure and community needs and to specifically improve a community's 'livability,' to enhance the environmental sensitivity of roads and bridges and to help states explore multi-modal transportation options. To foster this belief, the Federal Highway Administration is a partner in the Housing and Urban Development/Department of Transportation/Environmental Protection Agency (HUD/DOT/EPA) Partnership for Sustainable Communities and as a member of this partnership, the Federal Highway Administration is actively participating in efforts to reach out to the states, metropolitan planning organizations, local governments, and other stakeholders to begin a dialogue, coordinate decisions, and leverage available funding sources to advance livability principles.

This scan was undertaken to support the U.S. Department of Transportation's/Federal Highway Administration's climate change and livability initiatives by taking a snap shot or establishing a baseline of what is occurring in Virginia. The report is intended to be a living document that would be updated annually as additional steps are taken and additional efforts are initiated by the State, metropolitan planning organizations, and localities.

The scan was undertaken by reviewing various websites (Office of the Governor, Virginia Department of Transportation, Virginia Department of Environmental Quality, Metropolitan Planning Organizations, Planning District Commissions, local governments, etc.) to develop an understanding of what is being done at the state and local level to address the climate change and livability issues. Documents related to these issues were also reviewed, including the Virginia Climate Change Action Plan. The individuals in the office responsible for overseeing and coordinating with the Metropolitan Planning Organizations and Planning District Commissions in Virginia also contributed information on what is being done at the local level to address these issues. Finally, we also coordinated with the Virginia Department of Transportation to get a better understanding of the efforts underway at the state and local levels.

The goals and objectives for the scan are to develop a climate change and livability baseline in Virginia for use by the Federal Highway Administration leadership in gauging the progress being made in Virginia and for use in identifying areas where additional efforts can be undertaken and further progress made. It also serves to document climate change and livability initiatives that have been successfully implemented in Virginia and can then be used by others that might benefit from implementing similar measures in their regions or states.

## **2. Key Climate Change and Livability Partners and Stakeholders**

There are a variety of partners and stakeholders involved in the climate change and livability initiatives at the federal, state, and local levels as it relates to surface transportation. This section summarizes the primary partners and stakeholders and the role that they play.

### **2.1 Federal<sup>1</sup>**

#### Environmental Protection Agency

The Environmental Protection Agency (EPA) is an agency of the federal government with a mission to protect human health and safeguard the natural environment -- air, water and land -- upon which life depends. Accordingly, they are responsible for writing and enforcing regulations and for establishing and enforcing environmental standards based on laws passed by Congress including but not limited to the Clean Water Act, Clean Air Act, and Comprehensive Environmental Response Compensation and Liability Act.

EPA is part of the HUD/EPA/DOT Partnership for Sustainable Communities. They recognize that where and how we build communities has a major impact on the environment and on public health. By promoting more environmentally, economically, and socially sustainable communities, EPA can better protect our nation's environmental resources and people. Many EPA programs are aimed at helping tribal, state, and local governments support activities that build more sustainable communities and protect human health and the environment. They include: Assessment Grant Program, Revolving Loan Fund Grant Program, Cleanup Grant Program, Brownfields Job Training Grant Program, Targeted Brownfields Assessments, Technical Assistance to Brownfields Program, Environmental Justice Small Grants Program, Environmental Justice Collaborative Problem-Solving Cooperative Agreement Program, State Environmental Justice Cooperative Agreements Program, Environmental Justice Showcase Communities Project, Community Action for a Renewed Environment, Lead Grants, State and Local Climate and Energy Program, National Clean Diesel Campaign, Smart-Way Transport Partnership, Smart Growth Program, Smart Growth Implementation Assistance Program, Clean Water State Revolving Fund, Drinking Water State Revolving Fund, Green Infrastructure, Asset Management, and Nonpoint Source Management Grants.

#### Federal Highway Administration

Federal Highway Administration (FHWA) is a modal agency of the United States Department of Transportation (DOT). FHWA is charged with the broad responsibility of ensuring that America's roads and highways continue to be the safest and most

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<sup>1</sup> Additional information on the programs described in this section can be found at: <http://www.fhwa.dot.gov/livability/scp.cfm>;



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technologically up-to-date. They provide financial and technical support to the States, local governments and tribal governments for constructing, improving, and maintaining America's highway system while providing oversight of the project development process.

As a member of DOT, FHWA is part of the HUD/EPA/DOT Partnership for Sustainable Communities. FHWA manages several programs that can be used to advance projects that address climate change and advance the principles of livability including but not limited to Safe Routes to School, Transportation and Community and System Preservation, Congestion Mitigation and Air Quality Improvement Program, Transportation Enhancement Program, Recreational Trails Program, and Surface Transportation Program. FHWA also has several activities underway related to climate change and livability.

### Federal Transit Administration

The Federal Transit Administration (FTA) is a modal agency of the United States DOT. FTA provides stewardship of combined formula and discretionary programs to support a variety of locally planned, constructed, and operated public transportation systems throughout the United States. These transportation systems typically include buses, subways, light rail, commuter rail, streetcars, monorail, passenger ferry boats, inclined railways, or people movers.

As a member of DOT, FTA is also a part of the HUD/EPA/DOT Partnership for Sustainable Communities. Like FHWA, FTA manages several programs that can be used to advance projects that address climate change and advance the principles of livability such as the Urbanized Areas Formula Grant Program, Rail and Fixed Guideway Modernization Formula Program, Rural and Small Urban Area Formula Grant Program, Rural Transit Assistance Program, Bus and Bus Facilities Discretionary Grant Program, New Starts/Small Starts Discretionary Grant Program, Public Transportation on Indian Reservations Discretionary Grant Program, Transit Investments for Greenhouse Gas and Energy Reduction Program, Paul S. Sarbanes Transit in the Parks Discretionary Grant Program, Transportation for Elderly Persons and Persons with Disabilities, Job Access and Reverse Commute Program, and New Freedom Formula Grant Program. FTA also has several other activities underway related to climate change and livability.

### Housing and Urban Development

The Department of Housing and Urban Development (HUD) oversees home ownership, supports community development, and increase access to affordable housing. HUD promotes sustainable communities by coordinating federal housing and transportation investments with local land use decisions in order to reduce transportation costs for families, improve housing affordability, save energy, and increase access to housing and employment opportunities. By ensuring that housing is located near job centers and affordable, accessible transportation, HUD seeks to nurture healthier, more inclusive communities -- which provide opportunities for people of all ages, incomes, races, and ethnicities to live, work, and learn together.

HUD is a member of the HUD/EPA/DOT Partnership for Sustainable Communities. They too manage several programs that can be used to advance projects that benefit air

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quality and advance the principles of livability including Sustainable Communities Initiative, Energy Innovation Fund, HOPE VI, Public Housing, Housing Choice and Project-Based Vouchers, Community Development Block Grants, Section 108, Brownfields Economic Development Initiative, HOME Investment Partnership, Housing Opportunities for Persons with AIDS, Neighborhood Stabilization Program, and Rural Innovation Fund.

## United States Department of Agriculture

The United States Department of Agriculture (USDA) is responsible for developing and carrying out federal government policy on farming, agriculture, and food. USDA aims to meet the needs of farmers and ranchers, promote agricultural trade and production, work to assure food safety, protect natural resources, and foster rural communities.

The USDA was not part of the original HUD/EPA/DOT Partnership for Sustainable Communities when it was initially formed, but they have since been recognized as a partner because of their rural development program and involvement in rural communities. Under their rural development program, USDA has over forty loan, loan guarantee, and grant programs to finance housing, businesses, economic development, community facilities, and infrastructure in rural areas. Programs include but are not limited to Rural Business Enterprise Grants, Value Added Producer Grants, Rural Energy for America Program, Rural Community Grants, Rural Economic Development Loans, Housing Preservation Grants, Telecommunication and Broadband Program, Water and Environment Program, and Community Facilities Program.

## **2.2 State**

### Commonwealth Transportation Board

The 17-member Commonwealth Transportation Board (CTB) is appointed by the Governor and is responsible for establishing the administrative policies for Virginia's transportation system. The CTB also allocates highway funding to specific projects, approves the location of routes and provides funding for airports, seaports and public transportation.

Because they are responsible for allocating funding, the CTB can play an important role in establishing policies and funding projects that reduce greenhouse gas initiative and advance the principles of livability.

### Office of the Governor

Under the former Governor, Governor Tim Kaine, Virginia adopted the Virginia Climate Change Action Plan. That plan included a goal of reducing greenhouse gas emissions from the “Commonwealth’s transportation sector to 30% below the business-as-usual projection of emissions by 2025” (which is basically equivalent to the 2000 level of emissions). Many of the transportation-related recommendations to come out of the Virginia Climate Change Action Plan have been included in the State’s multimodal long range transportation plan and serves as the first step in implementing these recommendations.

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The current Governor, Governor Bob McDonnell, is promoting both a pro-business and pro-energy climate in Virginia. The Governor supports an “all of the above” approach to addressing the state’s energy needs and recently joined the Atlantic Offshore Wind Energy Consortium, which will encourage the environmentally-responsible development of wind energy off the east coast along with other sources of renewable energy. Governor McDonnell has also established the State’s first executive housing policy framework which will guide the development of a housing policy to be announced later this year. The Governor’s policy will address homelessness, affordable housing, workforce housing, economic development, healthy neighborhoods, and effective coordination of transportation and environmental issues.

### Virginia Department of Transportation

The Virginia Department of Transportation (VDOT) is responsible for building, maintaining and operating the state's roads, bridges and tunnels. Virginia has the third-largest state-maintained highway system in the country, behind Texas and North Carolina, with over 56,000 miles.

As the statewide agency responsible for the state's roads, bridges and tunnels, VDOT is involved in all stages of project development including planning, environmental impact analysis, design, right of way acquisition, construction, and operations and maintenance. Throughout the project development process, VDOT maintains a close relationship with the localities as well as the public to ensure that their projects are sensitive to their needs and minimize impacts that they might experience.

VDOT is responsible for implementing some of the transportation-related recommendations that came out of the Virginia Climate Change Action Plan. VDOT is also involved with several different initiatives typically associated with livability like transportation and land use coordination, context-sensitive solutions, traffic calming, bicycle and pedestrian development, etc. These programs have been incorporated into the planning and project development process by individual divisions and offices within VDOT and are discussed further in section 3.4.

### Virginia Department of Rail and Public Transportation

The Virginia Department of Rail and Public Transportation (VDRPT) is a state agency that reports to the Virginia Secretary of Transportation and works closely with VDOT as well as other transportation agencies responsible for aviation and ports. DRPT's three primary areas of activity focus on the movement of people and goods throughout Virginia: rail, public transportation, and commuter services.

When it comes to climate change and livability, there is a lot of emphasis on expanding transit, increasing transportation choices, reducing reliance on automobiles, and promoting transit oriented development, etc. Accordingly, the VDRPT will play an important role in the development of rail and transit projects that will ultimately address climate change and advance livability principles.

### Virginia Department of Housing and Community Development

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The Virginia Department of Housing and Community Development (VDHCD) is committed to creating safe, affordable, and prosperous communities to live, work and do business in Virginia. The VDHCD partners with Virginia's communities to develop their economic potential, regulates Virginia's building and fire codes, provides training and certification for building officials, and invests more than \$100 million each year into housing and community development projects throughout the state - the majority of which are designed to help low-to-moderate income citizens.

Livability principles place emphasis on affordable housing and because of this, VDHCD has an important role to play in advancing livability in Virginia.

## Virginia Department of Environmental Quality

The Virginia Department of Environmental Quality (VDEQ) has as its mission to protect and improve the environment for the well being of all Virginians. To accomplish this, VDEQ administers state and federal laws and regulations for air quality, water quality, water supply and waste management. In addition, other programs administered by VDEQ cover a variety of environmental activities, such as improving the ability of businesses and local governments to protect the environment, and offering technical and financial assistance for air and water quality improvements.

Because of their role in addressing air quality issues, VDEQ plays an important part in the deployment of climate change initiatives in Virginia. During the development of the Virginia Climate Change Action Plan, they were responsible for conducting an inventory and projecting the amount of greenhouse gas emissions in Virginia.

## Virginia Transportation Research Council

The Virginia Transportation Research Council (VTRC) is an arm of the VDOT and one of the nation's leading transportation research centers. They are responsible for all research at the VDOT and have had a partnership with the University of Virginia since 1948. The VTRC specializes in basic and applied research to support VDOT on a variety of issues including but not limited to structures, materials, pavements, safety, traffic engineering, transportation planning, and environmental issues. Some of their research in transportation planning is related to livability principles, and they currently are using funding from FHWA to address climate change issues.

## **2.3 Regional and Local**

### Metropolitan Planning Organizations

A metropolitan planning organization (MPO) is a federally-mandated and federally-funded transportation policy-making organization in the United States that is made up of representatives from local government and governmental transportation authorities. MPOs are required in urbanized areas with a population greater than 50,000 and are responsible for carrying out a transportation planning process that is comprehensive, cooperative and continuous. Federal funding for transportation projects and programs are channeled through this planning process. Statewide and metropolitan transportation planning processes are governed by federal law (23 U.S.C. § 134–135).

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There are currently eleven MPOs operating solely within Virginia (Fredericksburg, Charlottesville, Hampton Roads, Lynchburg, Danville, Richmond, Petersburg, Roanoke, Blacksburg, Harrisonburg, and Winchester) and three multi-state MPOs that encompass portions of Virginia as well as other states (Washington, D.C., Bristol, and Kingsport).

MPOs have varying degrees of ability to address climate change and advance livability principles. The larger MPOs have more decision making authority than the smaller MPOs to develop and program projects that reduce greenhouse gas emissions and advance the principles of livability. Some MPOs are currently advancing initiatives related to climate change and livability on a voluntary basis. Should Congress decide to use the metropolitan transportation planning process to address climate change, then MPOs will assume a more prominent role in addressing climate change.

### Planning District Commissions or Regional Commissions

A Planning District Commission (PDC) is a political subdivision of the Commonwealth of Virginia that has been around for over 40 years. There are 21 PDCs in Virginia, each one consisting of a couple to several counties and localities. The purpose of PDC as set out in the Code of Virginia, Section 15.2-4207, is "...to encourage and facilitate local government cooperation and state-local cooperation in addressing on a regional basis problems of greater than local significance." In Virginia, PDCs provide staff support to the MPOs and assume responsibility for transportation planning activities in the urbanized areas as one of their roles. As such, PDCs may deal with a variety of transportation-related planning issues including highway development, freight movement, ridesharing, airport planning, and specialized transit.

In some cases, PDCs, as regional bodies, are better situated to address issues related to climate change as evidenced by some of the initiatives discussed in section 3.5.4. Likewise, because they get involved in housing and environmental issues in addition to transportation issues, they may be in a better position to coordinate decisions related to livability.

### Local Governments and Municipalities

Local governments and municipalities in Virginia have a wide range of authority including authority to incur debt, assess taxes, build schools and libraries, enforce laws, provide emergency medical and fire protection services, control animals, enforce building codes, implement solid waste collection and disposal, establish housing authority to enact zoning ordinances, adopt comprehensive plans, operate public transportation, and establish parks.

Because localities and municipalities hold such high authority for developing comprehensive plans and controlling land use zoning and site planning in Virginia, they play a crucial role in developing livable communities. Likewise, the identification of the need for transportation improvements often arises at the local level. Therefore, local governments are in a good position to coordinate transportation and land use decisions through their comprehensive planning process. Since localities and municipalities also have a role to play with respect to the availability of housing as well as some

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environmental issues, they are an important stakeholder in the effort to coordinate these decisions as part of the livability issue.

## Universities

Universities are responsible for carrying out much of the research in the country including research related to climate change and livable communities. They also often have departments dedicated to these subjects. Accordingly, universities can play an important role in the dissemination of information including communities of practice, best management practices, and technology transfer. In Virginia, the University of Virginia and Virginia Tech University have been the most involved in transportation-related research and to a lesser extent, Old Dominion University, the College of William and Mary, George Washington University, and Virginia Commonwealth University.

## **2.4 Associations and Private Companies**

### American Association of State Highway Transportation Officials

The American Association of State Highway Transportation Officials (AASHTO) is a standards setting body which publishes specifications and test protocols and guidelines which are used for design, construction of highways and bridges, materials, and many other technical areas. They work to educate the public and key decision makers about the critical role that transportation plays in securing a good quality of life and sound economy for our nation. Representing all 50 states, the District of Columbia, and Puerto Rico, AASHTO serves as a liaison between state departments of transportation and the Federal government and often play a prominent role in the development of policy, law, and regulations.

AASHTO supports the principles of livability pointing out that many in the transportation field were working hard at improving the quality of life in local communities through smart transportation choices and investments before livability started to receive a lot of its current emphasis. With increasing emphasis being placed on livability and alternative forms of transportation, AASHTO wants to make sure that roadways continue to be considered in the full range of transportation options that are being identified to improve livability in communities. By providing improved access to good jobs and affordable housing and building local economies, roadways have played and will continue to play an important role in the development of livable communities.

### American Public Transit Association (APTA)

The American Public Transit Association (APTA) is a leading force in advancing public transportation. Their mission is to strengthen and improve public transportation by leading its members through advocacy, innovation and information sharing. APTA works to ensure that public transportation is available and accessible for all Americans in communities across the country. APTA's members include transit providers, state departments of transportation, MPOs, high speed rail authorities, state associations, universities, vanpool/carpool riders, etc.

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Because livability places increased emphasis on public transportation and expanding transportation choices for the public, APTA has an important role to play on behalf of its members as an advocate for public transportation.

### Association of Metropolitan Planning Organizations (AMPO)

The Association of Metropolitan Planning Organizations (AMPO) is an organization established to serve the needs and interests of metropolitan planning organizations (MPOs) nationwide; they are committed to enhancing MPO's abilities to improve their metropolitan transportation systems. AMPO offers its member MPOs technical assistance and training, conferences and workshops, frequent print and electronic communications, research, a forum for transportation policy development and coalition building, and a variety of other services.

AMPO supports livability and sustainability but points out that MPOs have been engaged in transportation planning for years to make communities more livable. As a voice for MPOs nationwide, they can wield greater influence over policy issues related to climate change and livability at the national level than MPOs individually. They also serve to inform policy makers of the capabilities and corporate capacity of MPOs when the MPOs are asked to bear the responsibility for addressing new policies.

### Community Transportation Association of America (CTAA)

The Community Transportation Association of America (CTAA) recognizes that effective public and community transportation contributes to the quality of life of the people living in the cities, towns and communities in which it operates. They believe that a society that includes a growing population of seniors needs new and expanded community transportation alternatives. Communities with staggering air quality problems and ground congestion need improved public and community transportation alternatives. Areas and communities that have been abandoned or which are in decline need public and community transportation options as part of their renewal efforts.

CTAA provides resources to its members in the areas of employment transportation, medical transportation, senior mobility, rural transportation, passengers with disabilities, tribal transportation, urban transportation, and emergency management. This diverse range of areas of interest gives CTAA a valuable perspective on what constitutes a livable community.

### National Association of Development Organizations (NADO)

The National Association of Development Organizations (NADO) provides advocacy, education, research, and training for the nation's regional development organizations. NADO offers its members access to a variety of services and benefits which are designed to enhance the ability of regional development organizations to foster regional solutions to local government, business and community needs. They work to expand economic development programs in smaller cities and rural towns.

NADO can play an important role in the livability issue because of its involvement in smaller cities and rural areas where livability is as much an issue as in larger cities and

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metropolitan areas. These rural areas are not just concerned about access to jobs but the creation of jobs themselves and the economic development potential of their regions.

## National Association of Regional Councils (NARC)

The National Association of Regional Councils (NARC) serves as the national voice for regionalism by advocating for regional cooperation as the most effective way to address a variety of community planning and development opportunities and issues.

NARC has been actively advancing the locally-approved regional approach to livability and sustainability by advocating legislation with Congress, promoting the HUD/DOT/EPA Interagency Partnership for Sustainable Communities and analyzing grant opportunities.

## Providers of Services to the Elderly

The population of seniors and the elderly in the country is growing, and meeting their transportation needs is an important component in improving the livability of communities. Accordingly, providers of services to seniors and the elderly will have a role in efforts to advance the livability initiative and determining what constitutes a livable community.

## Public Transportation Providers

There are several public transportation providers operating in the urbanized areas of Virginia that strive to provide accessible, affordable, clean, dependable and safe service that meets the needs of their customers. These providers are responsible for planning, operating and maintaining the transit services that they provide. Given the emphasis placed on transit and expanding transportation choice, these providers have an important role to play in both the climate change and livability initiatives.

## **3. Federal, State and Local Efforts/Initiatives Related to Climate Change and Livability**

### **3.1 Federal Efforts/Initiatives on Climate Change**

FHWA is actively involved in efforts to initiate, collect, and disseminate climate-change-related research and to provide technical assistance to stakeholders. FHWA is also involved in climate change initiatives through the U.S. Department of Transportation's Center for Climate Change and Environmental Forecasting (CCCEF). The CCCEF website was replaced by the U.S. Department of Transportation's Center for Climate Change and Environmental Forecasting website which can be found at the following link: <http://www.climate.dot.gov/about-the-center.html>. The CCCEF was formed in 1999 to address issues associated with climate change and variability and to play a leadership role in meeting these challenges. The Center has become the focal point within the U.S. DOT for information and technical expertise on transportation and climate change, working with its component organizations to coordinate related research, policies, and actions. The Center promotes comprehensive multimodal approaches to reduce greenhouse gas



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emissions and prepare for the effects of climate change on the transportation system, while advancing U.S. Department of Transportation's core goals of safety, mobility, environmental stewardship, and security.

The U.S. DOT and FHWA have been involved in a lot of research on climate. Some of the research that the U.S. DOT and/or FHWA have been involved with or co-sponsored includes:

[Regional Climate Change Effects: Useful Information for Transportation Agencies](#)

[The Potential Impacts of Global Sea Level Rise on Transportation Infrastructure – Mid-Atlantic Study Phase 1 – Final Report: the District of Columbia, Maryland, North Carolina and Virginia \(August 2008\)](#)

[Literature Review: Climate Change Vulnerability Assessment, Risk Assessment, and Adaptation Approaches. July 2009](#)

[Integrating Climate Change into the Transportation Planning Process](#)

[Transportation's Role in Reducing U.S. Greenhouse Gas Emissions](#)

In June 2010, the FHWA Office of Natural Environment put out a request for proposals for piloting approaches to conduct climate change vulnerability and risk assessments of transportation infrastructure. In response, the VTRC, Hampton Roads Planning District Commission, University of Virginia Center for Transportation Studies, University of Virginia Center for Risk Management of Engineering Systems, and the Hampton Roads Transportation Planning Organization submitted a proposal titled, *Conceptual Model for Conducting Climate Change Vulnerability and Risk Assessments of Transportation Infrastructure; Hampton Roads, Virginia; Implementation Pilot*. The goals of the proposal are 1) to identify, analyze, and prioritize a comprehensive set of transportation assets in Hampton Roads that have the highest exposure to climate change threats, and have the highest potential for significant impacts due to climate change; 2) to incorporate the consideration of vulnerabilities due to climate change into ongoing work addressing infrastructure protection from a security perspective; and 3) to document lessons learned in applying FHWA's Risk Assessment Model and to develop specific recommendations for the FHWA to consider in revising the model. In mid-September, the proposal was awarded \$250,000 in funding from the Surface Transportation Research, Development and Deployment Program.

## **3.2 Federal Efforts/Initiatives on Livability**

The livability initiative is strongly supported by the current Administration which seeks to coordinate transportation, housing and other development and environmental decisions to maximize and leverage resources and comprehensively improve community living conditions. The U. S. Department of Transportation (DOT) Secretary Ray LaHood defined livability as “being able to take your kids to school, go to work, see a doctor, drop by the grocery or post office, go out to dinner and a movie, and play with your kids

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at the park, all without having to get in your car.” He has said that, “Creating livable communities will result in improved quality of life for all Americans and create a more efficient and more accessible transportation network that serves the needs of individual communities. Fostering the concept of livability in transportation projects and programs will help America’s neighborhoods become safer, healthier and more vibrant.” FHWA Administrator Victor Mendez has stated that “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.”

Consistent with this increasing emphasis on livability, the Administration included money for the livability initiative as part of the fiscal year 2011 proposed budget. Likewise, livability is also figuring prominently into discussions of reauthorization. FHWA itself has several funding programs that can be used to advance projects and support efforts related to livability. These include the Safe Routes to School, Transportation and Community and System Preservation, Congestion Mitigation and Air Quality Improvement, Transportation Enhancements, Recreational Trails, Surface Transportation, and Planning programs. While these funding programs or funding sources have been around for awhile and were not developed with the livability initiative in mind, they are flexible enough that they can be used to advance livability and fund projects related to it.

In June 2009, in support of the Administration’s livability initiative, EPA joined with the HUD and the U.S. DOT to help improve access to affordable housing, more transportation options, and lower transportation costs while protecting the environment in communities nationwide. Through a set of guiding livability principles (i.e. provide more transportation choices; promote equitable, affordable housing; enhance economic competitiveness; support existing communities; coordinate and leveraging federal policies and investment; and value communities and neighborhoods) and a partnership agreement that will guide these agencies' efforts, this partnership will be coordinating federal housing, transportation, and other infrastructure investments to protect the environment, promote equitable development, and help to address the challenges of climate change. She may not have been talking about the federal partnership when she said it, but District of Columbia planning director Harriet Tregoning probably said it best when she said, “Livability is a shorthand way of saying we’re going to spend \$1 to solve \$4 worth of challenges. It’s about getting multiple outcomes that communities want with a single investment.”

In August of 2010, the U.S. Department of Agriculture was recognized as a partner in the Interagency Partnership for Sustainable Communities. Since the formation of the partnership, efforts have been underway at the regional level to advance livability principles and to reach out to states and individual communities. The FHWA Virginia Division Office is part of the Region 3 or Mid-Atlantic partnership for sustainable communities. The FHWA Division Offices in the Mid-Atlantic region are represented by the Pennsylvania Division Office on the Mid-Atlantic partnership.

In February of this year, the local field office of HUD met with the Virginia Division Office of FHWA to introduce themselves to each other and to learn about each agency’s

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programs in light of the livability initiative and the Mid-Atlantic partnership's effort to host a video symposium in the Richmond area. Following the video symposium, the local field office of HUD met with the Virginia Division Office of FHWA to discuss future steps to advance livability in Virginia. In an effort to advance the livability initiative locally, FHWA and HUD hosted a workshop in the Richmond area on leveraging the federal partnership. The workshop was also broadcast as a webinar for those that could not travel to Richmond to participate in the workshop. In addition to FHWA and the local field office of HUD, the Mid-Atlantic partnership participated in the workshop (HUD, EPA, FTA) along with the USDA. Approximately a dozen individuals attended the workshop and approximately 30 participated in the webinar. Participants represented planning district commissions, regional commissions, metropolitan planning organizations, housing authorities, community development organizations, state and federal agencies, localities, and elderly services providers. As a follow-up to that workshop, the field offices of FHWA and HUD had planned to take the initiative to the next level by hosting a couple of charettes at different locations around the state in an effort to advance specific livability projects. As planned, the purpose of the charettes was to sit down with interested parties that had specific projects to advance and work out all of the issues and details that were bound to arise. However, at the request of the Mid-Atlantic partnership, those charettes were postponed because the partnership did not want us to get out front of their regional efforts. The Mid-Atlantic partnership is now currently taking the lead in seeking "showcase" projects.<sup>2</sup>

Several groups and organizations in Virginia, including PDCs and MPOs, have applied for HUD's Sustainable Communities Regional Planning Grants. The grants are intended to support regional planning efforts that integrate planning for housing, environment, transportation, and land use. The grants are scheduled to be awarded in late-September. The proposals that receive grants will then be refined in the fall and executed in February 2011. The FTA also has a Livability Bus Program, which is a competitive discretionary program that funds capital bus projects which meet criteria tied to the tenets of the federal livability initiative.

## **3.3 State Efforts/Initiatives on Climate Change**

### **3.3.1 Climate Registry**

In May 2007, Virginia joined The Climate Registry. The Climate Registry<sup>3</sup> is a nonprofit collaboration among North American states, provinces, territories and Native Sovereign Nations that sets consistent and transparent standards to calculate, verify and publicly report greenhouse gas emissions into a single registry. It also provides meaningful information to reduce greenhouse gas emissions. As such, the Registry is committed to:

- Utilizing best practices in greenhouse gas emissions reporting;
- Establishing a common data infrastructure for voluntary and mandatory reporting and emissions reduction programs;
- Minimizing the burden on Members, Directors and Native Sovereign Nations;

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<sup>2</sup> The FHWA livability website is found at: <http://www.fhwa.dot.gov/livability/>.

<sup>3</sup> The website for the Climate Registry is found at: <http://www.theclimateregistry.org/>.

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- Providing an opportunity for Members to establish an emissions baseline and document early action;
- Developing a recognized platform for credible and consistent greenhouse gas emissions reporting;
- Promoting full and public disclosure of greenhouse gas emissions while respecting business confidentiality;

Members of the Climate Change Registry represent a wide variety of interests including agriculture, building and materials, defense, education, electric power generation, healthcare, local and state government, manufacturing, mining, nonprofit organizations, oil and gas production, public utilities, solid waste and recycling, telecommunications, transportation, and travel and leisure. Members of The Climate Registry voluntarily measure, verify, and publicly report their greenhouse gas emissions to the Registry.

In January 2009, The Climate Registry adopted a policy regarding federal reporting programs in North America. The Registry strongly endorses that any federal greenhouse gas reporting and regulatory programs in North America partner with The Climate Registry as a cost effective central repository or clearinghouse for reporting and/or tracking greenhouse gas data.

In contrast, Virginia does not participate in the Northeast and Mid-Atlantic States Regional Greenhouse Gas Initiative (RGGI). The RGGI is the first mandatory, market-based effort in the United States to reduce greenhouse gas emissions. Ten Northeastern and Mid-Atlantic states have agreed to cap and reduce CO<sub>2</sub> emissions from the power sector by 10% by 2018. The participating states sell nearly all emission allowances through auctions and invest the proceeds in consumer benefits such as energy efficiency, renewable energy, and other clean energy technologies.<sup>4</sup>

### **3.3.2 Commission on Climate Change and Climate Change Action Plan**

The Virginia Energy Plan was released in September 2007 and set a goal for the Commonwealth to reduce greenhouse gas emissions by 30 percent by 2025.<sup>5</sup> The reduction in emissions would be partially achieved through energy conservation and renewable energy actions listed in the energy plan. Governor Tim Kaine established the Governor's Commission on Climate Change in December 2007 to identify additional steps that could be taken to achieve the emissions reduction goal. The Commission was composed of approximately 40 members including elected officials, business owners, economists, farmers, energy providers, scientists, transit providers, university professors, planners, and environmental advocates. The Committee was chaired by the Secretary of Natural Resources with the Virginia Secretary of Transportation and Virginia Secretary of Commerce and Trade serving as ex officio members.

The Commission was charged with preparing a plan that identified ways to reduce greenhouse gas emissions in Virginia. To accomplish this, the Commission was charged with conducting an inventory of the amount of and contributors to Virginia's greenhouse

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<sup>4</sup> Additional information can be found at: <http://www.rggi.org/home>;

<sup>5</sup> The Virginia Energy Plan is available at: <http://www.dmme.virginia.gov/vaenergyplan.shtml>;

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gas emissions, including emissions projections through 2025; evaluating the expected impacts of climate change on Virginia's citizens, natural resources and economy; identifying climate change approaches being pursued by other states, regions and the federal government; identifying what Virginia needs to do to prepare for the likely consequences of climate change; and identifying any actions that need to be taken to achieve the 30 percent greenhouse gas reduction goal.

The Commission was broken into four workgroups comprised of members who had expertise relevant to the subject matter. The four workgroups consisted of 1) adaptation and sequestration; 2) built environment; 3) electric generation and other stationary sources; and 4) transportation and land use. Each workgroup was responsible for developing recommendations that addressed their subject matter and presenting them to the full Commission. Recommendations were then debated, accepted, amended, deleted, and/or adopted. The final report was issued in December 2008.<sup>6</sup>

When it comes to transportation, the Commission established a goal of reducing greenhouse gas emissions from the "Commonwealth's transportation sector to 30% below the business-as-usual projection of emissions by 2025", which is basically equivalent to the 2000 level of emissions. The following recommendations were adopted for achieving those reductions:

- expanding commuter choice, improving transportation system efficiency, and improving community designs;
- increasing the efficiency of the transportation fleet and use of alternative fuels;
- accelerating research and development in the field of low-carbon alternative fuels and advocating for federal actions that will reduce GHG transportation emissions;
- ensure that climate change impacts, particularly sea level rise and storm surge vulnerability in coastal areas of Virginia, are taken into account in all transportation planning, project design, and prioritization of projects for funding as well as transportation systems management, operations, and maintenance;
- develop climate change adaptation plans for critical infrastructures;
- ensure that all transportation projects, plans, and programs do not cause or contribute to a violation of an ambient air quality standard;
- increase involvement and collaboration with the Commonwealth's resource agencies (e.g., VDCR, VDEQ, VDGIF, etc.) during transportation planning activities;
- increase access to, and use of, alternatives to the single-occupant vehicle (e.g., expanding mass-transit, promoting carpooling, etc.);
- implement solutions to traffic congestion to improve transportation efficiency and quality of life;
- increase intermodal and non-highway freight shipments to improve efficiency in moving goods and people in addition to promoting effective use of existing infrastructure;

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<sup>6</sup> The final report is available at: <http://www.deq.virginia.gov/info/climatechange.html>;

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- work with MPOs and localities to ensure that the coordination of transportation and land use is a key policy goal;
- provide technical assistance to localities to amend comprehensive plans and zoning ordinances to promote compact, walkable, transit-oriented development areas and to guide development to such areas;
- recognize community excellence in land use and transportation and the importance of neighborhood design to limit residents' and workers' dependence on cars;
- ensure that new or upgraded roads are more pedestrian and bike-friendly;
- create signalization standards to improve the timing and the intelligence of traffic signalization across the Commonwealth to improve traffic flow;
- promote efforts to educate all drivers about behavioral changes that can significantly boost energy efficiency and reduce air pollution;
- amend landscaping standards to minimize mowing, support tree preservation and planting, and increase carbon retention;
- minimize vehicle miles traveled (VMT) related to state and local operations by promoting carpooling, videoconferencing, teleconferencing, etc.;
- encourage comprehensive regional resource assessments, both natural and cultural, to ensure the implementation of informed land-use planning protocols;

In December of 2009, Virginia completed its update of its multimodal long range transportation plan (VTrans 2035). The recommendations from the Virginia Climate Change Action Plan related to transportation were included in VTrans 2035, and serves as the first step in implementing these recommendations. As Virginia moves forward on the recommendations, a series of strategies and action steps will be developed to accomplish them. This will require a collaborative approach between the various local, state, and federal agencies (including FHWA) affected by them, along with significant input from the public.

### **3.3.3 Recent Developments Related to Climate Change**

The existing Governor, Bob McDonnell, promotes both a pro-business and pro-energy climate in Virginia. He advocates the development of more domestic energy sources because of the critical relationship that exists between energy and national and economic security while also recognizing that the development of domestic energy sources will create much needed jobs and opportunities for Virginians. Accordingly, the Governor supports an “all of the above” approach to addressing the state’s energy needs. Consistent with his support for an “all of the above” approach to addressing the state’s energy needs and consistent with the renewable energy actions listed in the Virginia Energy Plan, the Governor, along with nine other east coast governors, signed a memorandum of understanding with the Secretary of the Interior to establish the Atlantic Offshore Wind Energy Consortium in June. The consortium will encourage the environmentally-responsible development of wind energy off the east coast along with other sources of renewable energy and indirectly address climate change by promoting forms of energy that reduce greenhouse gas emissions.

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Further, the newly elected Virginia Attorney General has taken some high profile actions with respect to climate change. He launched an investigation into research activities at the University of Virginia as it relates to possible fraud in its climate change research program. Michael Mann, a scientist that has been tied to a climate change e-mail scandal at the University of East Anglia, was part of the University's faculty from 1999-2005. Second, the Attorney General filed a petition with the EPA asking the agency to reconsider its carbon dioxide endangerment finding. The EPA endangerment finding asserts that manmade emissions of greenhouse gases have affected the climate and threaten human health and the environment. In August, the EPA rejected twelve such petitions, including the one filed by the Attorney General. The Attorney General also filed a petition with the federal appeals court in Washington, D.C. along with the State of Alabama seeking a court review of the finding.

### 3.3.4 Miscellaneous

There are several initiatives that Virginia and VDOT are involved with or pursuing related to climate change that warrant a brief mention.

Virginia law requires the Office of Intermodal Planning and Investment within the Virginia Office of the Secretary of Transportation to develop transportation performance measures that assess the state of the overall transportation system in Virginia and provide an annual report. One of the seven goal areas currently being evaluated to assess the performance of the transportation system is environmental stewardship. The environmental stewardship goal consists of four different measures that are currently being tracked including tons per year of transportation sector greenhouse gas emissions. For each measure, strategies are identified for improving the measure. These strategies include promoting transportation demand management programs, advocating stronger CAFÉ standards for passenger vehicles and accelerated standards for heavy trucks, supporting Green Operator diesel truck replacement program and alternate fuel and hybrid technology use at the Port of Virginia, developing initiatives to make and market Virginia as "hybrid friendly", evaluating the cost effectiveness of accelerating the electrification of truck stops and adoption of idling technology, expanding the frequency and scope of transit and rail services, encouraging pedestrian and bicycle improvements, encouraging local and regional land use patterns that minimize greenhouse gas emissions, and continuing to promote telework and flextime standards. The most recent report can be found online.<sup>7</sup>

Virginia is also:

- Promoting and participating in electric-vehicle re-charging infrastructure study-improvements;
- Funding opportunities for a biodiesel pilot program;
- Actively utilizing low-energy LED streetlights for upgrades/replacements;
- Actively promoting telecommuting and alternate work schedules;
- Promoting carpooling, videoconferencing, teleconferencing, etc., in order to reduce VMT; and

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<sup>7</sup> See <http://www.vatransperforms.virginia.gov/TransPerf08/summary.html>;

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- Researching congestion pricing as a means to reduce VMT as well as reduce peak period congestion;

## **3.4 State Efforts/Initiatives on Livability**

There is little organized focus regarding the overall livability initiative at the state level. The different initiatives typically associated with livability like transportation and land use coordination, context-sensitive solutions, traffic calming, bicycle and pedestrian development, etc. are being addressed and have been incorporated into the planning and project development process by individual divisions and offices within VDOT but not necessarily under a comprehensive livability “umbrella”. While VDOT is interested in the livability initiative, they do not have their own livability program or point of contact on livability.

The following are some livability-related initiatives that VDOT is involved with:

### **3.4.1 Transportation and Land Use Coordination**

For years, there has been a push to improve the coordination between transportation and land use decisions. In Virginia, this can be a difficult relationship to address because land use decisions are the prerogative of local governments while transportation planning and funding decisions are generally made at the state level. Roads are a critical public resource and constitute a major investment of the public’s money. Land use decisions in the form of new development can create traffic impacts that lead to a reduction in the traffic carrying capacity of roadways leading to increased congestion and decreased safety; this in turn can increase the cost to state and local governments as well as the broader community. Therefore, improving the coordination between transportation and land use decisions is essential for ensuring mobility throughout the state. In this regard, Virginia has enacted different legislation and promulgated regulation to this end.

To promote more compact urban design and combat sprawl, Virginia is requiring its higher population growth jurisdictions to designate Urban Development Areas (UDAs) inside local comprehensive plans that can accommodate 10 to 20 years of their population growth within areas (i) appropriate for higher density development due to its proximity to transportation facilities, the availability of a public or community water and sewer system, or a developed area and (ii) to the extent feasible, to be used for redevelopment or infill development. The planning requirements, in the Code of Virginia at § 15.2-2223.1, also set land use density standards. The deadlines for the jurisdictions to establish UDAs are July 1, 2011, for counties with populations below 130,000, and July 1, 2012, for cities, towns and counties with populations of 130,000 or more. The Virginia Secretary of Transportation’s Office has sponsored 34 urban development planning grants that provide consultant assistance for affected jurisdictions’’ UDA planning initiatives.

Chapter 527 of the 2006 Acts of Assembly added § 15.2-2222.1 to the Code of Virginia. The legislation established a process by which localities are required to submit development proposals to the Virginia Department of Transportation for review and comment when those proposals will substantially affect the state-controlled transportation



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network. The legislation is intended to improve how land-use and transportation planning decisions are coordinated throughout Virginia by establishing standardized methodologies (definitions, analytical methods, etc.), procedures for analyzing transportation impacts, and procedures for disseminating that information to citizens and policymakers. As part of this process, localities must conduct a traffic impact analysis.

The Traffic Impact Analysis Regulations (24 VAC 30-155)<sup>8</sup> set forth procedures and requirements implementing § 15.2-2222.1 and governing VDOT's review of and submission of comments regarding comprehensive plans and amendments to comprehensive plans, rezoning proposals, and subdivision plats, site plans and plans of development and the accompanying traffic impact analyses. This regulation identifies types of proposals that "substantially affect" transportation on state controlled highways, and provides additional information to assist policymakers and the public in planning and land-use and transportation decisions. In 2010, the Traffic Impact Analysis Regulations were amended to offer local governments the option of conducting a single traffic analysis at the comprehensive plan stage of the development process for all parcels that are part of a small area plan for an urban development area or for a large transit oriented development.

Related to this issue are Virginia's access management regulations. Better management of access to a roadway can reduce the number of conflict points and their associated adverse impact on highway operation and public safety. Because roads are a critical public resource and constitute a major investment of the public's money, access management can maximize this investment. The 2007 General Assembly unanimously approved legislation<sup>9</sup> directing the Virginia Department of Transportation to develop access management regulations and standards with the goals of reducing traffic congestion, enhance public safety by reducing conflicting traffic movements, reducing the need for new highways and road widening by maximizing the performance of existing state highways, supporting economic development by promoting the efficient movement of goods and people; preserving the public investment in new and existing highways; and ensuring that private property is entitled to reasonable access to the highways. These goals would be accomplished through regulations and standards for spacing entrances, intersections, median openings and traffic signals; locating entrances a safe distance from intersection turning movements and from interchange ramps; providing vehicular, and where appropriate, pedestrian circulation between adjoining properties; and sharing of highway entrances.

In 2008, the General Assembly enacted legislation requiring VDOT to implement the access management regulations and standards in phases according to a highway's functional classification. Regulations have been developed for principal arterials<sup>10</sup> and minor arterials, collectors and local streets.<sup>11</sup>

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<sup>8</sup> See <http://www.virginiadot.org/projects/chapter527/default.asp>;

<sup>9</sup> See [http://www.virginiadot.org/projects/resources/Chapter\\_863\\_HB\\_2228.pdf](http://www.virginiadot.org/projects/resources/Chapter_863_HB_2228.pdf);

<sup>10</sup> See [http://www.virginiadot.org/projects/resources/access\\_management/Access\\_Management\\_Regulations\\_Principal\\_Arterials\\_24\\_VAC\\_30-72.pdf](http://www.virginiadot.org/projects/resources/access_management/Access_Management_Regulations_Principal_Arterials_24_VAC_30-72.pdf);

<sup>11</sup> See <http://www.virginiadot.org/projects/resources/AccessMRegs24VAC30-73MinorArterialsCollectors.pdf>;

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Finally, on behalf of the CTB, the Virginia Transportation Secretary's Office (assisted by VDOT) developed a Secondary Street Acceptance Requirements (SSAR) regulation which became effective on March 9, 2009 (they replaced the Subdivision Street Requirements that were in effect up until then). The SSAR regulation establishes requirements that newly constructed streets will need to meet to be accepted into the secondary system of state highways for public maintenance.<sup>12</sup> Under the regulation, Virginia agrees to maintain streets built by developers provided the streets are built to connect with the surrounding transportation network in a manner that enhances the capacity of the overall transportation network and accommodates pedestrians. The SSAR are based, in part, on policies to increase connectivity of streets between existing and future development, accommodate pedestrian where appropriate, and promote context sensitive street designs that allow for built-in traffic calming and increase flexibility to use low impact development techniques to help reduce storm water runoff.

Incidentally, transportation and land use is one of the performance goals that Virginia is tracking as part of its annual report to assess the state of the overall transportation system in Virginia. The three measures that Virginia is tracking to determine their success in this area are ratio of jobs to housing in metropolitan areas, number of people per square mile in metropolitan areas, and number of daily VMT per capita.

### 3.4.2 Context Sensitive Solutions

VDOT has committed and adopted policies and procedures as part of their project and program development processes that provide flexibility, innovative design, and context sensitive solutions for addressing transportation problems. As designed, these processes have been structured to include stakeholders and citizens in the design of transportation improvements that safely improve public mobility while reflecting community values and preserving scenic, aesthetic, historic, and environmental resources. VDOT has issued an Instructional and Informational Memorandum on Context Sensitive Solutions. See: <http://www.extranet.vdot.state.va.us/locdes/electronic%20pubs/iim/IIM235.pdf>.

VDOT has also developed Project Management Procedures that lay out the steps of the project scoping process. Those procedures can be found at the following location: [http://www.virginiadot.org/business/resources/Project\\_Scope\\_and\\_Team\\_Meeting.pdf](http://www.virginiadot.org/business/resources/Project_Scope_and_Team_Meeting.pdf). One of the steps included in those procedures is to "initiate the context sensitive analysis and stakeholder outreach". The purpose of this step is to promote the involvement of all stakeholders in the development of the project to ensure that the project fits its physical setting and also reflects concerns for scenic, aesthetic, historic, and environmental resources while providing for transportation safety and mobility.

Finally, context sensitive street design also figure into the SSAR regulation and SSAR guidance document. The SSAR context sensitive street design requirements are also included Appendix B(1) of the VDOT Road Design Manual (i.e. Subdivision Street Design Guide).

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<sup>12</sup>See <http://www.virginiadot.org/projects/ssar/default.asp>;

### 3.4.3 Traffic Calming

VDOT maintains a traffic calming program for communities concerned about traffic safety on their residential streets and has developed a guide for localities to help them navigate the program.<sup>13</sup> In recent years, more and more communities have sought solutions to combat the increased traffic and speeding on their neighborhood streets. VDOT's traffic calming program is designed to address those concerns by working with local communities to implement physical measures for traffic calming including but not limited to speed humps, raised crosswalks, mini roundabouts, and raised median islands.

Regarding roundabouts, VDOT procedure calls for potential consideration of roundabouts in certain situations where a roundabout design can enhance safety and reduce delays encountered by the motoring public. Roundabouts have been used effectively to reduce crashes, traffic delays, fuel consumption, air pollution and construction as well as maintenance costs, while quite often moving more traffic and enhancing intersection aesthetics. They have also been used to control speed in residential neighborhoods and are accepted as one of the safest types of intersection designs. For information on the VDOT roundabout program, see <http://www.virginiadot.org/info/faq-roundabouts.xml>.

For several years, VDOT has been working with several communities in Fauquier and Loudoun Counties to implement traffic calming measures on Route 50. The traffic calming effort spans a 20-mile stretch of Route 50 from Paris in Fauquier County to Lenah in Loudoun County.<sup>14</sup> Individual projects have either been completed or are underway in Upperville, Gilbert's Corner and Aldie. The measures have been developed to slow traffic, improve safety for pedestrians and motorists, and preserve the historic and rural nature of the corridor.

### 3.4.4 Bicycle and Pedestrian Development

VDOT's bicycle and pedestrian program promotes bicycling and walking within the state. Since the late 1970s it has provided planning assistance to state and local transportation planners, activity coordination for various bicycle committees, and bicycle and pedestrian education and safety promotion.<sup>15</sup> In 2004, the Commonwealth Transportation Board adopted a VDOT Policy for Integrating Bicycle and Pedestrian Accommodations into its projects.<sup>16</sup> The policy states that VDOT "will initiate all highway construction with the presumption that the projects shall accommodate bicycling and walking." The policy also lays out opportunities for accommodations, exceptions to the policy, the decision making process, and the roles of the different disciplines within VDOT. Further, VDOT has developed the Virginia Bicycle Facility Resource Guide, which offers planning, design, education, and funding ideas for bicycle facilities Guide.<sup>17</sup> VDOT has also developed a list of possible bicycle and pedestrian accommodations<sup>18</sup> that can be used by project managers on road projects. VDOT's Bicycle and Pedestrian

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<sup>13</sup> See <http://www.virginiadot.org/programs/resources/TrafficCalmingGuideOct2002.pdf>;

<sup>14</sup> See [http://www.virginiadot.org/projects/northernvirginia/route\\_50\\_traffic\\_calming\\_measures.asp](http://www.virginiadot.org/projects/northernvirginia/route_50_traffic_calming_measures.asp);

<sup>15</sup> See <http://www.virginiadot.org/programs/bk-default.asp>;

<sup>16</sup> See [http://www.virginiadot.org/programs/resources/bike\\_ped\\_policy.pdf](http://www.virginiadot.org/programs/resources/bike_ped_policy.pdf) ;

<sup>17</sup> See <http://www.virginiadot.org/travel/resources/bk-facresguide.pdf>;

<sup>18</sup> See <http://www.virginiadot.org/travel/resources/bk-facresguide.pdf>;

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Accommodations Design Process<sup>19</sup> provides its designers a process for determining if bicycle and pedestrian accommodations are appropriate for the characteristics of a particular roadway. Finally, a number of implementation guidance documents for localities have been compiled<sup>20</sup> to improve communication and allow for better planning and accommodation of pedestrians and cyclists under terms of the 2004 policy.

VDOT has drafted a State Bicycle Policy Plan to ensure bicyclists are an integral component of Virginia's multimodal transportation system and to provide bicycle policy recommendations that will guide the planning, design, construction, operation and maintenance of bicycle accommodations.<sup>21</sup> The draft plan provides strategies and identifies opportunities for enhancing the implementation of the CTB-adopted Policy for Integrating Bicycle and Pedestrian Accommodations as well as VDOT's coordination within the agency and with stakeholders across the State. VDOT is taking comments on the draft plan through mid-September.

There are many people within VDOT and associated with other agencies and interests that contribute to the success of VDOT's bicycle and pedestrian program. In addition to VDOT, the Virginia Department of Conservation and Recreation, Virginia Department of Education, Virginia Department of Health, Virginia Department of Motor Vehicles, and Virginia Tourism Corporation have bicycle and pedestrian coordinators. In addition to a statewide coordinator, VDOT also has a bicycle and pedestrian coordinator in each of its nine district offices. These district coordinators act as liaisons with the local bicycling and walking community and municipalities, provide planning and design information and technical assistance, and participate in the Internal Bicycle and Pedestrian Task Force (ITF).

The VDOT ITF is responsible for ensuring the consistent implementation of the bicycle and pedestrian program within VDOT. The ITF periodically reviews, evaluates and recommends modifications to VDOT's bicycle and pedestrian policies and practices, and it is the primary venue by which information on bicycle and pedestrian issues is distributed internally through VDOT. The ITF not only consists of the district bicycle and pedestrian coordinators but also consists of representatives from the following VDOT's Maintenance, Location and Design, Local Assistance, Structure and Bridge, Traffic Engineering, and Transportation and Mobility Planning Divisions.

VDOT also has a Bicycle Accommodations Review Team (BART), which is a multi-disciplinary team within VDOT with knowledge in aspects of bicycle and pedestrian planning, design and safety. BART reviews proposed plans to ensure consistency in bicycle and pedestrian facility design. They also review highway plans for state-maintained roads that include a bicycle or pedestrian accommodation as well as Federal-aid funded projects that include a bicycle or pedestrian component. The team, which includes representatives from the State's bicycle and pedestrian program, the Location and Design Division and the Traffic Engineering Division meets regularly to review and

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<sup>19</sup> See <http://www.virginiadot.org/programs/resources/BikePedDecisionProcess.pdf>;

<sup>20</sup> See <http://www.virginiadot.org/programs/bk-documents.asp>;

<sup>21</sup> See [http://www.virginiadot.org/programs/bicycling\\_and\\_walking/bicycle\\_policy\\_plan.asp](http://www.virginiadot.org/programs/bicycling_and_walking/bicycle_policy_plan.asp);

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comment on pending plans and recommend changes as appropriate. The team also meets on-site with designers and local agencies to discuss design issues.

Finally, VDOT established its' Bicycle Advisory Committee in 1989 as a forum for open communication and information exchange between the Department, other state agencies, federal agencies, advocates and citizens regarding bicycling issues across the Commonwealth. Members of this committee meet periodically to discuss VDOT policies, standards and practices that affect the bicycling community. The committee members are asked to share this information with the bicycling community and other interested groups. The committee's format provides an opportunity for members to address a variety of issues and foster mutual understanding. The committee works together on specific projects such as bicycle race permits, "Share the Road" signs and informational materials.

VDOT partners with other state agencies in the areas of healthy communities. In this regard, VDOT has been participating in the Virginia Department of Health's healthy communities project. This project, which is one of 11 projects nationwide supported by the Center for Disease Control, focuses on making the places where people live, work and go to school healthier by introducing physical activity into the community environment.

VDOT and the Department of Conservation and Recreation are also working together to encourage non-motorized access as part of park master planning and the use of non-traditional transportation corridors, such as greenways, in the State's transportation mix.

### **3.4.5 Recent Developments Related to Livability**

Governor McDonnell has been focusing on the affordable housing component of livability. In April 2010, the Governor announced the establishment of the state's first executive housing policy framework which will guide the development of a housing policy to be announced in the fall. The Governor's policy will address homelessness, affordable housing, workforce housing, economic development, healthy neighborhoods, and effective coordination of transportation and environmental issues. The Governor also announced the formation of the Housing Policy Advisory Committee to be comprised of representatives from state government, private industry, local governments, nonprofit housing providers who will develop the policy.

On April 30, 2010, the Governor issued Executive Order No. 10 titled, "Housing Policy Framework of the Commonwealth of Virginia." The framework identifies four housing principles including the promotion of "sustainable and vibrant communities through measures that promote mixed use development, increase energy efficiency and use cost effective green building concepts..."

### **3.4.6 Miscellaneous**

Similar to the discussion in section 3.3.4, the requirement under Virginia law to develop transportation performance measures that assess the state of the overall transportation system in Virginia and provide an annual report has a livability connection as well. One of the seven goal areas currently being evaluated is mobility, connectivity and accessibility. The mobility, connectivity and accessibility goal consists of nine different

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measures that are currently being tracked which include number of hours of delay in metropolitan areas, number of transit trips per capita, number of annual transit revenue miles, average number of people-per-lane using High Occupancy Vehicle lanes, number of park and ride lots and spaces, percentage of Virginians riding bicycles to work, percentage of Virginians walking to work, percentage of intercity rail service trains arriving on time, and percentage of freight transported by rail or barge. For these measures, strategies are identified for improving the measure. These strategies include implement High Occupancy Toll initiatives, increase utilization of commuter assistance programs in Virginia's metropolitan areas to: reduce the rate at which single occupant vehicles are added to the roads and increase transit ridership, provide additional park and ride lots and spaces for public use, promote ride-sharing (van and car pool), bike, and walk-to-work programs, utilize Safety Service Patrol program to enhance incident management and reduce clearance times, and promote telework and alternate schedule initiatives to reduce peak-travel time traffic.

Another goal area is to facilitate the effective coordination of transportation and land use plans and decisions to promote livable communities. Performance measures associated with this goal area include ratio of jobs to housing in metropolitan areas, number of people per square mile in metropolitan areas, and number of daily VMT per capita. Specific strategies for addressing these measures include promote transit-oriented development, provide transportation funding to areas with compatible land use and transportation plans, assist localities and regional governments with developing compatible transportation and land use plans, promote mixed-use development that places work locations closer to housing, support policies to increase affordable housing near employment centers, facilitate more dense zoning through model ordinances and pilot projects illustrating the greater sustainability of higher density land use patterns at a variety of scales, promote transportation demand management programs, increase transit service, provide sidewalks and bicycle facilities, and promote teleworking, ridesharing, and alternative work schedules.

Finally, Virginia's Department of Social Services has established a 2-1-1 telephone service<sup>22</sup> for persons to access contact information on available community human services, including special transportation services for mobility-disadvantaged populations. The 2-1-1 service helps compliment VDRPT's community special transit services planning. Further, coordinated human services transit planning has developed human service plans for each of the regions of Virginia<sup>23</sup> (scroll down ¾ of the web-page).

### **3.5 Local Efforts/Initiatives on Climate Change**

Many local governments and agencies are taking steps to address climate change in their own way. This includes efforts to develop green building programs, retrofitting public spaces with energy efficient lighting, developing or expanding recycling programs, expanding public transportation options, planting trees and vegetation, purchasing hybrid

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<sup>22</sup> See <http://www.211virginia.org/about.php>;

<sup>23</sup> See [http://www.drpt.virginia.gov/activities/Transit\\_ref\\_materials.aspx](http://www.drpt.virginia.gov/activities/Transit_ref_materials.aspx);

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or energy efficient vehicles, making provisions for telework, converting bus fleets to clean vehicles, etc. Some of the more notable local efforts follow.<sup>24</sup>

### 3.5.1 City of Roanoke

Roanoke has joined ICLEI-Local Governments for Sustainability,<sup>25</sup> which is a membership association of local governments committed to advancing climate protection and sustainable development. Roanoke has followed the ICLEI model that identifies five milestones for establishing a green government program, which include: conducting a baseline emissions inventory and forecast (commonly called a “carbon footprint”), adopting an emissions-reduction target for the forecast year, developing a Local Action Plan, implementing policies and procedures, and monitoring and verifying results. Roanoke’s other efforts have included building its first LEED<sup>26</sup> building and implementing a number of energy efficient practices in its other buildings.

The city also is working with citizens and businesses to identify initiatives in which everyone can take part. For example, Roanoke has analyzed the following options in the waste, residential, commercial, industrial, and transportation sectors and has found that significant emissions reductions are possible if they increase total recycling of municipal solid waste by 1% each year, one 75 watt incandescent bulb is replaced with an equivalent 20 watt CFL in each Roanoke household each year, reduce total commercial and industrial electricity usage by 1% each year, and replace one automobile trip with one public transportation trip per week for 1% of Roanoke’s population each year.

Roanoke City Council has also launched a Clean and Green Campaign to encourage the adoption of clean and green practices in the community. This effort inspired the creation of the Roanoke Business Environmental Leadership Coalition. As a part of the Campaign, some of Roanoke’s largest businesses have said they would calculate their carbon footprint.

### 3.5.2 Washington, D.C. Metropolitan Area (including Northern Virginia)

In April 2007, the Metropolitan Washington Council of Governments (COG) Board of Directors adopted a resolution creating a regional climate change initiative. The resolution also established a Climate Change Steering Committee (CCSC). In November of 2008, the CCSC issued a climate change report<sup>27</sup> that presented recommendations for regional action by proposing broad goals, identified actions that will begin to reduce regional greenhouse gas emissions, and set in place a process to implement the regional framework crafted in the document.

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<sup>24</sup> Note: This just represents a sampling of notable efforts and is not intended to be all encompassing.

<sup>25</sup> See <http://iclei.org/>;

<sup>26</sup> LEED stands for Leadership in Energy & Environmental Design. It is an internationally recognized green building certification system, providing third-party verification that a building or community was designed and built using strategies intended to improve performance in metrics such as energy savings, water efficiency, CO2 emissions reduction, improved indoor environmental quality, and stewardship of resources and sensitivity to their impacts.

<sup>27</sup> See [http://www.mwcog.org/store/item.asp?PUBLICATION\\_ID=334](http://www.mwcog.org/store/item.asp?PUBLICATION_ID=334);

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The CCSC recommends an interim goal of a 20% reduction below 2005 “business as usual” levels by 2020 and a long-term target of a 80% reduction below 2005 “business as usual” levels by 2050. Some of the reduction needed to meet these goals will be achieved by a combination of federal and state policies already adopted. Achieving the long-range goal for 2050 will require substantial use of new technologies. Reducing emissions from the transportation sector will be achieved by increasing fuel efficiency, reducing the carbon content of fuels, and reducing VMT. Reductions in VMT would be achieved by expanding the use of transit, investing/expanding transit infrastructure, expanding commuter options, promoting transit oriented development, and examining parking policies to reduce VMT. It also highlights the need for a regional public education campaign to promote individual and institutional actions, which play an essential role in the climate change effort.

Following the issuance of the report, the WashCOG Board of Directors created the Climate, Energy and Environment Policy Committee (CEEPC) to provide leadership on climate change, energy, green building, alternative fuels, solid waste and recycling issues, and to help support area governments as they work together to meet the goals outlined in the climate change report. The CEEPC includes representatives from WashCOG’s twenty-one member governments, state environmental, energy, and transportation agencies, state legislatures, the Air Quality Public Advisory Committee, federal and regional agencies, electric and gas utilities, environmental organizations, business organizations, and members of the academic community.

In addition to the climate change report, the WashCOG developed “What Would It Take?” in 2008, a greenhouse gas reduction scenario study. A draft of the final report was presented in May 2010.<sup>28</sup> This document provides a summary of the development, analysis and results of the “What Would it Take?” scenario, which examines what it would take in the National Capital Region to meet aggressive regional climate change mitigation goals in the transportation sector. This report includes a baseline inventory and forecast of carbon dioxide emissions in the region, identification and analysis of potential mitigation strategies, and an analysis of whether any combination of these strategies meets long-term mitigation goals. The report also includes cost-effectiveness analysis of these measures and specifically identifies short-term measures that can be feasibly implemented by local governments in the region.

### **3.5.3 Fairfax County**

In 2004 (revised in 2007), the Fairfax County Board of Supervisors (BOS) adopted an environmental agenda<sup>29</sup> that established as one of its chief goals the integration of environmental planning and smart growth into all that they do to leave their land, water and air quality better than they found it. This goal is supported by two basic principles: 1) the conservation of the county’s limited natural resources will be interwoven into all government decisions; and 2) a commitment to provide the necessary resources to protect the environment. To support the goals and objectives of the BOS’ environmental agenda, the county has developed an Environmental Improvement Program (EIP) that identifies

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<sup>28</sup> See <http://www.mwcog.org/uploads/committee-documents/kV5YX1pe20100617100959.pdf>;

<sup>29</sup> See [http://www.fairfaxcounty.gov/living/environment/eip/bos\\_environmental\\_agenda.pdf](http://www.fairfaxcounty.gov/living/environment/eip/bos_environmental_agenda.pdf);



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supporting actions for achieving those goals and objectives.<sup>30</sup> Included in the EIP is a summary of close to 100 actions for addressing climate change broken down into growth and land use; air quality and transportation; water quality; solid waste; parks, trails and open space; and environmental stewardship actions.<sup>31</sup> The county has received an achievement award from the National Association of Counties for its EIP.

### 3.5.4 Hampton Roads Region

Funded in part by a three-year grant program with the Virginia Coastal Zone Management Program, the Hampton Roads PDC is conducting a multi-year project to look at climate change in the Hampton Roads region. As part of that project, the PDC completed a regional study in February<sup>32</sup> of the potential impacts of climate change on the Hampton Roads region and describes various mitigation strategies that can be taken to reduce and prevent damage from climate change impacts. The study, Climate Change in Hampton Roads: Impacts and Stakeholder Involvement, focused on both the stressors, such as sea level rise and changes in precipitation, and impacts, such as increased vulnerability to storm damage and flooding. An analysis of the impacts on a variety of sectors, including the natural environment, physical infrastructure, water supply, the economy, and health was included in the study. Finally, the study described efforts to develop a regional cooperative framework for addressing climate change. The region is in the process of establishing a Regional Climate Change Working Group that will be responsible for implementing the framework.

In the second year, the project is focusing on specific policy recommendations and stakeholder involvement. Specific work will include an assessment of economic impacts from climate change on the region, continued development of tools to project impacts from sea level rise, policy recommendations for adapting the built and natural environments to climate change impacts, and continued work on the regional framework for responding to climate change. In the third year, the project will focus on a continued assessment of infrastructure and environmental impacts and completion of the regional framework for adapting to climate change.

In addition to the Hampton Roads PDC, the Middle Peninsula PDC has received a multi-year grant under the Virginia Coastal Zone Management Program to assess potential anthropogenic and ecological impacts of climate change on the middle peninsula and to facilitate discussions of climate change issues with local elected officials and the public. The Northern Virginia Regional Commission has also received a multi-year grant under the Virginia Coastal Zone Management Program to address sustainable shoreline community management in northern Virginia.

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<sup>30</sup> See [http://www.fairfaxcounty.gov/living/environment/eip/2011/fy\\_2011\\_eip\\_complete.pdf](http://www.fairfaxcounty.gov/living/environment/eip/2011/fy_2011_eip_complete.pdf);

<sup>31</sup> See [http://www.fairfaxcounty.gov/living/environment/eip/2011/app-5--summary\\_of\\_climate\\_change\\_actions-9-11-09.pdf](http://www.fairfaxcounty.gov/living/environment/eip/2011/app-5--summary_of_climate_change_actions-9-11-09.pdf);

<sup>32</sup> See [http://hrpdc.org/Documents/Phys%20Planning/2010/Climate\\_Change\\_Final\\_Report\\_All.pdf](http://hrpdc.org/Documents/Phys%20Planning/2010/Climate_Change_Final_Report_All.pdf);

## **3.6 Local Efforts/Initiatives on Livability**

The concept of livability is not new. Planners will be quick to explain that they have always tried to make their cities and communities more livable by trying to coordinate decisions that impact the public while maximizing and leveraging limited resources. Similar to the discussion above regarding initiatives and efforts at the state level, PDCs and localities have been addressing the components or principles of livability for years even if it has not been under the livability “umbrella”. What is new is the increasing emphasis that has been placed on the issue the past fourteen months and the support and resources being offered by the federal government to advance livability. When we participated in the video symposiums held throughout the region as part of the Mid-Atlantic partnership, some of the feedback that we received from some of the participants was that the States, MPOs, and localities don’t want another federal program or heavy federal hand in their efforts. They also didn’t want another federal initiative that produces more studies that just sit on the shelf and don’t have any funding associated with it to implement.

There are many localities in Virginia that are pursuing initiatives that enhance and improve the livability of their communities and cities and support livability principles. These initiatives include but are not limited to land use and transportation coordination, traffic calming, promoting and facilitating increased bicycle use, developing walkable streets, promoting and facilitating increased transit usage, tree and green space initiatives, affordable housing, “green” construction, transit oriented development, context sensitive street design, environmental conservation, etc. Examples of some of the more noteworthy efforts follow below.

### **3.6.1 Blacksburg**

The Blacksburg Planning Commission is coordinating zoning efforts in localities in the New River Valley to encourage green development. Blacksburg also is endeavoring to get the community involved by devising Sustainable Blacksburg, which is comprised of the Town of Blacksburg, representatives from Virginia Tech, and community leaders. Each year, Sustainable Blacksburg sponsors a week-long program that offers educational opportunities and discussions.

### **3.6.2 Richmond and Tri-Cities Areas**

In recent years, increasing emphasis has been placed on green infrastructure planning. Green infrastructure planning is a strategic approach to conservation planning that emphasizes interconnected networks of protected lands and intentional preservation of the broad range of ecological services provided by these lands and associated bodies of water. This approach to conservation planning can provide a cost-effective method of meeting multiple land use planning goals and in turn, provide for healthy and more livable communities. Many localities and regions are starting to pursue green infrastructure planning. In 2008 and 2009, the Richmond Regional and Crater PDCs, the Green Infrastructure Center, and the Capital Region Land Conservancy undertook a cooperative effort to document the green infrastructure assets and establish priorities in

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the Richmond and Crater areas. That effort also identified opportunities and lessons learned and identified next steps and opportunities for implementation.<sup>33</sup>

The Hampton Roads region has also taken similar steps so that green infrastructure planning can be considered in its planning processes.<sup>34</sup> The Thomas Jefferson PDC has received a FHWA Eco-Logical Grant to develop a green infrastructure plan connecting transportation, development, and natural resources within their district.

### **3.6.3 Washington, D.C. Metropolitan Area (including Northern Virginia)**

In 2008, the WashCOG Board of Directors formed the Greater Washington 2050 Coalition and charged them with creating a new, comprehensive regional approach to solving the different challenges facing the region: population growth, aging infrastructure, traffic congestion, energy costs, environmental restoration and protection, the need for more affordable housing and sustainable development, and education, economic and health disparities. The Coalition found broad agreement on common goals that create a comprehensive vision for the region as they relate to land use, transportation, environment, climate and energy, economic, housing, education, health, and public safety. These goals were collected under four broad categories: accessibility, sustainability, prosperity, and livability. The Coalition then developed a set of targets indicators to measure progress toward the goals. The regional planning effort, known as Region Forward, was approved by the WashCOG Board of Directors in January 2010.<sup>35</sup> To effect this regional planning effort, the Coalition developed a compact or agreement that its member jurisdictions can use at the local level to advance the regional goals represented by Region Forward.

When it comes to livability, Region Forward established the following goals:

- Make the production, preservation, and distribution of affordable housing a priority throughout the region;
- Healthy communities with greater access to quality health care and a focus on wellness and prevention;
- Provide access and delivery of quality social services to all residents;
- Safe communities for residents and visitors;
- Partnerships that manage emergencies, protect the public health, safety, welfare, and preserve the lives, property and economic well-being of the region and its residents;

To achieve these goals, the Coalition established targets the following targets:

- Dedicate 15% of all new housing units to be affordable housing;
- Maintain a minimum of 10% of affordable housing stock;

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<sup>33</sup> The report can be viewed at:

[http://www.richmondregional.org/Publications/Reports\\_and\\_Documents/Planning/Richmond-Crater\\_Region\\_Green\\_Infrastructure\\_Project\\_09.pdf](http://www.richmondregional.org/Publications/Reports_and_Documents/Planning/Richmond-Crater_Region_Green_Infrastructure_Project_09.pdf);

<sup>34</sup> See [http://www.hrpdc.org/Documents/Phys%20Planning/Green\\_Infrastructure\\_in\\_HR.pdf](http://www.hrpdc.org/Documents/Phys%20Planning/Green_Infrastructure_in_HR.pdf);

<sup>35</sup> A copy of the report can be found at: [http://www.mwcog.org/store/item.asp?PUBLICATION\\_ID=368](http://www.mwcog.org/store/item.asp?PUBLICATION_ID=368);

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- Reduce the number of pedestrian and bicycle fatalities across the region;
- Reduce the number of violent and property crimes across the region;
- Increase access for area residents to real time crime data and timely emergency alerts through the internet or mobile applications;
- Meet the majority of the Healthy People Goals 2010 by greater than half of the region's population;

The WashCOG will monitor several livability indicators to ensure that the region is moving in the right direction on this goal area: percentage of late/no prenatal care; obesity rate; count of homeless people; acres of park land per capita; number of museums, theaters, and restaurants per capita; and number of national and local historical sites.

## **4.0 Climate Change Effects and Livability Benefits in Virginia**

### **4.1 Potential Effects of Climate Change in Virginia (from the Governor's Commission on Climate Change)**

#### **4.1.1 Effects on the Built Environment including Transportation**

- Sea level rise is a major concern for coastal Virginia, particularly the highly populated Hampton Roads region. The Chesapeake Bay Program's Scientific and Technical Advisory Committee projects that sea levels in the Chesapeake Bay region will be 0.7-1.6 meters (2.3-5.2 feet) higher by 2100. Specific impacts will vary by location depending on changes in land elevation. The Virginia Beach-Norfolk Metropolitan Statistical Area ranks 10th in the world in value of assets exposed to increased flooding from sea level rise. In a United States Geological Survey study, the Hampton Roads area is considered to be second only to New Orleans in terms of overall risk from the increased occurrence and intensity of coastal storms that are predicted to occur as a result of climate change.
- Climate changes such as sea level rise could pose serious and growing threats to Virginia's roads, railways, ports, utility systems, and other critical infrastructure, especially in coastal areas. The Impacts of Climate Change and Variability on Transportation Systems and Infrastructure: Gulf Coast Study, Phase I identifies some possible impacts on the transportation system. The study was developed to produce rough estimates of how future climate change could affect transportation infrastructure on the East Coast, including Virginia, due to increase sea level rise and increased storm surge associated with a rise in sea level. The study was not intended to create new estimates of future sea levels or to provide a detailed view of a particular area at a given point in time given the uncertainty of the sea level rise data. Instead, the study provided a broad, first look at potential sea level changes by exploring how the predictions of future global sea level elevations could affect transportation infrastructure. The impact on infrastructure will vary depending upon the scenario used. Specifically, the study developed nine sea level rise impact scenarios for 2100 in cm (6, 6.5, 13, 17.5, 21, 30, 31, 48.5, and 59). In assessing the potential impact on the transportation network, this study identified the areas that,

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without proper protection, are expected to be regularly inundated (i.e. permanently flooded) or are at risk of periodic inundation (i.e. temporary flooding) due to storm surge.

- In the coastal area, there are several major military installations located in low-lying areas that could be affected by sea level rise and storm surge. These include Langley Air Force Base, Oceana Naval Air Station, and the Norfolk Naval Base, the largest naval base in the world.

### 4.1.2 Effects on Natural Systems

- Climate change could have a significant impact on Virginia's range of ecosystems which span coastal, plain, and mountain terrain. At varying rates, vegetation ranges could move from current locations to higher altitudes and latitudes. The effect of this will be that suitable habitat for some species will decline and other species will become extinct. Climate change could also exacerbate threats already faced by Virginia ecosystems, such as invasive species.
- Some of the Chesapeake Bay's "foundation species," such as blue crabs, eelgrass, and oysters, could decline or disappear as salinity and temperatures continue to increase and weather patterns continue to fluctuate widely from year to year. Because foundation species support many other species, these impacts would be felt throughout the ecosystem.
- Oxygen levels in the Chesapeake Bay are expected to decrease due to increasing temperatures and increasing storm runoff, which will have a negative impact on species like striped bass, blue crabs, and oysters. Acidification of the Bay and Atlantic Ocean also is a concern as waters absorb more carbon dioxide (CO<sub>2</sub>).
- Coastal wetlands, a critical habitat for many of the Chesapeake Bay's plants and animals, could be lost as sea levels rise, and freshwater coastal wetlands can similarly be threatened by saltwater intrusion.
- Virginia's forestlands sequester approximately 23 million metric tons of CO<sub>2</sub> per year. Unless current land conversion trends are reversed, however, this number will decline every year, as Virginia loses on average 27,000 acres of forestland annually to development. The loss of agricultural lands, which also can sequester CO<sub>2</sub>, depending on the management practices applied, is an additional concern. In 2003, Virginia had 15.8 million acres of forestland, which represents a decline of 180,600 acres since 1992.
- Climate change could also impact agricultural production by affecting the length of growing seasons as well as overall plant growth and crop yields. Trees, likewise, could see an increase in seed production with warmer temperatures. This in turn can have an impact on the animal species that depend upon these sources of food to supplement their diet. Climate change could also increase the reliance on water resources as precipitation levels fluctuate more dramatically.

## **4.2 Potential Benefits of Promoting more Livable Communities in Virginia**

The benefits of promoting more livable communities in Virginia are similar to the benefits that could be realized in other states. Generally, the benefits are an increased awareness among localities and the public of the benefits of livable communities and the initiation of a dialogue among those in the transportation, housing, environmental, and rural development sectors on how coordinated decision making and the leveraging of funding could be used to maximize the benefits to communities impacted by those decisions. Following through on this dialogue could lead to the implementation of efforts to make communities more livable. As envisioned, more livable communities could lead to reduced reliance on automobiles leading to a reduction in VMT and corresponding greenhouse gas emissions. More livable communities could also lead to more healthy individuals

It is also noted that there is some overlap in the efforts to address climate change and livability. Projects that address climate change will also benefit communities by improving livability and vice-versa.

## **5. Transportation Planning Activities Related to Climate Change and Livability**

### **5.1 Statewide Transportation Planning**

#### **5.1.1 Climate Change**

In December of 2009, VDOT completed an update of its statewide transportation plan which is available at <http://www.vtrans.org>. As part of that update, a policy report on the Natural and Human Environment was developed, which incorporated the recommendations that came out of the Virginia Climate Change Action Plan related to transportation. Section 3.3.2 above summarized the strategies and action steps that Virginia's transportation agencies intend to implement to further improve the environment, many of which pertain to the environmental and planning processes and will lead to reductions in greenhouse gas emissions. These strategies are intended to contribute to the Climate Change Action Plan's goal of reducing greenhouse gas emissions 30% below the business-as-usual projection of emissions by 2025, which is essentially equivalent to the 2000 level of emissions.

The statewide long range transportation plan update and its acceptance by the Governor is an important accomplishment, but it is only a first step toward implementation of the recommendations of the Virginia Climate Change Action Plan. VDOT is reviewing the recommendations to determine how best to implement the recommendations that it has control over.

## 5.1.2 Livability

In developing VTrans2035, the statewide multimodal transportation plan, goals were established that included mobility, connectivity, and accessibility; environmental stewardship; economic vitality, and coordinated transportation and land use. These goals support livability principles with the purpose of making communities more livable.

These goals were further used to develop priorities and recommendations. For example, priorities were adopted for integrating regional land uses and highway capacity, increasing transit usage and supporting land uses, improving rural connectivity, connecting high speed and intercity rail with regional transit systems, and using sustainable and environmentally sensitive methods to name a few.

In addition, VTrans 2035 established eleven corridors of statewide significance (CoSS) that would provide connections to the State's activity centers. In these corridors, potential multimodal transportation improvement strategies have been identified to guide local land use planning and transportation investments. This on-going process is being coordinated with local and regional transportation and land use planners. The CoSS are a first step in ensuring that these corridors are invested in and protected for the future benefit of the entire Commonwealth. VTrans2035 indicates that the extent to which a locality's land use plan protects the functionality of the CoSS will be a factor considered in the funding process.

The potential strategies developed for the CoSS include common strategies related to transit and rail improvements and improving the efficiency of the existing system with ITS, access management, improved land use patterns, and TDM measures. As such, the corridor strategies promote mobility, environmental quality, and sustainable transportation. They will improve accessibility, reduce greenhouse gases and other emissions, improve quality of life with more transportation choices, and support the major population and commercial centers throughout Virginia.

At this point, VTrans2035 is moving into implementation. VTrans2035 has established a framework of investment priorities and strategies, so an action plan needs to be developed to implement the recommendations. VTrans2035 also recommended that regional transportation and land use performance measures and goals for urban regions be developed and transportation funding prioritized based on meeting these goals. This is a recommendation that needs to be endorsed by the CTB. As for CoSS, the next step is the development of corridor master plans that turn the strategies into specific improvements.

## 5.2 Metropolitan Transportation Planning

This section addresses climate change and livability efforts being carried out by MPOs in their metropolitan transportation planning processes as they relate to the development of CLRPs and TIPS. Generally, efforts to address climate change and livability in the metropolitan transportation planning process have been limited to date. As discussed in sections 3.5 and 3.6, there are many local and regional climate change and livability initiatives underway around the state by the same groups and organizations that are also responsible for transportation planning in their respective areas. However, these initiatives are not necessarily being carried out as part of the metropolitan transportation

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planning process required by federal law or being carried out to address those planning requirements. Because these groups and organizations have responsibility for other disciplines that overlap with transportation, their efforts in the areas of climate change and livability have the potential, over time, to inform, support, and feed the metropolitan transportation planning process as the emphasis on these issues increases.

### 5.2.1 MPO UPWPs

A review of the Unified Planning Work Programs (UPWPs) for the larger MPOs did not identify much in the way of funding that has been committed to take into account or address global climate change in their metropolitan transportation planning process. The Washington Council of Governments is continuing planning efforts to prepare and analyze mobile source inventories of greenhouse gas emissions as well as the evaluation of the effectiveness and cost-effectiveness of control strategies to reduce these emissions. The Washington Council of Governments will also revisit emission estimates using different input assumptions and control strategies.

As for livability, not much is being done specifically to address the broader “umbrella” issue of livability in the planning process with the programming of funding in UPWPs, but that umbrella issue is still new and getting off the ground. In contrast, several MPOs are funding work to address some of the principles of livability such as the link between land use and transportation, and these efforts are being used to support the development of constrained long range transportation plans. WashCOG continues to fund the transportation/land use connection (TLC) program in its UPWP. Begun as a pilot in 2006, the TLC program established a clearinghouse to document national best practices as well as local and state experiences with land use and transportation coordination, and offers short term technical assistance through consultant teams to local jurisdictions to advance their coordination activities.

The Transportation Planning Board’s (TPB) most recent UPWP acknowledges the HUD/EPA/DOT livability partnership and concludes that many of the long-standing TPB planning activities have been consistent with the federal livability initiative. TPB believes that it can respond to the new federal initiative based upon the work that it has been conducting for several years and has made it a priority to take advantage of opportunities to strengthen the integration of the region’s housing and environmental planning efforts under the new federal initiative.

The Hampton Roads Transportation Planning Organization is conducting research into land use planning at the regional level to determine how other metropolitan areas are approaching the topic, specifically as it relates to transportation system planning.

The Richmond Regional MPO is funding a study that will provide the MPO with information and tools for improving the coordination of land use planning and freight and goods mobility in the region, and to maximize the overall performance of the transportation system.



### 5.2.2 MPO CLRP and TIP Development

MPO CLRPs and Transportation Improvement Programs (TIPs) are being periodically updated, but there is no concerted effort among the MPOs throughout the state to address climate change and livability as a component of those updates; nor is there a requirement to do so. Neither is climate change and livability being used as a basis to program or prioritize projects. Further and generally speaking, MPOs are not considering or programming specific projects that address climate change or livability and will not likely do so without a regulatory framework or specific funding mechanism in place for doing so like HUD's and FTA's grant programs. Notwithstanding, there are many types of projects being developed and programmed that are having and will have climate change and livability benefits like transportation enhancements, congestion mitigation and air quality improvements, intelligent transportation system initiatives, transit expansion projects, intermodal freight initiatives, etc. Given the funding shortfalls that many states are experiencing and struggling with, transportation decision makers are foregoing new location and large scale projects for more low-cost projects that enhance and maximize the efficiency of the existing transportation system.

There are a couple of noteworthy efforts related to climate change and livability as it relates to CLRP development. In addition to the "What Will it Take?" scenario study mentioned in section 3.5.2, TPB has conducted a CLRP aspiration scenario study. The purpose of this study was to develop an attainable vision of land use and transportation for the CLRP update which would then eventually serve as a vision plan for the region. The goal of the effort was to move jobs and housing closer together to create highly accessible and developed areas in an effort to achieve more efficient transportation systems. The underlying criteria for the study is that land use shifts and transportation projects had to be "within reach".

The Hampton Roads PDC is currently developing a 2034 CLRP for the region, and one of the goals that it has adopted is the reduction of greenhouse gases. To accommodate this goal, they will be developing an estimate of mobile-source greenhouse gases in the region.

The Roanoke Valley Area MPO has included climate change in its update of the region's long range transportation plan by conducting scenario planning. The MPO for the region identified an alteration of weather patterns resulting in more flooding as the most likely negative effect of global climate change on the region. The MPO then developed a list of flood prone roadways by locality and determined the linear miles of flood prone roadways in the MPOs study area. Using VDOT's current estimates, the MPO was able to calculate the cost of reconstructing the flood prone roadways due to excessive and repeated flooding; a cost that they will keep in mind for the long range transportation planning process.

Finally, all MPOs develop a bicycle plan for their region or include a bicycle component as part of their CLRP updates.

### 5.2.3 Miscellaneous

Even though climate change is often depicted as a global and national issue, the direction in Congress with respect to transportation and climate change is toward addressing it at the regional level through the planning process similar to the way pollutants are being addressed in the air quality conformity process. A handful of different reauthorization bills have been introduced in Congress and although there are a lot of differences in these bills, they all include similar language for addressing greenhouse emissions in the planning process. One bill would have EPA establish national goals for greenhouse gas emissions. U.S. DOT in turn would be responsible for establishing greenhouse gas goals and performance measures for the transportation sector. Aside from the practicality of addressing a global issue like climate change at the regional level, many, including VDOT have concerns with treating greenhouse gasses in a similar fashion as the pollutants regulated by EPA via the conformity process. This includes the possibility of greenhouse gas budgets and the potential for penalties being imposed if those budgets aren't met. State transportation agencies such as VDOT also have economic and technological concerns regarding the feasibility of those climate control presumptions that would attempt to have the transportation sector offset its own greenhouse gas emissions. At the MPO level, there is a concern that many MPOs do not have the organizational capacity to address the issue, especially the smaller ones; some MPO's don't even have travel demand models in place. Many MPOs also have no experience with the air quality conformity process because they have managed to attain the air quality standards for the pollutants regulated by EPA. There is also a concern that planning certifications might be tied to a region meeting its greenhouse gas goals. While it may be premature to raise these concerns when we do not know what a final reauthorization bill will ultimately say on the matter and there is little optimism that we will have a new reauthorization bill anytime soon, these are concerns being raised at the local, regional, and state levels that could complicate our ability to effectively address climate change in the planning process.

Finally, Virginia also expects its large metropolitan areas to adopt performance goals similar to those the state uses with the statewide multimodal long range transportation plan. The 2010 Virginia General Assembly inserted a new state budget provision requiring Virginia's large metropolitan areas to develop transportation and land use performance goals for each region's transportation plan and program in consultation with the Virginia Transportation Secretary's office, and to get the goals approved by the state Commonwealth Transportation Board as a condition for the receipt of state funds for use with matching certain federal aid highway funds (e.g. RSTP) beginning July 2011. At the time of this writing, item 436(B)(2) of the applicable 2010 Appropriations Act reads:

Beginning July 1, 2011, in providing the required match for federal Regional Surface Transportation Program funds made available to Metropolitan Planning Organizations in urbanized areas greater than 200,000, the board shall only make allocations to those Metropolitan Planning Organizations that, in consultation with the Office of Intermodal Planning and Investment, have developed regional transportation and land use performance measures pursuant to Chapters 670 and 690 of the 2009 Acts of Assembly and have been approved by the board.

## **6. Project Development Considerations**

The issue of climate change rarely comes up in the project development process but the few times that it has, it has been in the form of public comments on NEPA documents. In some parts of the country, some regional offices of EPA have submitted climate change comments on projects where an Environmental Impact Statement has been prepared. In these instances, FHWA and VDOT have addressed climate change in a very limited capacity. We have done this by recognizing that the contribution to greenhouse gas concentrations from individual projects is inconsequential within the context of global climate change. This approach has been consistent with guidance that we have received from FHWA's HQ Office in the past. This approach will likely change if the Council on Environmental Quality (CEQ) finalizes its guidance requiring federal agencies to analyze the environmental impact of greenhouse gas emissions from federal actions that increase emissions by 25,000 tons or more. Specifically, the guidance states that if a proposed action would be reasonably anticipated to cause direct emissions of 25,000 metric tons or more of CO<sub>2</sub>-equivalent greenhouse gas emissions on an annual basis, agencies should consider this as an indicator that a quantitative and qualitative assessment may be meaningful to decision-makers and the public. VDOT and others have had several concerns with this approach and have submitted comments to CEQ. FHWA's position is that the issue should not be addressed at the project level.

No specific steps have been taken at the state level to address climate change in operations.

VDOT has also recognized that in order to adapt to potential climate change impacts, particularly in coastal areas, they may need to revise their design standards and guidelines. Some work in this area has already occurred as VDOT has identified some of the changes that might be needed. This includes design water discharges, vertical bridge clearances, steel expansion rates, etc. This effort has also recognized that there will be a need for increased usage of permeable concrete pavement and a need to revisit pavement design guidelines.

## **7. Moving Forward**

In some regards, Virginia is out front of many other states in addressing climate change. With the development and adoption of the Virginia Climate Change Action Plan, Virginia has shown a commitment to addressing climate change and reducing greenhouse gas concentrations in the State. However, the action plan just represents a first step and Virginia is struggling with how best to implement its recommendations and achieve its goals. As for livability, there has been limited progress or activity at the state and local level to advance the livability initiative as it relates to the coordination of federal housing, transportation, and other infrastructure investments to protect the environment, promote equitable development, and help to address the challenges of climate change. Regardless, this livability initiative is still relatively new, and there are many efforts and initiatives under way at the state and local level that support the principles of livability.

# Virginia Climate Change and Livability Scan

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## 7.1 Role of the Division Office

There are a couple of things that the Virginia Division Office can do and is doing to advance the climate change and livability efforts in Virginia. While VDOT continues to examine how best to incorporate the transportation-related recommendations of the Virginia Climate Change Action Plan, FHWA stands ready to assist them in their implementation of the recommendations that will impact federal processes and requirements (e.g. transportation planning process, NEPA, etc.). In addition, the FHWA Virginia Division Office will continue to partner with HUD, EPA, FTA, and USDA to advance the livability initiative in Virginia and work with VDOT, the localities, and other stakeholders to leverage funding to develop “livability” projects at the local level. In 2011, the FHWA Virginia Division Office will sit down with VDOT to explore ways we can support them on climate change and livability.

## 7.2 Identification of needs in order to move forward (e.g. tools, data, resources, etc.)

In addition to the different types of research being conducted at the national and regional level, Virginia has identified a couple of areas where additional research and tools are needed as they move forward on climate change.

Modeling and simulation tools already are being used to improve the understanding of how sea level rise and storm surge may affect certain areas of coastal Virginia. However, the fact that Light Detection and Ranging (known as LIDAR) elevation data does not exist for most of coastal Virginia is a major obstacle to the ability to plan effectively for these changes.

The effects of climate change on many of Virginia’s ecosystems and species will be better understood as more research becomes available. Research and conservation efforts will need to be increasingly focused on managing resources to maintain healthy, connected, and genetically diverse ecosystems, and plant, wildlife, and fisheries populations. More research to determine specific effects is needed. The lack of specific information on the impacts hinders Virginia’s ability to adapt and prepare for these changes.

In anticipation of CEQ finalizing their draft guidance on greenhouse gas emissions that would require federal agencies to analyze the environmental impact of greenhouse gas emissions from federal actions that increase emissions by 25,000 tons or more, VDOT has identified the need for modeling tools and guidance that streamlines the development of project-level greenhouse gas emissions analyses. Similar to useful tools developed by FHWA such as EMIT and the CAL3Interface that help streamline CO hotspot and quantitative mobile source air toxic analyses, VDOT would like to see tools developed to help streamline the preparation of greenhouse gas emissions analyses. They believe that it would be especially helpful if FHWA developed greenhouse gas emissions screening tools using worst-case inputs that would negate the need for project-specific travel demand modeling for the build and no-build scenarios for each analysis year.

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In addition to research, regulations or a regulatory basis is needed to serve as a foundation and lend support to efforts to implement the recommendations of the Virginia Climate Change Action Plan and incorporate the livability initiative into the planning and project development decision making processes.

Finally, if MPOs are going to bear the burden of addressing climate change in the planning process as the reauthorization bills introduced in Congress are proposing, then many MPOs will need to increase their corporate capacity to develop the capability to address climate change. This will likely require additional personnel and development of modeling capability. When it comes to transportation air quality conformity requirements, VDOT has assumed the responsibility for addressing conformity for most of the MPOs affected by the issue over the years. If a similar approach is taken with respect to climate change, then there will be additional needs in VDOT that will need to be met as the workload increases.