



# TDOT 25-YEAR LONG-RANGE TRANSPORTATION POLICY PLAN








## ACCESSIBILITY POLICY PAPER

**TN** TDOT  
Department of  
Transportation



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## 1.0 INTRODUCTION

Accessibility describes the ability to reach destinations in an efficient way and can be viewed as the product of the distance between an origin and a destination and the ease of traveling between them. Land use, geography, and the quality and extent of the transportation system affect the quality of accessibility at the state, regional, and local level. Research suggests a link between transportation accessibility and the health of the users of the system. The purpose of this policy paper is to describe current TDOT policies and programs for accessibility through land use planning, access management policies, concepts of multimodal access, and through health and environment initiatives and to provide recommendations for programs and policies consistent with the Guiding Principles of TDOT's 25-Year Policy Plan. A brief description of each of these topics related to accessibility and their relevance to the guiding principles is provided below:

### 1.1 LAND USE

The functional uses of land and its physical characteristics are generally termed land use. Land use categories include undisturbed or semi-natural habitats, managed forests, farms, and various forms of urban development. In the built environment, land use can be broken down into residential, commercial, industrial, and public/semi-public use. Each of these can again be grouped by category. For example, residential land use can be grouped by household density and type. Land use and transportation have a cyclical relationship as development necessitates transportation infrastructure, and infrastructure promotes development. Proper planning and management of land use is important as there is no greater impact to the transportation system and accessibility than land use. The relevance of land use to the guiding principles of the Transportation Plan is provided below:

- Provide for the Efficient Movement of People and Freight – Land use policies and decisions encouraging mixed uses provide opportunities for reducing the distance between origins and destinations and can allow for increased usage of a variety of travel modes.
- Support the State's Economy – Investments in land use planning policies can advance quality economic development through increased access to people, places, goods, and services.
- Build Partnerships for Sustainable and Livable Communities – Successful land use planning, access management, and implementation of Multimodal Access/Complete Streets principles can help to create sustainable and inviting communities in both rural and urban areas.

### 1.2 ACCESS MANAGEMENT

Access management is the creation and application of standards for the location, design, and spacing of driveways, median openings, interchanges, and street connections to a roadway while meeting the access needs of the abutting land uses along the roadway. Areas that do not implement access management strategies tend to deteriorate more quickly in terms of safety and traffic operations than areas where access management strategies are implemented. Access management policies should include multimodal strategies that account for pedestrians, bicyclists, and transit vehicles, in addition to the traditional motor vehicle mode. The relevance of access management to the guiding principles of the Transportation Plan is provided below:

- Provide for the Efficient Movement of People and Freight—Implementation of access management strategies often results in increased capacity and a reduction in delay associated with the transportation system.

- Maximize Safety and Security – Effective access management strategies can improve transportation safety on all facility types.
- Build Partnerships for Sustainable and Livable Communities – Successful access management implementation can help to create sustainable and inviting communities.

### 1.3 MULTIMODAL ACCESS

Similar to the national development of Complete Streets, TDOT has established accessibility concepts which they refer to as Multimodal Access. Much like Complete Streets, Multimodal Access incorporates the planning, design, and operation of streets for safe, convenient access to the system by all users regardless of their transportation mode. Multimodal Access provide for pedestrians, bicyclists, motor vehicles, and freight operations all within the same right-of-way. Implementation of these concepts often results in improved safety, lower transportation costs for end users, additional choice of mode, and improved accessibility. Proper implementation of Multimodal Access is dependent on the surrounding land use contexts and street functions. The relevance of this concept to the Guiding Principles of the Transportation Plan is provided below:

- Provide for the Efficient Movement of People and Freight – Integrating Multimodal Access concepts can provide greater access to all modes for all people which can improve the efficient movement of people and goods.
- Build Partnerships for Sustainable and Livable Communities – Successful Multimodal Access implementation can help to create sustainable and inviting communities in both rural and urban areas.

### 1.4 HEALTH AND ENVIRONMENT

Improved accessibility reduces the travel time or distance between origins and destinations for travelers and improves the ease of transportation. This can be done in a number of ways with a result of improvement in health outcomes and less impact to our environment. For example, allowing a mixed use development with residential and commercial development could allow a resident a choice to walk or ride a bicycle to work or to a restaurant or store rather than take a single occupant vehicle trip resulting in a reduction in vehicle miles traveled and a corresponding reduction in vehicle emissions. Densely developed communities typically allow for more transportation options, such as transit and active transportation modes, while preserving undisturbed or semi-natural habitat. The implementation of access management policies can result in reduced congestion, provision for alternative modes of transportation, and improved safety for all users of the roadway. The relevance of health and environment to the Guiding Principles to the Transportation Plan is provided below:

- Build Partnerships for Sustainable and Livable Communities – Successful land use planning, access management, and implementation of Multimodal Access/Complete Streets principles can help to create sustainable and inviting communities in both rural and urban areas. By following sustainable practices, communities can have a positive impact on the environment and community health can be enhanced.
- Protect Natural, Cultural and Environmental Resources– Responsible planning and management of the transportation system through accessibility policies allows for the preservation of the natural environment and improved health for residents.

## 2.0 SUMMARY OF FINDINGS

The following is a brief summary of findings of existing plans, policies, and programs, future growth, trends, and technology, and recommendations related to land use planning, access management, Multimodal Access/Complete Streets, and health and environment.

- Compared to surrounding and peer states, Tennessee is lagging behind other state DOTs when it comes to policies and programs pertaining to land use planning (specifically at the development review and site impact level), having a comprehensive Access Management program, and having a formal policy to address the needs for all users of the transportation system.
- TDOT has begun to organize various functions of the DOT at the region level and around activities that position the Department to respond to local land use-transportation impacts.
- TDOT has begun to establish various planning efforts (e.g. major thoroughfare plans, corridor management agreements, access management committees, etc.) to better integrate land use and transportation decisions.
- State DOTs can and many do play a larger role beyond driveway permitting in the land use-development approval process.
- State DOTs have increased their role in the interaction of land use and transportation by providing resources and training to local municipalities and other partners.
- A growing number of state DOTs are developing and adopting policies and guidelines for Complete Streets or similar concepts.
- A growing number of state DOTs have formal, comprehensive Access Management programs.
- A number of state DOTs require traffic impact studies as part of their state highway access/driveway approval process.
- Successful programs (Access Management, Multimodal Access/Complete Streets, site impact review, etc.) require well-documented and communicated policies and procedures and often include technical resources and training (for both internal and external staff).
- Consideration of health and transportation is slowly becoming a growing area of interest among state DOTs.
- Integration of health into a DOT's plans, policies, and programs has been most successful when the state DOT has partnered with the state's public health agency and other state organizations.
- State DOTs are playing a more active role in the review and development of local comprehensive plans and local and regional transportation plans.
- State DOT participation at the regional level (both at the metropolitan and rural levels) is shifting from one of passive engagement to one of proactive technical liaison/leader.

### Recommendations

- TDOT should work towards establishing policies and procedures for traffic impact analysis requirements for reviewing development proposals seeking state highway access approval. Examples of state DOT programs include Virginia and Florida.
- TDOT should increase its efforts in working with city, county, and regional organizations relative to land use and transportation. This could include creating technical resources, processes, and training to build capabilities internally as well as with Tennessee

communities. Example state DOT programs and resources include Kentucky's Congestion Toolbox, Florida's Multimodal Review Guide, and Washington's Requirements and Resources for Local Planning and Your Community's Transportation Guidebook.

- TDOT should move beyond current interactions with RPOs to create a process that fosters a more needs-based approach including land use and transportation.
- TDOT should move forward with the development of a Comprehensive Statewide Access Management Program for the state's highway system.
- TDOT should provide resources to local governments on access management (i.e. ordinances, guidelines, training, etc.).
- TDOT should develop a Multimodal Access Policy and Program, which would include internal guidelines and training. Example state DOT programs include Minnesota, North Carolina, and Washington.
- To expand on the Multimodal Access Policy, TDOT should work to provide technical resources for local municipalities. Example state DOT programs include Minnesota, North Carolina, and Washington.
- TDOT should identify existing programs that can be used to promote greater public health considerations in transportation. Program examples include: Safe Routes to Schools (SRTS), Transportation Alternative Program (TAP), TDOT's Multimodal Access Grant, Congestion Mitigation and Air Quality Improvement program (CMAQ), Safety funds, and Federal Transit Administration (FTA) programs.
- TDOT should continue to promote and enhance Tennessee's Environmental Streamlining Agreement (TESA).
- TDOT should continue its current practices in the area of sustainability as a means of maximizing its return on investment.
- TDOT should employ process improvement practices for continuous improvement of the Department's oversight and involvement in project environmental review. Examples include: partnering with resource agencies and others to increase the availability and usefulness of Geographic Information Systems (GIS) data in the environmental review process and evaluating locally managed projects for determining effective management and oversight from environmental review.

## 3.0 EXISTING TDOT POLICY, PLAN, AND DATA ANALYSIS

### 3.1 LAND USE PLANNING

The Tennessee State Planning Commission was established in 1935 with the State and Regional Planning Act. That same year the County Zoning Act, the Municipal Planning Act, the Municipal Subdivision Act, and the Municipal Zoning Act were also passed. The responsibility of the Tennessee State Planning Commission was to prepare a general state plan for the physical, social and economic development of the state. The Commission addressed many issues of statewide significance through research and publications. The Commission, which became the State Planning Office, was eliminated in 1995 and the legislative authority for state land use planning was repealed.

The Tennessee Local Planning Assistance Office was part of the Tennessee Department of Economic and Community Development (ECD) that provided professional advice and technical assistance to local governments across the state through individual planning assistance contracts. Areas of assistance included land use planning, city planning, zoning and subdivision regulation. In 2011, ECD was reorganized and the Local Planning Assistance Office was closed with the understanding that the land use decisions are the responsibility of local and municipal governments.

Title 13 of the Tennessee Code Annotated (TCA Title 13) governs land use planning at the regional and local level in Tennessee. Local governments may develop plans for future development, but are not required to have a comprehensive land use plan. Under the TCA Title 13, counties and municipalities have the authority to adopt a plan for future development and enforce subdivision regulations and zoning ordinances. If a comprehensive plan is developed and adopted by the legislative body of a county or municipality, the law requires that all land use decisions be consistent with the plan.

The planning area of the counties and municipalities is governed by the Growth Policy Act, Public Chapter 1101 (PC 1101), which was established in 1998. PC 1101 requires a coordinating committee for each non-metropolitan county to develop a growth plan that outlines expected development in the next 20 years. The Act did not impose a single, statewide solution. It did, however, include five statements of legislative intent:

- Eliminate annexation or incorporation out of fear;
- Establish incentives to annex or incorporate where appropriate;
- More closely match the timing of development to the provision of public services;
- Stabilize each county's education funding base and establish an incentive for each county legislative body to be more interested in education matters; and,
- Minimize urban sprawl.
- Each plan must identify one or more of the three following area designations:
  - Urban Growth Boundary (UGB) - territory that contains the corporate limits of a municipality and the adjoining territory where growth is expected;
  - Planned Growth Area (PGA) - includes sections outside current municipalities and UGBs where growth is expected; and
  - Rural Area (RA) - includes land that is to be preserved for agriculture, recreation, forest, wildlife and uses other than high-density commercial or residential development.

The county and each municipality in the county may propose boundaries for consideration by the coordinating committee in the development of its recommended growth plan. Provisions are provided for amending and updating the plan, which can only occur every three years. The



Tennessee Advisory Commission on Intergovernmental Relations (TACIR) is responsible for monitoring the implementation of PC 1101.

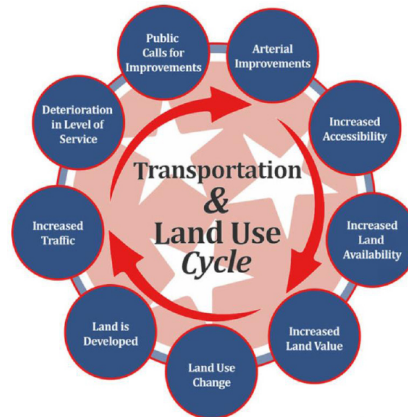
Although land use decisions are made at the local level, TDOT recognized the impact of land use decisions on the transportation system and in 2013, created the Office of Community Transportation (OCT). The mission of OCT is to coordinate the state's transportation planning, local land use decisions, and community visions to guide the development of a safe and efficient statewide transportation system. OCT accomplishes this mission by:

- Partnering with local agencies to determine land-use and infrastructure or transportation facilities
- Strengthening local partner collaboration on transportation decisions
- Improving communication between TDOT and local partners through planning efforts

OCT is made up of the Community Planning and Regional Planning groups. Community planners located in each of the four TDOT Regions serve as an important link to help TDOT stay informed of regionally significant developments. Community planners are responsible for coordination with the Metropolitan Planning Organizations (MPOs) in the state. Community planners coordinate with various divisions within TDOT and advise communities on cost-effective transportation investment options based on their land use vision.

Community planners are responsible for updating state aid and functional classification system documents and developing rural regional transportation plans and major thoroughfare plans. Working with local and regional planning partners, the community planners update urban area boundaries based on current census data. Community planners provide tools and resources to local partners to outline comprehensive, long-term transportation goals based on a vision for their communities. At the community level, OCT staff provides information to help develop or update the following programs and policies:

- Corridor Management Agreements
- Multimodal Initiatives
- Freight Planning
- Health and Transportation
- Livability and Sustainability
- Aging and Transportation
- Access Management



The Regional Planning Office oversees and coordinates the statewide long range transportation planning process in Tennessee's 11 Metropolitan Planning Organizations (MPOs) and 12 Rural Planning Organizations (RPOs). The office provides assistance with the development, review and approval, and implementation of MPO plans and programs (i.e. Long-Range Transportation Plans, Transportation Improvement Plans, Unified Planning Work Programs, etc.) and works closely with the RPOs in identifying and carrying out needed transportation investments within their planning areas.

The office is also responsible for maintaining and operating the statewide travel demand model, providing oversight and technical support to the MPOs in the development of their travel demand models, and coordinating TDOT's statewide freight planning efforts.

Beyond these categories, OCT staff are working to create greater opportunities for TDOT to provide technical resources and guidance in the area of topics such as school siting and other aspects of

land use and transportation planning.

In the last couple of years, TDOT began updating the statewide travel demand model as the importance of evaluating land use with current population and employment data became evident. In addition to supporting TDOT's statewide long-range transportation planning process, the model will also be utilized to determine the effects of land use as well as population and employment changes on the transportation system at the corridor, subarea, and regional levels.

### **Corridor Management Agreements**

Corridor Management Agreements (CMA) provide a framework for multi-jurisdictional coordination of transportation and land use planning efforts. CMAs are collaborative agreements between multiple agencies and jurisdictions to address development, management, and operations of a specific corridor. The use of CMAs in Tennessee began when the State of Tennessee was selected as one of five states to participate in the National Governors Association's (NGA) Center for Best Practices Policy Academy on Shaping a New Approach to Transportation and Land Use Planning in March 2010. Following selection, a project management team was formed to develop objectives of the CMA program. The team consisted of TDOT, Tennessee Department of Economic and Community Development (ECD), and the Tennessee Department of Environment and Conservation (TDEC). The team selected State Route 60 (SR 60) in Bradley County and State Route 109 (SR 109) in Sumner and Wilson Counties as pilot CMA projects.

The SR 60 CMA partnership includes Bradley County, the City of Cleveland, the Cleveland Urban Area Metropolitan Organization (MPO), TDOT, and TDEC. The partnership agreement states that the agencies will work collaboratively in the management of SR 60 between the Tennessee-Georgia state line and SR 306 (Eureka Road/Freewill Road). The SR 60 CMA meets on a quarterly basis to discuss transportation and land use issues along the corridor.

The SR 109 CMA includes Gallatin, Lebanon, Portland, Sumner County, Wilson County, TDOT, TDEC, and the Nashville Area MPO. The CMA states that all parties will promote safe and efficient operation, enhance and sustain economic development and support environmental conservation along the SR 109 corridor between I-65 and I-40. Goals for the CMA for SR 109 include improved regional transportation for local residents, commuters and freight; promotion of economic development; and preservation of the community character.

### **Major Thoroughfare Plan**

While state law allows for cities and counties to adopt major street plans, which are tied to a municipality's subdivision and zoning regulations in terms of allowable uses and setback requirements, TDOT has recently enacted a program to heighten the relation of land use and transportation through the development of Major Thoroughfare Plans (MTPs). A MTP is a transportation planning document that focuses and analyzes transportation assets in rural counties of the state. The MTP represents a transportation vision plan for the County and helps guide land use and transportation infrastructure decisions. MTPs are intended to prepare for and respond to development opportunities by identifying existing and future transportation issues and needs along major roadways. Recommendations are then developed to address these specific issues and needs. Stakeholders involved in the development of MTPs include county, city, and development district staff, with TDOT's OCT Staff leading the planning process. TDOT's community planners leverage the experience of other TDOT staff as well as other State agencies such as TDEC and ECD in the development of the plan.

MTPs include the following elements that will be used in TDOT's regional and statewide long range planning efforts:

- Functional classification maps of the roads in the county

- Existing conditions analysis
- Identification and prioritization of future transportation projects

### 3.2 ACCESS MANAGEMENT

Chapter 1680-2-1, the Rules of Tennessee Department of Transportation Maintenance Division, provides regulations for constructing driveways on state highway right-of-way and TDOT is responsible for the review and approval process. The regulations within Chapter 1680-2-1 describe the required sight distances, number and arrangement of driveways, traffic control, and other geometric requirements for new access. Although there are elements of access management included in 1680-2-1, it does not incorporate many of the key components of an access management plan or policy.

The TDOT Highway Access Management Committee was formed in 2014 to begin evaluating access management best practices used throughout the nation. The voting members of the Committee consist primarily of the executive leadership of TDOT's Bureau of Environment and Planning along with the Bureau of Engineering. The Committee is charged with setting priorities that address the issues of greatest value and maximize interdepartmental coordination. The following is a list of proposed Committee outcomes:

- Improve TDOT regulations and potential legislative proposals regarding access management
- Access categories
- Access spacing criteria
- Standardized access permit application procedure
- Variance process
- Design and construction guidelines
- Enforcement methods
- Statewide Training Program

Median treatments, such as raised medians, are often used to manage access along corridors. TDOT provides guidelines for landscaping techniques and considerations in its *Landscape Design Guidelines*, which should be followed when developing the landscaping plan for a raised median alternative. In these guidelines, issues such as maintaining clear zones and sight distances need to be addressed during the design of a landscaping plan.

States throughout the country have developed and implemented various forms of access management programs, ranging from comprehensive access management programs that have legislative support to programs that have relied solely on the addition of new language to the permitting process and/or zoning regulations. The regulations often include spacing and design standards, permitting policies for commercial driveways, traffic signals, median openings, and medians. In 2003, the first edition of the Transportation Research Board's *Access Management Manual* was developed which contains best management practices for access management.

Access management is most effective when it is implemented at the statewide level and applied consistently by the different functional departments within the state DOT that are responsible for planning, designing and operating the system. The implementation of these concepts requires a policy mandate through statute; administrative code; local ordinances; or agency policies, procedures, and design standards. There are several different levels of program implementation and each plays an important role in the implementation of access management on the state

highway system, as listed below:

- **Statewide** – managing access through policies and standards that impact the entire system, such as an access classification system, associated design and spacing standards, and legislative direction
- **Corridor** – managing property access along critical, high-priority corridors through the development of corridor access management plans and/or corridor overlay districts
- **Project** – managing access in conjunction with highway improvement projects
- **Permit** – managing site access by making decisions on requests for access by property owners abutting the state highway system in coordination with local governments

The Traffic Operations Divisions within TDOT is exploring the need for an Access Management Policy in Tennessee.

National Cooperative Highway Research Program Report, *NCHRP Synthesis 404 – State of the Practice in Highway Access Management*, is the most recent and most comprehensive document that summarizes access management policies throughout the country. This document was completed using an on-line survey of all 50 states. Approximately two-thirds of the state DOTs noted that they have a formal access management program while the remaining one-third indicated that they manage access as an informal part of their operations. Nineteen of the state DOTs indicated that they currently have an access management code and ten more indicated that they are developing new code or enhancing their existing code.

Access management involves numerous departments at the state DOT level; the two most prevalent departments at state DOTs involved in access management decision making are traffic engineering and permitting.

### **Key Components of Access Management Standards**

There are several key components of comprehensive access management programs. Twenty-seven states create a classification system based on the type of access on the roadways and 14 states use the existing or planned functional classification of the roadway to determine access management standards. Additional components of access management standards can include: traffic signal spacing, commercial driveway spacing and design, public street spacing and design, corner clearance requirements, interchange spacing standards, spacing of intersections in the vicinity of interchange ramps and intersections, and median opening spacing and design. Each of these factors, when properly applied as a system, can help improve the safety and operational conditions on arterials.

### **Provision of Turn Lanes**

Warrants for left- and right-turn lanes are often included in access management programs, since left-turn lanes aid in improving both safety and operational conditions on arterial roadways. There are many strategies to reduce the number of left turns at intersections through the use of unconventional intersections, (i.e., jug handles, superstreets, and Michigan U-turns). When left-turn movements must be accommodated, a left-turn lane helps remove turning vehicles from the through-traffic stream. Both left- and right-turn lanes can reduce the potential for rear-end crashes and improve the overall capacity of an intersection. The challenge, especially for left-turn lanes at signalized intersections, is to design them with enough storage length to accommodate the length of the existing and projected left-turn queues.

## **Legal and Regulatory Authority**

Balancing the needs and interests of public and private stakeholders is a key component of most polices when making access management decisions. States with access management statutory authority or administrative rules have the strongest legal support for implementing their access management policies. The results of the survey also revealed that twenty-nine state DOTs have statutory authority or administrative rules related to access management. States in the vicinity of Tennessee with these programs include Georgia, Mississippi, Nebraska, Virginia, and West Virginia. In most cases, one of the most challenging aspects of developing policies with respect to access management is defining what can be considered “reasonable access.”

## **Permitting**

State DOTs typically use the access permitting process to apply access management standards to the land development process. The access permitting process should allow for the consistent application of access management design standards for driveways. At a minimum, these driveway regulation programs provide for state oversight of construction within the right-of-way. Issues that are addressed include: drainage, driveway location, sight distance requirements, culvert installation, driveway design, and driveway construction.

There can be great disparity among states with respect to how the impacts of driveways on the state highway system are mitigated. Many state DOTs encourage shared access through coordination with local governments. Effective subdivision regulations with a focus on access management principles can also assist with the consolidation of accesses on major roadways. Traffic impact studies are an essential part of the development review process by providing state DOTs with documentation on the impacts of accesses during both the permitting and subdivision review processes. Traffic impact studies inventory the existing roadway geometry, traffic control, and traffic volumes. Then, new trips expected to be generated by new development are calculated and added to the surrounding transportation system. Analysis of the future traffic volumes in the study area are conducted to determine recommendations for the transportation system. The recommendations often range from intersection geometric improvements to internal site roadway improvements to traffic control needs. The type and complexity of the analysis is dependent on the size and complexity of the development. All but two of the state DOTs require traffic impact studies to be used to identify transportation improvements to mitigate traffic impacts. TDOT does not require traffic impact studies for development, but relies on requirements of local municipalities to understand the impact and mitigation measures.

## **Waivers and Variances**

Most state DOTs have created a waiver or variance procedure that documents the process for cases when it is not possible to meet the access management standards. The determination of whether a waiver or a variance is required is dependent upon whether reasonable access can be provided, whether all other access alternatives have been thoroughly investigated, impacts of environmental, right-of-way, and historic constraints, and if the proposed access fits within the existing character of the corridor.

## **Training and Outreach**

Before the access management program is implemented on a statewide basis, the education of key stakeholders is important. Stakeholders can include:

- Politicians,
- Local government officials,

- State DOT leaders and staff,
- The development community,
- MPOs and RPOs,
- Members of organizations representing the development community (e.g., Homebuilders Association) and,
- Citizens.

This educational effort most often occurs throughout the process so stakeholders have input into the development of the access management policies, when corridor access management studies are to be completed, and when the access management standards and policies are to be implemented. The most effective training programs are regularly scheduled to make sure the policies and standards are being properly and consistently applied.

The Federal Highway Administration (FHWA) has been actively involved in the development of policies regarding access management since 1993. However, the first comprehensive access management program, supported by a legal framework, was developed in Colorado in 1981. In the early 1990s, only a handful of states incorporated regulations and/or rules for their programs. Since that time, numerous states have followed suit.

The federal government fully supports access management due to its positive impact on safety and operations. Access management is referenced in several sections of the Office of Operations website: [http://www.ops.fhwa.dot.gov/access\\_mgmt/](http://www.ops.fhwa.dot.gov/access_mgmt/) as well as the Office of Safety website: [http://safety.fhwa.dot.gov/provencountermeasures/fhwa\\_sa\\_12\\_006.htm](http://safety.fhwa.dot.gov/provencountermeasures/fhwa_sa_12_006.htm). On this website, FHWA documents corridor access management as one of nine proven safety countermeasures that address crashes at intersections. The Transportation Research Board's Access Management Committee also maintains a website <http://www.accessmanagement.info> that documents access management resources and presentations from access management conferences from the last 20 years.

### **Benefits Associated with a Comprehensive Access Management Policy**

Strong access management authority provides for the foundation for a successful access management program. A primary benefit of a comprehensive access management policy is that it allows for standards to be more consistently and uniformly applied as long as the roll out of the program also includes a training program. States with statutory authority or administrative rules have stronger legal support for their access management programs and policies. The steps to achieving this authority are varied, but they typically start with the efforts of access management champions in leadership positions at the DOT and in the legislature supported by frequent communication with key stakeholders, such as land developers and environmental specialists. The benefits of an access management committee cannot be overstated, since it allows for a multifaceted approach to developing and refining access management standards and policies, including planning, permitting, traffic engineering, project delivery, operations, right-of-way, and maintenance input. If legislative authority is not granted, there are still numerous overarching benefits of access management, such as:

- Reduced traffic conflicts
- Enhanced traffic safety through reduced crashes
- Reduced severity of crashes
- Improved mobility for all motorists
- Encourages increased connectivity using the local street network for more access
- Improved aesthetics by allowing for more pedestrian amenities

- Improved safety for pedestrian traffic
- Allows motorists to operate vehicles with fewer delays, less fuel consumption, and fewer emissions
- Provides reasonable access to properties
- Maintains the functional integrity and efficiency of the network, thereby protecting the investment of taxpayer dollars
- Reflects coordination between land use and transportation decisions
- Roadways used for the function for which they were designed, resulting in less cut-through traffic in residential neighborhoods from overburdened arterials.

**Implementation of Access Management in Rural and Urban Areas**

Several states, such as Minnesota and Mississippi, for example, also have different access management standards for rural and urban areas, typically with more stringent standards in rural areas. This differentiation in access management policies is due to the fact that rural areas typically have different access management needs compared to urban areas as rural facilities oftentimes have fewer intersections and lower traffic volumes. However, at least two states have removed the rural and urban designations after having the program implemented over multiple years. There are several issues associated with implementing differing standards in rural and urban areas, including:

- The determination of how rural and urban classifications will be determined is often challenging.
- Some states use MPO planning boundaries while others use the functional classification of the highway.
- Since the standards are often more stringent in rural areas, it is often challenging to meet the standards, especially in areas on the fringe of the urban boundary.
- How will the standards transition from rural to urban when the MPO boundary changes or when the functional classification changes?

**Coordination with Local, Regional (MPO/RPO), and State Agencies**

Coordination with local governments, MPO/RPOs, and other state agencies is important, especially early in the process, to make sure all parties understand the scope and goal of the project. Involvement by all agencies throughout the process improves the ability to find a solution that will solve issues for all transportation users.

Accounting for the aforementioned four levels of program implementation, local government officials, MPOs and state agencies should be involved in access management at the levels identified in Table 1.

**Table 1 Access Management Involvement**

<b>Governmental Agencies / Levels of Program Implementation</b>	<b>Statewide</b>	<b>Corridor</b>	<b>Project</b>	<b>Permit</b>
Local Governments		✓	✓	✓
MPO/RPO		✓		
Other State Agencies		✓	✓	✓
State DOT	✓	✓	✓	✓

Coordination between different organizations is also important when looking at the process from a more traditional project development standpoint from planning through construction. Table 2 identifies the stages where organizations should be involved.

**Table 2 Stages of Access Management Involvement by Organization**

Governmental Agencies / Levels of Program Implementation	Planning	Design	Right-of-Way	Construction
Local Governments	✓	✓	✓	✓
MPO/RPO	✓			
Other State Agencies	✓	✓	✓	✓
State DOT	✓	✓	✓	✓

### 3.3 MULTIMODAL ACCESS

As previously mentioned, TDOT has established accessibility concepts which they refer to as Multimodal Access, a concept similar to Complete Streets. Much like Complete Streets, Multimodal Access incorporates the planning, design, and operation of streets for safe, convenient access to the system by all users regardless of their transportation mode. Multimodal Access provides for pedestrians, bicyclists, motor vehicles, transit users, and freight operations all within the same right-of-way. Implementation of these concepts often results in improved safety, lower transportation costs for end users, additional choice of mode, and improved accessibility. It is understood that there is no single approach to the implementation of these Multimodal Access concepts and that solutions are highly dependent upon the area type, facility type, availability of travel modes, and users of the system. A 2012 report titled *Transportation Process Alternatives for Tennessee: Removing Barriers to Smarter Transportation Investments*, emphasizes the need to “apply Context Sensitive Solutions approaches consistently throughout the planning and design process in order to maximize flexibility and tailor solutions to local needs”. TDOT aims to employ a flexible approach throughout the project development process as a means of providing multimodal options for all transportation system users.

As part of TDOT’s flexible approach, the Department is currently preparing a transit study to determine the role transit plays in the state’s transportation system in the future. As part of this process it has become clear that access is provided for some users solely by transit. The study will examine existing transit facilities and determine projects that will encourage transit use. The study is exploring how transit can enhance the growth that Tennessee is seeing in many urban areas while serving rural areas that rely on transit for their means of transportation. The study will also evaluate cost-effective projects, transit-related facilities, and identify funding sources to expand transit service.

TDOT’s Bicycle and Pedestrian Policy (Policy Number: 530-01) allows this flexibility while providing for routine integration of bicycle and pedestrian facilities in the transportation system to improve mobility, access, and safety of non-motorized traffic. Issued by TDOT in December 2010, the Policy states that the Department is committed to the development of a transportation system that improves conditions for bicyclists and pedestrians through the following actions:

- Provisions for bicycles and pedestrians shall be integrated into new construction and reconstruction of roadway projects through design features appropriate for the context and function of the transportation facility.
- The design and construction of new facilities shall anticipate likely future demand for bicycling and pedestrian facilities and not preclude the provision of future improvements.
- The design of facilities for bicyclists and pedestrians shall follow standard drawings



designed by TDOT and approved by FHWA, in accordance with the American Association of State Highway and Transportation Officials (AASHTO) "Guide for the Development of Bicycle Facilities," and TDOT's "Bicycle and Pedestrian Plan."

- Bicycle and Pedestrian access along corridors served by new or reconstructed roadways shall not be made more difficult or impossible by roadway improvements. If all feasible roadway alternatives have been explored and suitable bicycle or pedestrian facilities cannot be provided within the existing or proposed right-of-way due to economic or environmental restraints, an alternate bicycle/pedestrian route that provides continuity and enhances the safety and convenience of bicycle/pedestrian travel shall be considered.
- Addressing the need for bicyclists and pedestrians to cross corridors as well as travel along them, the design of intersections and interchanges shall accommodate bicyclists and pedestrians in a manner that is safe, accessible and convenient.
- For all federal-aid highway bridge replacement and rehabilitation projects on routes that are not the Interstate or have full access control, bicycle and pedestrian traffic accommodations, such as minimum shoulders, shall be provided when the cost is reasonable.
- For all Federal-aid highway bridge replacement and rehabilitation projects that fall on a route identified in an adopted local government plan as a bicycle or pedestrian facility, bicycle and/or pedestrian traffic accommodations in addition to minimum shoulders shall be considered. Because these additional accommodations can change the layout and design of the structure, the route must be identified before the preparation of the preliminary bridge plans.
- Bicycle and pedestrian facilities shall be integrated into the study, planning, design, and implementation of federal and state funded transportation projects involving air, rail, marine, and public transportation, including public parking facilities, and included in the Statewide Transportation Improvement Program when federal funds are being used.
- While it is not the intent of system preservation projects to expand existing facilities, opportunities to provide or enhance bicycle facilities identified in an adopted local government plan shall be considered during the program development stage of paving projects.
- Pedestrian facilities shall be designed to accommodate persons with disabilities in accordance with the access standards required by the Americans with Disabilities Act (ADA). Sidewalks, shared use paths, street crossings and other infrastructure shall be constructed so that all pedestrians, including people with disabilities, can travel independently.

In response to Section 1202 (b) of the Transportation Equity Act for the 21st Century (TEA-21), the U.S. Department of Transportation (USDOT) developed a policy statement for routinely integrating bicycling and walking into transportation infrastructure. *Accommodating Bicycle and Pedestrian Travel: A Recommended Approach* was issued by USDOT with input and assistance of public agencies, professional associations and advocacy groups. The policy statement is provided below:

- Bicycle and pedestrian ways shall be established in new construction and reconstruction projects in all urbanized areas unless one or more of three conditions are met:
  - Bicyclists and pedestrians are prohibited by law from using the roadway.
  - The cost of establishing bikeways or walkways would exceed twenty percent of the larger transportation project.
  - Where density of population or other factors indicate an absence of need.

- In rural areas, paved shoulders should be included in all new construction and reconstruction projects on roadways used by more than 1,000 vehicles per day.
- Sidewalks, shared use paths, street crossings, pedestrian signals, signs, street furniture, transit stops and facilities, and all connecting pathways shall be designed, constructed, operated and maintained so that all pedestrians, including people with disabilities, can travel safely and independently.
- The design and development of the transportation infrastructure shall improve conditions for bicycling and walking through the following additional steps:
  - Planning projects for the long-term.
  - Addressing the need for bicyclists and pedestrians to cross corridors as well as travel along them.
  - Getting exceptions approved at a senior level.
  - Designing facilities to the best currently available standards and guidelines.

A bicycle and pedestrian accommodation policy is the forerunner to a more complete policy, where the philosophy goes beyond bicycle and pedestrian investments and includes consideration of all users in the planning and design of a transportation improvement.

Metropolitan areas in Tennessee have also been active in the development and implementation of similar policies dealing with Complete Streets. Complete Streets are “designed and operated to enable safe access for all users, including pedestrians, bicyclists, motorists and transit riders of all ages and abilities.”<sup>1</sup> The following are examples of regulatory activities associated with Complete Streets in the five metropolitan areas of the state:

- Chattanooga - In March 2014, the City of Chattanooga approved regulatory changes that allow for the development of a Complete Streets policy by their Transportation Department. The Department is now drafting a policy to guide the development of future transportation projects in the City.
- Memphis - In January 2013, the Mayor of the City of Memphis signed an Executive Order (01-2013) directing establishment of the City of Memphis Complete Streets Policy. In addition to requiring development of a Street Design Manual by January 2015, the Order recommended including implementation of Complete Streets projects in the Transportation Improvement Program and Capital Improvement Plan processes. Further recommendations included development of a Comprehensive Land-Use Plan.
- Nashville - In 2010, the Nashville MPO and the TMA Group co-hosted the Nashville Area Complete Streets Symposium and Workshop aimed at helping the agencies in middle Tennessee adopt Complete Streets policies. Later that same year, the Mayor of the Metropolitan Government of Nashville and Davidson County issued an Executive Order (No. 40) formalizing the city's approach to Complete Streets.
- Knoxville – In August 2009, the City of Knoxville adopted a resolution (R-287-09) endorsing the creation, adoption, and adherence to a Complete Streets policy to promote safe, convenient, thoughtfully designed streets within the City. In September 2009, the Knoxville Transportation Planning Organization (TPO) completed development of guidelines for implementation of Complete Streets.
- Kingsport – In June 2011, the City of Kingsport passed a resolution (No. 2011-243) in support of complete streets and the development of a complete streets guidelines manual to improve travel conditions and promote transportation choices for people of all ages

<sup>1</sup> [www.smartgrowthamerica.org/complete-streets/complete-streets-fundamentals/complete-streets-faq](http://www.smartgrowthamerica.org/complete-streets/complete-streets-fundamentals/complete-streets-faq)

and abilities including the needs of pedestrians, bicyclists and public transportation users.

Elements of Multimodal Access/Complete Streets are currently included in TDOT's Design Standards and Guidelines for Construction of New Transportation Facilities. Wheelchair ramp, sidewalk, shared use path, and bicycle lane design details are all provided in the TDOT Standard Roadway Drawings. Typical sections in the Standard Drawings for urban roadways provide for sidewalks as well. In urban areas, TDOT works to include these design elements consistent with the context of the roadway and the desires of the community. Implementation of these multimodal elements into traditional vehicle centric designs can incur additional project costs. These may include acquiring additional right-of-way widths, additional pavement width, and other incidental costs such as pavement markings and signage. These additional costs can be minimized with proper planning and implementation.

TDOT partnered with Smart Growth America in 2012 to study how to improve state transportation planning in a constrained fiscal environment. The intent of the resulting document, *Transportation Process Alternatives for Tennessee - Removing Barriers to Smarter Transportation Investments*, is to provide a guide for TDOT's programs and activities in the evaluation of transportation needs and priorities. As described in the document, TDOT strives to provide a "multimodal transportation system that enables both rural and urban communities to grow and prosper taking into account business needs, access to jobs, access to freight ports and airports, needs of transit riders, bicyclists, pedestrians, tourism and quality of life." Additionally, the USDOT has published Planning Emphasis Areas to promote the provision of Access to Essential Services, which include employment, health care, schools/education, and recreation. TDOT strives to improve accessibility to these locations through the provision of multimodal options. In order to provide this multimodal transportation system, the Department examines each project for the ability to accommodate all users, even in a fiscally constrained environment. However, there are currently more transportation improvement projects identified in the work program than can be funded, and TDOT is reviewing the work program to eliminate projects that no longer meet their original purpose and need or right-sizing projects that address critical safety or geometric issues while producing quality results. As such, the recommended approach for evaluating transportation investments, including multimodal projects, from the study were:

- Develop new metrics to measure and prioritize all projects against broad system goals,
- Audit the current project list for opportunities to better achieve system goals,
- Establish a system for identifying public and private transportation/land use planning partners,
- Articulate a full range of benefits and identify new funding partners based on benefits, and
- Broadly communicate flexible design standards for context sensitive solutions.

### **3.4 HEALTH AND ENVIRONMENT**

Land use decisions, access management, and Multimodal Access can impact our environment and the health of Tennesseans. In urban areas, land use impacts health and the environment in the following ways:

- Density – Densely developed areas have a smaller footprint, resulting in more availability for natural or for environmentally sensitive areas to remain undisturbed. Densely developed areas provide more opportunity for an efficient public transit system and active transportation options.
- Diversity – Mixed land use with provision for residential and employment allows for active

transportation options.

- Design – Land use planning and development requirements can provide for the natural environment by providing open space, recharge areas, etc.
- Distance – The travel distance between an origin and destination is the primary factor for influencing travel behavior and choice of travel mode.

Typically these factors have less of an impact in rural areas as they have less dense developments, more single-use areas, and longer trip distances on average. Sidewalks, bikeways and paths play an important role in providing transportation choices for people across Tennessee. This is especially true for those without access to an automobile, such as children, older adults, tourists, people with disabilities, and low-income individuals. With over 40% of all trips in the United States two miles or less, good walking and bicycling facilities are essential to the continued growth and success of our towns and cities.

Walking and bicycling also provide an opportunity for communities to achieve larger goals such as attracting new businesses, increasing neighborhood safety, reducing traffic congestion and improving air quality. Moreover, there is growing interest in the role walking and bicycling play in public health. Improving walking and bicycling conditions helps everyone lead safe, active, and healthy lives. Centered around the Bicycle and Pedestrian Policy previously discussed, the Division of Multimodal Transportation Resources is charged with the management of TDOT's Bicycle and Pedestrian Program and administering the Multimodal Access Grant. This grant provides funding to communities to enhance or build pedestrian and bicycle facilities to assist communities in reaching stated health and environmental goals, amongst many others. An example recipient project includes Shelby County's North Germantown Parkway/Greenline East Extension intersection project. In order for the Greenline (a 6.5 mile Rails-to-Trails greenway) to be extended beyond one of Memphis' key commercial corridors, a safe pedestrian crossing was needed. The project included signaling the intersection, as well as installing pedestrian countdown timers, signage, and striping for an intersection that saw nearly 60,000 vehicles per day.

Land use development has a large influence on non-vehicular trips being viewed as a viable option. Smart Growth is a concept that encourages development that promotes non-motorized and transit trips as reasonable options to a vehicular trip. One example of this is transit-oriented developments which typically consist of residential, office, and commercial uses that are constructed so that transit access is maximized while encouraging non-motorized trips. The Long Range Planning Division of TDOT assists communities in making land use and transportation decisions that are supportive of desired community outcomes. OCT staff, described previously, provide tools and resources to communities wishing to meet this challenge. One such resource, the Community Transportation Planning Grant (CPTG), assists communities in addressing gaps in pedestrian and bicycle infrastructure along, and in some cases to, state highways. Grant monies may also be used to develop transportation planning documents that seek to better link land use and transportation decisions.

Beyond the consideration of multimodal transportation projects and their associated health and environmental impacts, the TDOT Environmental Division works to consider environmental and health impacts of all transportation projects. The Environmental Division consists of the following six offices: Natural Resources, Environmental Documentation, Social and Cultural Resources, Beautification, Environmental Comprehensive Inspections, and Environmental Facilities Compliance. All play an important role in the protection of the environment including the mitigation of adverse impacts on the physical, social, and cultural environments.

## TDOT, State, Federal, Regional (MPO/RPO), and Local Agency Coordination

In fulfilling TDOT's responsibilities under the National Environmental Policy Act (NEPA), as it relates to the assessment of environmental impacts and the evaluation of alternatives to avoid any identified adverse impacts to the environment, the Tennessee Environmental Streamlining Agreement (TESA) was established to coordinate planning and project development processes for all transportation projects that are administered by TDOT and require an environmental impact state (EIS) or environmental assessment (EA). TESA was developed in 2008 as one of the means of addressing requirements under 23 U.S.C. 139 and to encourage participation and involvement throughout the development process by all regulatory and development agencies. TESA outlines a streamlined environmental process to provide timely and efficient identification, evaluation and resolution of environmental and regulatory issues to:

- Provide opportunities for increased environmental protection and improve and enhance the natural, physical and social environment throughout the state;
- Facilitate more realistic and predictable transportation projects, schedules and budgets;
- Allow better use of agency resources by reducing duplication of efforts;
- Provide for early involvement of resource and regulatory agencies and the public in the TDOT project scoping and development processes;
- Provide for joint-agency evaluation and early identification of resource agency interests/issues;
- Provide program continuity and a consistent statewide approach for developing projects;
- Maximize the probability of the project receiving the appropriate permits and approvals from the resource agencies;
- Maximize the quality of the environmental document and process;
- Integrate the information and products developed in the highway and transit planning process into the NEPA process; and,
- Streamline the environmental permitting process while providing early consultation with resource and regulatory agencies for the purpose of problem solving and conflict prevention.

TESA was updated due to changes in federal transportation funding legislation, and a need for other administrative actions. One outcome of the update process was the development of the TESA Companion Guide which serves as an introduction to and overview of the TESA process. The guide establishes Standard Operating Procedures for key decision points, and outlines protocols for meetings, field reviews, issue resolution, and ongoing coordination among agencies for the purpose of streamlining the transportation development process and achieving regulatory and environmental compliance. The update became effective in April 2014.

TESA establishes the decision-making process to identify and address agency jurisdictional interests at four key points during the planning and NEPA process for transportation projects. The key points, termed concurrence points, are shown below:

- Purpose and Need and Study Area
- Project Alternatives to be Evaluated in the Environmental Document
- Preliminary Draft Environmental Document and Preliminary Mitigation
- Draft Final Mitigation

There are also designated coordination points in the environmental document review and project

development process. Coordination is required for the Analysis of Project Alternatives and at the Selection of Preferred Alternative points of the specific project. These coordination points provide opportunities for additional communication between key decisions.

TESA is based on joint interagency decision-making, with the goal of gaining concurrence from participating agencies. Each individual participating agency must decide to agree or not at each concurrence point with intent of achieving general consensus among agencies before a project moves forward. This eliminates the need to reevaluate decisions agreed to earlier in the process. All transportation projects administered by TDOT are subject to the TESA process. The agencies included in TESA are:

- Tennessee Department of Transportation (TDOT)
- Federal Highway Administration, (FHWA - Tennessee Division)
- US Army Corps of Engineers, Nashville District (USACE – Nashville District)
- US Army Corps of Engineers, Memphis District (USACE – Memphis District)
- US Fish and Wildlife Service (USFWS)
- Tennessee Valley Authority (TVA)
- Tennessee Department of Environment and Conservation (TDEC)
- Tennessee Wildlife Resources Agency (TWRA)

Conditional signatories are agencies that requested to not receive TESA materials if it has been determined they have no jurisdictional interest in a specific project. Conditional signatory agencies at the project level include:

- Tennessee State Historic Preservation Office (Tennessee SHPO)
- US Coast Guard (USCG)
- National Park Service (NPS)

In addition to these agencies, TDOT and FHWA must identify, involve, and invite participating agencies whom are not signatories to the overall TESA. These may include Federal, State, tribal, regional, and local government agencies that may have an interest in the project. Non-governmental organizations and private entities cannot serve as a Non-TESA Participating Agency, but are included as part of the overall public involvement process as applicable to specific projects.<sup>2</sup> Additionally, TDOT is required to coordinate with resource and regulatory agencies that are not participants in the TESA process that have jurisdiction by law or special expertise related to a transportation project and potential environmental impact.

An additional effort to shorten project delivery times, FHWA, building off legislation in 2005, introduced the Every Day Counts (EDC) initiative in 2010. The goals of TESA and EDC are very similar in that they seek to improve the linkages between transportation planning and the NEPA process while expediting the overall process. A key element of FHWA's EDC Delivery Toolkit is a process that encourages transportation agencies to initially conduct corridor or subarea level studies. These studies should be conducted in a way that defines the Planning and Environmental Linkages (PEL). PEL streamlines decision-making processes by encouraging planning and environment staff at transportation and resource agencies to share tools and improve coordination.

### **Health and Environment Policies and Programs**

Motor vehicle emissions have been decreasing over time in spite of an increase in vehicle miles traveled (VMT). This is in part due to improved vehicle efficiency and vehicle emissions technology.

2 <http://www.tdot.state.tn.us/tesa/docs/TESA-CompanionGuideJanuary-2014.pdf>

As mobile source emissions have decreased, the Environmental Protection Agency's (EPA) National Ambient Air Quality Standards (NAAQS) have become more restrictive. EPA monitors the pollutants in the air at monitoring stations across the United States and across Tennessee.

The pollutants most often associated with transportation that can have a negative impact on an individual's health are ozone (O<sub>3</sub>), particulate matter (PM<sub>2.5</sub>), oxides of nitrogen (NO<sub>x</sub>), and carbon monoxide (CO). TDEC is responsible for development of a State Implementation Plan (SIP) that outlines how it will reach and maintain the NAAQS for these mobile source and other point source emissions. An area is designated attainment for a particular pollutant if the level is less than the standards identified in the NAAQS, or, if there is no data to suggest otherwise, it may be classified by the EPA as "unclassifiable" or "unclassifiable/attainment".

The Governor is required to make recommendations to EPA regarding those areas that meet the NAAQS and those that do not. Those areas that do not are said to be in nonattainment for that particular pollutant. An area is defined by a geopolitical boundary and can be a county or a portion of a county in the state. Designation of nonattainment for an area may mean that the air may not always be healthy to breathe. As expected, the counties that comprise Tennessee's major urban areas are those typically in non-attainment due primarily to the increased levels of congestion and traffic volumes.

Once a nonattainment area has attained and maintained the NAAQS, Tennessee may request re-designation to attainment. For the area to be re-designated, the state has to develop a Maintenance SIP for EPA's approval. The plan ensures the area will continue to meet the NAAQS for a 20-year period. The initial 10-year plan is reviewed and revised to cover a second 10-year period. A maintenance area is an area that was designated nonattainment for one of the NAAQS, but later met the standard and was re-designated to attainment.

### **Health Benefits and Risks Associated with Active Transportation**

There are public health benefits and risks associated with active transportation. Health benefits associated with active transportation are generally the result of increased physical activity. Besides the risks of falls or crashes, the health risks of active transportation are generally associated with exposure to air pollutants.

Lack of opportunities for active transportation can negatively impact health. The Centers for Disease Control and Prevention (CDC) estimates 35 percent of adults and 17 percent of young people in this country are obese<sup>3</sup>. In Tennessee, approximately 31 percent of the population is obese. There are many factors that contribute to this including the availability of active transportation modes. According to the U.S. Department of Health and Human Services (HHS), regular physical activity, such as walking and bicycling, can lower the risks of depression, diabetes, heart disease, high blood pressure, obesity, stroke, and certain types of cancer. When transportation infrastructure is designed to accommodate active transportation modes, a positive effect on public health can be realized. The HHS document *2008 Physical Activities Guidelines for Americans* provides guidelines for the amount of recommended physical activity to impact health outcomes.

The American Association of Retired Persons' (AARP) *Planning Complete Streets for an Aging America*, states that "the ability to live closer to daily destinations is an important factor in maintaining mobility among older people who cannot drive or whose driving is limited. People 65 and over living in areas where houses are built closer to shops and services are less likely to stay home on a given day, and are more likely to use public transportation and walk to get around."

The risks associated with active transportation and exposure to air pollution are unclear. Studies

3 <http://jama.jamanetwork.com/article.aspx?articleid=1832542#References>

have shown that motorists are more exposed to motor vehicle emissions (particulate matter and carbon monoxide) due to their proximity to the source, but that people who engage in active transportation may absorb more of these pollutants into their airways due to a number of factors.

### **Summary of Health Data and Links to Motor Vehicle Crashes**

The CDC maintains information on the health impacts of traffic related injuries and deaths to motor vehicle occupants, motorcyclists, bicyclists, and pedestrians. CDC's definition of "traffic related" is any vehicle incident occurring on a public highway, street, or road. In the U.S. in 2013, there were reported 3,887,356 traffic related non-fatal injuries. This represents approximately 13% of the total non-fatal injuries reported. Of traffic related non-fatal injuries, 2,467,032 were motor vehicle occupants, 225,586 were motorcyclists, 494,430 were bicyclists, 207,385 were pedestrians, and 492,922 were classified as 'other'<sup>4</sup>. Statistics such as these exemplify the need for the Department's emphasis on safety for all users.

There is also risk of roadway crashes associated with on-the-job operation of motor vehicles. In 2010, nearly 3.3 million workers in the U.S. were classified as motor vehicle operators. Forty-five percent of these motor vehicle operators were employed as heavy truck drivers not including independent owner-operators. Other workers who use motor vehicles in performing their jobs are spread across numerous other occupations. These include workers who operate vehicles owned or leased by their employer, and those who drive personal vehicles for work purposes.

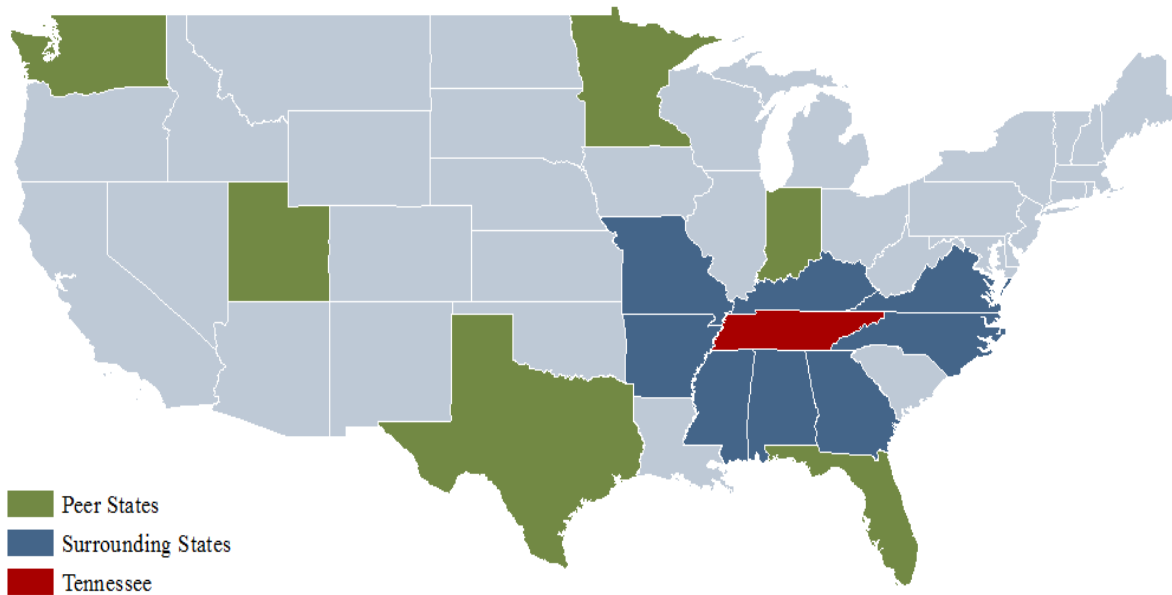
Traffic fatalities reported through the Tennessee Fatal Accident Reporting System (TNFARS) have averaged roughly 1,000 per year since 2010. Of these approximately 80 per year are pedestrians and 6 are bicyclists. There is no trend to indicate an increase or decrease in the number of fatalities; however, there is an observed increasing trend in the percentage of bicycle and pedestrian fatalities relative to overall crashes since motor vehicle crashes have typically been declining while the number of non-motorized crashes has remained relatively constant.

<sup>4</sup> <http://webappa.cdc.gov/sasweb/ncipc/nfirates2001.html>



## 4.0 FUTURE GROWTH, TRENDS, AND TECHNOLOGY

The following section describes policies and practices pertaining to accessibility through land use planning, access management, Multimodal Access/Complete Streets, and the inclusion of health and environment initiatives in transportation by state DOTs of the surrounding and peer states shown in Figure 1. The peer states shown in Figure 1 were chosen to align with those identified as peers in TDOT's 2013 Customer Survey, as they were similar to Tennessee in the areas of geographic size, demographics, growth trends, and/or DOT practices.



**Figure 1 Peer States**

A summary table of surrounding and peer states' plans, policies, and programs that were found as part of the development of this policy paper is shown in Table 3.

**Table 3 Surrounding and Peer State Comparison**

Plans, Policies, and Programs	Tennessee	Alabama	Arkansas	Florida	Georgia	Indiana	Kentucky	Minnesota	Mississippi	Missouri	North Carolina	Texas	Utah	Virginia	Washington
<b>Land Use Planning (Formal Program)</b>															
Development Review		✓		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Transportation & Community Plans - Local				✓	✓			✓							✓
Transportation Plans - MPO	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Transportation Plans - RPO		✓				✓	✓	✓		✓	✓				✓
Technical Assistance/ Resources								✓			✓				✓
<b>Access Management</b>															
Access Management Manual/Guidelines		✓		✓	✓	✓		✓	✓	✓	✓	✓	✓	✓	✓
Traffic Impact Study Requirements		✓		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Local Access Management Guidance/Model Ordinance				✓		✓	✓	✓							
<b>Multimodal Access</b>															
Accommodation Policy	✓		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Multimodal Access/ Complete Streets Policy				✓	✓	✓		✓			✓			✓	✓
Technical Assistance/ Resources				✓	✓			✓		✓	✓	✓	✓	✓	✓
<b>Health &amp; Environment</b>															
<u>Health Initiatives:</u> -Health Impact Assessments - Consideration in Project Selection - Technical Assistance/ Resources								✓			✓		✓		✓
<u>Environment Initiatives:</u> - Sustainability Policy/Plan - Planning & Environmental Link	✓			✓							✓				✓

## 4.1 LAND USE PLANNING

The following highlights surrounding and peer state policies and practices relative to land use planning. Information presented in this section describes what role, if any, the DOT has in local development review, local comprehensive plans, regional transportation plans, and technical assistance and resources the DOT makes available to its community partners.

### Alabama

Alabama Department of Transportation's (ALDOT's) involvement in land use and transportation planning for the most part is typical of many state DOTs which is often limited to oversight and engagement with MPOs in urban areas and at the regional level in rural areas. In support of rural planning, ALDOT funds Regional Planning Councils (RPCs) to serve as RPOs. These organizations may be called a range of names including, but not limited to, councils of government, development commissions, and local development districts. It is important to note that RPCs in Alabama may or may not encompass MPO boundaries. When they do, they are required to contribute to a Regional Transportation Plan. These entities offer input to ALDOT on transportation projects while also providing access to numerous planning services at the regional and local level. Additionally, ALDOT does have oversight over private development when driveway permits are being requested along a state highway. If development trip generation thresholds exceed ALDOT's minimum (100 total peak hour trips), a traffic impact study is often required.

### Arkansas

The Arkansas State Highway and Transportation Department (AHTD) does not employ any land use and transportation planning activities to cities, counties, or regional organizations beyond its oversight and involvement with MPOs. Additionally, Arkansas does not require, nor have any voluntary RPOs. For rural planning in the state, AHTD actually carries out these activities for smaller rural communities. Like most states, AHTD conducts highway improvement studies, intermodal planning activities, and provides coordination to the state's eight MPOs.

### Florida

FDOT developed a *Mobility Review Guide* and *Checklist* to assist FDOT District staff in the review of local government comprehensive plans in relation to the state transportation system. An objective of the *Mobility Review Guide* and *Checklist* is not only to provide a framework for review of local government multimodal transportation strategies, but to also be useful for reviewing proposed *Strategic Intermodal System (SIS)* mitigation plans or corridor management plans for major highway corridors. The SIS is a network of interregional, significant multimodal facilities that was established to define the transportation system that helps Florida be most efficient and economically competitive. Additionally, the *Mobility Review Guide* and *Checklist* offer local municipalities a useful resource in developing effective multimodal transportation strategies for coordinating land use planning best practices with transportation to improve local and regional mobility.

FDOT also has a *Traffic Impact Site Handbook* providing guidance to FDOT staff in the District on their review of developments. While the handbook is primarily for FDOT staff, it is available to local governments and other transportation partners in an effort to communicate growth management responsibilities and multimodal transportation rather than simply traffic analysis.

### Georgia

In Georgia, local comprehensive plans are required by state law to include a transportation element if portions of the local government's jurisdiction are included in a MPO planning area. This element reviews the adequacy of the local system's road network, alternative modes of transportation,

parking, modes beyond highway, and the transportation/land use connection. A strategy must be developed for addressing any needs or identifying opportunities to be included in the Community Work Program, which is essentially the capital improvement portion and implementation plan of the comprehensive transportation plan. These comprehensive plans are in turn reviewed by a Regional Commission, Georgia's regional (general) planning organizations. These Commissions have the power to hold a hearing where affected agencies (GDOT) may weigh in on the implications of the plan. Any highlighted issues are to be addressed by the local entity upon which the Regional Commission completes their review and sends the plan to be adopted by the local government. Beyond this review, Regional Commissions are not required to engage in transportation planning. However, regional commissions sometimes review plans for Developments of Regional Impact (DRI); examples of these reviews can be found in the Atlanta region. In this review, the regional commissions examine the DRIs for impacts on surrounding land uses, environment, and transportation infrastructure as well as consistency with local and regional plans and policies; the purpose of these reviews is to identify potential conflicts the developments might cause before they arise.

### **Indiana**

Indiana does not require municipalities to include a transportation element in their comprehensive plans. While state law does require RPOs, the creation of transportation plans are not mandatory. Thus, land use and transportation planning have largely been carried out in an independent manner at the local level. As part of their access management plan, IDOT states that they may require Traffic Impact Analyses (TIA) to evaluate the present and future impacts that developments may have on the transportation system; in order to make the reviewing process more efficient, these studies are to comply with IDOT's guidelines for TIAs<sup>5</sup>.

### **Kentucky**

The Kentucky Transportation Cabinet (KYTC) includes numerous levels of transportation planning entities to ensure the Long-Range Statewide Transportation Plan goals and objectives are being met. Regional planning efforts fall under the jurisdiction of Area Development Districts (ADD). ADD's are general regional planning organizations that comprise all the areas outside the MPOs/TMAs. Within these Districts a Regional Transportation Committee is designated with the tasks of data collection, system analyses, and gathering public input to better inform the state's Six-Year Highway Plan. The transportation planner on staff is not a Cabinet employee, but rather an extension of staff through an annual contract process. Each ADD completed their first Regional Transportation Concept Plan (RTCP) in 2000 to guide identification of needs and prioritization of projects. A major update to every element is completed every two years. While RTCPs are formulated, ADDs do not have the power to force compliance within their jurisdictions. In terms of land use, where developments may require major deviations from the state's access management plan recommendations, traffic analyses are often required and reviewed by KYTC to ensure that traffic operations and safety will not be impacted by the development.

### **Minnesota**

In recognition of the important interconnection of land use and transportation, the Minnesota Department of Transportation (MnDOT) plays an active role in the review and development of local and regional transportation plans for municipalities, counties, and regional planning organizations within Minnesota. Not only do they review transportation plans, but MnDOT also works with local governments in a development review process to require Traffic Impact Studies for developments that may have a significant impact on the transportation system. These documents are used to determine the impact that the developments will have on surrounding land uses and which entities

5 [http://www.in.gov/indot/files/tia\\_app.pdf](http://www.in.gov/indot/files/tia_app.pdf)

will be responsible for mitigation of those impacts. Regional planning efforts are split among Regional Development Commissions (RDCs) and Area Transportation Partnerships (ATPs). RDCs provide technical assistance to local authorities, ATPs, and MnDOT (in a work program format), while soliciting and evaluating various transportation projects. ATPs comprise MPOs, RDCs, counties, cities, and other various stakeholders and are required to develop a regional transportation improvement program for their area. All of these local and regional entities, in turn, work together in the development of state transportation plans.

### **Mississippi**

Mississippi's involvement in land use and transportation planning is much like that of Alabama, largely dedicated to the MPO planning process. Much like ALDOT, the Mississippi Department of Transportation (MDOT) does require a traffic impact study for state highway driveway permit requests when certain development trip generations exceed MDOT's thresholds. These studies are required to examine surrounding land uses and the impacts of developments. Additionally, MDOT monitors the land use changes for all developments that require access permits as these permits are revoked any time the use of a site changes. Mississippi does not require, nor have any voluntary, RPOs. To a degree, regional transportation planning is carried out by the various Planning and Development Districts. MDOT consults with these organizations, along with local officials, in the development of the STIP and Statewide Long-Range Transportation Plan. MDOT staff conduct local planning studies on an annual basis while also consulting with local officials in the event of road improvements. At least every five years, MDOT checks in with non-metropolitan local officials and other stakeholders regarding the effectiveness of the consultation process and for any proposed changes.

### **Missouri**

MoDOT has recently undertaken a new planning process which primarily focuses upon greater public involvement and the establishment of a prioritization process for transportation projects. While the state does not require local or regional transportation plans, this new process does require the involvement of local officials in either MPOs or RPOs. These RPOs, established by state legislation in 1965, inform MoDOT of local needs and priorities while providing uniform planning services for local entities. Additionally, MoDOT worked with local governments and other key stakeholders to develop a standardized development review process for granting access to the MoDOT system; included in this process is coordination with local governments to help establish local land use and access management plans for highways.

### **North Carolina**

In North Carolina, long-range planning is carried out by local and regional planning agencies in partnership with NCDOT's Transportation Planning Branch. While local planning entities are not required to have comprehensive plans, RPOs (voluntary organizations approved by state legislation in 2000) are. In 2006, NCDOT combined its long-range planning and project development into one process, Comprehensive Transportation Planning (CTP), in order to provide a seamless connection between long-range planning and project development. These new multimodal Comprehensive Transportation Plans replace Thoroughfare Plans as they only focus on more than just the highway element. NCDOT participates in land use review at every stage of this CTP process. As MPOs are required to produce LRTPs and were once responsible for Thoroughfare Plans, the CTP process allows the two to be consolidated into one.

### **Texas**

The Texas Department of Transportation (TxDOT) currently operates a decentralized organizational structure using 25 regional districts to carry out transportation planning across the state. Decisions

about transportation in areas outside MPO boundaries are made by TxDOT district engineers with informal input from local leaders such as county judges, county commissioners, mayors, and city council members. Partners in the transportation planning effort include TxDOT, MPOs, public transportation providers, councils of government (COGs), regional mobility authorities (RMAs), RPOs, coordinated public transit-human services planning agencies, and other stakeholders such as freight operators and economic development agencies. These partners work together since no single agency has sole responsibility for the entire transportation system.

MPOs are responsible for transportation planning and coordination with TxDOT, local elected officials, and other transportation providers/stakeholders in urban areas. Transportation planning in rural areas is largely conducted by the TxDOT district offices in consultation with county and city elected officials, the public, and recently with RPOs. In Texas, several regional development organizations (known locally as councils of government or COGs) have voluntarily formed and operate RPOs to help address the rural transportation needs of their multi-county regions. Unlike Tennessee, the RPOs in Texas are not currently operating under any set guidelines, and they do not receive any planning funds from the state. Instead, they are self-financed and governed by local officials.

At a more local level, TxDOT engages in land use development review on a limited basis, mainly focusing upon development along state roadways. Unique in statewide planning TxDOT actually has a standalone Texas Rural Transportation Plan which is the rural component of the Statewide Long-Range Transportation Plan.

### Utah

In Utah, the state has worked with regional development organizations (known locally as associations of governments or AOGs) to test the regional transportation planning organization model in rural counties that are near urbanized areas and are growing quickly. The purpose of this program is to help the emerging areas understand the linkage between land use and transportation in order to better plan for and minimize the challenges associated with this growth. Under their program, the state provides \$40,000 for the first year for a new RPO and decreases the amount of funding over time as the RPO becomes established and creates a regional plan. Local match is sometimes increased to make up for the difference in funding. The Utah DOT currently contracts with four AOGs to act as the lead agency in coordinating the work program of the five single county RPOs. An additional AOG has set up its own voluntary RPO, and Utah DOT has worked with other counties to establish Emerging Area Plans as a basis for considering transportation in the local planning activities that occur. The five contracted RPOs' primary activities include coordinating the local and regional transportation needs among the municipalities, county, transit agencies, state, and others in the growing regions. The state does not currently have plans to bring the RPO process statewide.

### Virginia

VDOT plays an active role in many local and regional land use and transportation activities ranging from the review of and assistance with comprehensive plans, zoning requests, and site plans to the development of small urban area transportation plans as well as rural regional transportation plans. With local municipalities required to develop comprehensive plans, VDOT's role in these plans has increased over time. As part of the comprehensive plan, each municipality is required to develop a transportation plan and as such, VDOT is required to review and comment on these plans. Additionally, VDOT provides support to towns and cities with populations less than 50,000 people with the development of "small urban area" plans. These plans address transportation and land use issues and identify travel needs in each community through the year 2020. Although the primary focus of each plan is the "thoroughfare highway system", being those arterial and collector roads and highways that connect urban areas, plans also address local needs and other

modes of transportation. Lastly, VDOT works with the state's 20 planning district commissions providing a platform for regional transportation planning. Working with VDOT, a regional plan is prepared to evaluate the rural system identifying needs based upon the region's established goals and objectives. The 20 regional plans act as building blocks for Virginia's 2035 State Highway Plan.

## Washington

All local governing bodies in the state of Washington are required to include a transportation component within their Comprehensive Plans. These components must be consistent with the statewide plan's goals and objectives. Regional Transportation Planning Organizations (RTPOs) were created through state legislation in 1990 and while existing entities must develop a plan, RPTOs are voluntary in nature. WSDOT provides a guidebook for RPTOs offering recommended transportation planning best practices.

WSDOT participates in local land use review. The Development Review Program staff provides professional review on the implications of various transportation and land use decisions. Using the Development Review Manual as a guide, staff then provide recommendations as how to best address impacts.

## **4.2 ACCESS MANAGEMENT**

The following highlights surrounding and peer state policies and practices relative to access management. Information presented in this section describes what role, if any, the DOT has in the review, approval, and guidance of permitting access. This section addresses Access Management manuals, guidelines, technical resources, guidance to local municipalities, and policies that go beyond traditional driveway permitting used by DOTs. DOTs are also examined for requirements in the area of traffic impact studies for developments.

## Alabama

The initiation of an access management program in Alabama started in 2005 as an Institute of Transportation Engineers (ITE) service project for training on the concept and benefits of access management to personnel at ALDOT. This philosophy transitioned to the development of access management plans for key transportation corridors. Lastly, the Alabama DOT completed the development of their Access Management Manual in February 2014 after several years of refining the draft Access Management Manual, which started in January 2010.

One of the goals of developing the Access Management Manual was to simplify the project permit process, which started off with three levels at the district, division, and headquarters. The process of developing the manual and the corresponding program included a state of the practice survey both within ALDOT and other states, an evaluation of prior access management projects in Alabama, and ultimately the development of policies, procedures, and case studies.

The policies are codified and document the installation and locations of turnouts (i.e., driveways) and median crossovers within regulatory powers. ALDOT was also granted the authority to adopt reasonable rules and regulations to construct, maintain, and regulate the use of right-of-way. The manual documents the principles of access management, permit procedures, retrofitting existing facilities, traffic impact study requirements, and traffic design standards.

Now that the manual has been completed, ALDOT plans on conducting access management training throughout the state to describe the benefits of access management and how to apply the newly-developed standards on projects.

## Arkansas

While the Arkansas State Highway and Transportation Department (AHTD) has access management standards for interstates and access controlled facilities located within the state, AHTD does not have access management guidelines beyond these provisions and that of general driveway permitting standards for access along a state highway. AHTD's program is best characterized as a traditional driveway permitting program.

## Florida

The Florida Access Management program was one of the first three formal programs developed in the U.S. The program is governed by the State Highway System Access Management Act of 1988. Chapter 14-96 was adopted to implement the Act for the regulation and control of vehicular access and connection points of ingress to, and egress from, the State Highway System, and other transportation facilities under the Florida Department of Transportation's (FDOT's) jurisdiction (except for limited access facilities). This chapter describes the connection permit application process and procedures, a voluntary pre-application process, and requirements for relocation, alteration, or closure of connections to the State Highway System.

Chapter 14-97 of this act also establishes an access control system with seven classifications and associated access management standards. FDOT determines which roads are the most critical to providing high speed, high volume traffic, and these roads end up with the highest standards. Access Class 1 consists of limited access facilities, which roadways do not provide direct property connections, but instead provide for high speed and high volume traffic movements serving interstate and interregional needs. Generally, the standards that apply to this Class pertain to interchange spacing. New interchanges shall be based on an engineering analysis of the operation and safety of the system and can only be approved through the interchange justification process.

Classes 2 through 7 pertain to controlled access facilities and are arranged from most restrictive (Access Class 2) to least restrictive (Access Class 7) based on the level of development. Generally the roadways serving areas without extensive development are classified in Access Classes 2, 3, and 4; whereas, the roadways serving areas with existing moderate development are generally classified in the Access Classes 5, 6, and 7. The access management standards for each class are further determined by the posted speed limit.

## Georgia

Access management in Georgia is not as fully developed as it is in other states. Its program is best characterized as a traditional driveway permitting program although in recent years GDOT has begun to employ a more comprehensive look at access management along corridors. In 2004, the Georgia Department of Transportation (GDOT) issued a manual entitled - *Regulations for Driveway and Encroachment Control*, which established permit procedures, access criteria, and geometric design criteria. It enforces these regulations and procedures by requiring permits for construction work within the right-of-way of a roadway, which effectively requires permits for any driveway to connect to a state roadway. The regulations and procedures in this manual are limited to the jurisdiction of GDOT, which includes only roadways on the state highway network. Other aspects of access management provisions can be found in GDOT's *Design Policy Manual*, which incorporates the *Driveway and Encroachment Control* regulations.

## Indiana

The Indiana Department of Transportation (INDOT) created an access management program in 2007, including an access classification system with three tiers of highways – statewide mobility corridors, regional corridors, and sub-regional corridors. The Indiana Access Management



program has produced an Access Management Guide which can be used by state and local officials in implementing access management in the state of Indiana. The access management process supports refinement of the Future Year Transportation Report (INDOT Long-Range Transportation Plan) in terms of implementing the Statewide Mobility Corridor Concept and guiding the overall development of the state highway jurisdictional system.

Prior to the development of the access management program, the INDOT's Driveway Permit Manual provided some guidance with respect to the location, spacing, and design characteristics of access driveways. Access management in Indiana was largely implemented on a decentralized basis through the six INDOT district offices. Moreover, while the review and approval of applications for driveway access to abutting state highways is primarily the responsibility of INDOT, site plan reviews and approvals were the responsibility of the local government agencies.

The Access Classification System (ACS) developed by INDOT uses the Statewide Mobility Corridor hierarchy as the primary basis for a tiered system of access categories. As part of this effort, ACS from numerous state DOTs were examined within the context of the INDOT Statewide Mobility Corridor hierarchy.

In the classification system, Statewide Mobility Corridors (Tier 1), Regional Corridors (Tier 2), and Sub-Regional Corridors (Tier 3) are each subdivided into two subcategories (Type A and Type B) that reflect distinct variations within each of these Tiers. For all three tiers, the Type A distinction applies exclusively to multilane roadways, and the Type B distinction applies exclusively to two-lane roadways. The purpose for this distinction was to reflect the unique characteristics associated with two-lane roadways, which constitute approximately 76% of Indiana's state highway network.

The INDOT access classification system provides the following access spacing and design details for all three tiers:

- Type of access permitted (at-grade intersection, private driveway)
- Traffic movements allowed (full movements, right-in/right-out only)
- Traffic control devices permitted (traffic signal, stop sign)
- Spacing criteria for public intersections and driveways

## **Kentucky**

KYTC's comprehensive access management program was established in 2006 after nearly two years of research and development. In 2004, KYTC undertook an extensive review of surrounding states and best practice states in access management. Working through an internal multidisciplinary task force, KYTC solidified its access management program through documented recommended practices and an implementation plan for establishing KYTC's program. Today, in addition to adopted access management policies and procedures, KYTC offers guidance and resources to local municipalities seeking to integrate access management into their plans, policies, and practices. However, despite the results of the aforementioned study, a formal Access Management Manual has not yet been developed as a reference for those seeking to apply for access to the Kentucky transportation system. Additional information on KYTC's Access Management policy and resources are available at their website<sup>6</sup>.

## **Minnesota**

In 1997, the Minnesota Legislature directed the Minnesota Department of Transportation (MnDOT) to study and develop recommendations for integrating land use planning, engineering, and legal practices to maximize the operational efficiency and safety of all functional categories of roadways.

6 <http://transportation.ky.gov/Congestion-Toolbox/Pages/Access-Management.aspx>

MnDOT established the Office of Access Management in March 1997 to work on developing a comprehensive statewide access management policy. From the beginning, MnDOT recognized that improving access management would require a collaborative approach due to the coordination of land use and transportation. Technical committees were also created to help analyze engineering, land use, and legal issues. Workshops were conducted around the state to better understand access management issues in each region. Consultations with transportation and land use planning officials at all government levels across the state helped determine the level of need for improved access management.

Working jointly with city and county representatives, MnDOT developed guidelines for managing access to Minnesota's state highway system (called Trunk Highways). MnDOT regulates access to the Trunk Highway System by permit. However, only local units of government can regulate development adjacent to the highway system. Every highway segment has been assigned to a primary access category, depending on its function and strategic importance within the statewide network. The MnDOT access classification system consists of seven primary access categories and five subcategories relating to area type. The primary categories are based on the functional classification of the roadway and its strategic importance within the statewide highway system. These seven primary access categories are:

- High priority interregional corridors
- Medium priority interregional corridors
- High priority regional corridors
- Principal arterials (metro area and primary trade centers)
- Minor arterials
- Collectors
- Specific area access management plans.

With the exception of highway segments for which an area-specific access management plan has been developed, each roadway segment is also assigned to one of five subcategories. These subcategories recognize that access needs may change as a highway passes through or around a community. As with the primary category assignment, the subcategory assignment is intended to reflect the future or long-term function of the roadway over a 20-year planning horizon, not the existing condition. The subcategories consist of interstate freeway, non-interstate freeway, rural, urban/urbanizing, and urban core. The recommended spacing and allowance for public street intersections and private access varies with the primary category and subcategory of each highway. MnDOT developed their access management guidelines in 2002 and followed it up with the development of an Access Management Manual in 2008.

### **Mississippi**

MDOT began the process of creating a statewide access management program in 2005 under the direction of representatives from Planning, Maintenance, Traffic Engineering, Roadway Design, and the districts. By 2006, the draft version of their access management manual was completed and it was finalized in 2007. Since the Administrative Procedures Act rules would have to match the policies and standards presented in the Access Management Manual, public input was required. In addition, an appeals guide was created to supplement the permit review process. With both of these processes moving in parallel, the final version of the Access Management Manual was approved by the Commission, Secretary of State, and FHWA in early 2011.

An updated version of the document was created in February 2012 after the document was in

circulation for about a year. During this first year of implementation, MDOT was also conducting training to MDOT staff throughout the state. This training focused on explaining how to properly interpret and apply the newly developed standards identified in the manual. The manual establishes roadway classifications, geometric requirements, median policy, traffic impact analysis requirements, and administrative procedures. Standards are presented by access classifications for both rural and urban conditions.

In the past, every property owner received two driveways, so the culture of driveway permitting needed to be changed. This new way of thinking was emphasized through the use of technical training throughout the state at all levels of the organization.

### **Missouri**

MoDOT developed their Access Management Policy in 2003. Stated goals of MoDOT's access management guidelines include:

- Improve roadway safety
- Improve traffic operations
- Protect the taxpayers' investment in roadways
- Create better conditions for non-automobile modes

Guidelines are provided for intersections and interchanges, driveways, and other pertinent issues related to roadway traffic operations and safety. Key provisions of MoDOT's access management policy include:

- Purchasing access rights along with the needed right-of-way for future projects.
- Retrofitting existing roadways – to address problems with safety and traffic operations on highly developed and congested routes, improvement alternatives should include access-management techniques.
- Relocating highways – using access management in new projects to allow new roads to continue to operate efficiently and safely for many years (protecting taxpayer investments in the roadway).
- Cooperating with local governments to review development plans and establish local land use/access management plans for highways, which create new types of access to state roadways using the local road network.
- Reviewing and issuing permits for subdivisions that border state roadways to ensure new driveways comply with spacing, visibility, and other criteria.

MoDOT's access management policy also speaks to coordination with cities, counties, and affected property owners to manage access through shared access and access from local roadways.

### **North Carolina**

The North Carolina DOT began a Strategic Highway Corridors (SHC) initiative in partnership with the Department of Commerce, the Department of Environment and Natural Resources, and the Governor's Office in 2004. The purpose of this initiative was to preserve and maximize mobility and connectivity on key transportation corridors, referred to as Strategic Transportation Corridors (STCs), throughout the state. Preservations would be achieved by developing a long-range, consensus-based vision for each corridor to guide decisions regarding project planning, driveway permit approvals, and local land use decisions.

The initiative promotes environmental stewardship by maximizing the use of existing facilities to

the extent possible and fosters economic prosperity through the movement of goods. The initiative calls for NCDOT and partnering agencies to consider a long-term vision when making land use, design, and operational decisions on the highway system.

Four types of facilities are incorporated in this initiative: freeways, expressways, boulevards and thoroughfares. Access control definitions were developed to create a consistent set of definitions for the STCs. These definitions, created by representatives from FHWA and NCDOT Traffic Engineering, Highway Design, Project Development, and Transportation Planning branches, are based on the function of the roadway; level of mobility and access; and whether the facility has traffic signals, driveways, or medians.

### **Texas**

The Texas Department of Transportation (TxDOT) is one of 29 states in the country that has statutory authority or administrative rules related to access management. TxDOT adopted new rules on access management in September 25, 2003. These rules, which were contained in the June 2004 revised version of the TxDOT Access Management Manual, directed TxDOT to apply access management on the state highway system. It is important to note that the TxDOT Access Management Manual, which was then updated twice in 2009 and once in 2011, provides specific guidance on intersection (including driveway) spacing, since access to the state highway system in the 25 districts includes elements outside the TxDOT-owned right-of-way. The TxDOT Roadway Design Manual provides design guidance for median treatments and auxiliary lanes, since they are elements of the roadway within the TxDOT-owned right-of-way. The access classifications that TxDOT currently uses are:

- New highways on new alignments
- Freeway mainlines
- Frontage roads
- Other state system highways.

The criteria and procedures for managing highway access differ for new highways on new alignments versus existing highways. The number, location, spacing, design, and construction of access connections have a direct and often significant effect on the safety and operation of the highway. The standards are necessary to enable the highway to continue to function efficiently and safely in the future, while at the same time providing reasonable access to development.

### **Utah**

The Access Management Program for the Utah Department of Transportation (UDOT) is charged with protecting access to the state highway system through a responsible and controlled permitting process. State law requires the UDOT to regulate the number, size, location, and use of access points (streets and driveways) connecting to this highway system. For these reasons, UDOT has established the Access Management Program. This program is administered directly through the UDOT's four Region Permitting Offices with coordinating oversight from UDOT's Central Right-of-Way Division in Salt Lake City. Ten access classification categories have been developed to which all sections of the state highways have been or will be assigned. The access categories are as follows:

- Category 1 – freeway/interstate system facilities
- Category 2 – system priority-rural importance
- Category 3 – system priority-urban importance
- Category 4 – regional-rural importance

- Category 5 – regional priority-urban importance
- Category 6 – regional-urban importance
- Category 7 – community-rural importance
- Category 8 – community-urban importance
- Category 9 – other importance
- Category 10 – freeway one-way frontage road

A “Grant of Access” application must be submitted and approved by UDOT before an access point on a state highway is constructed, modified, relocated, or closed. A Grant of Access Application is also required if there is a change of use or intensity on a property with an existing access point, or if the use of a nonconforming access point has been discontinued for a period of 12-months or more. The Grant of Access application process can be complex, time-intensive, and require a substantial resource commitment on the part of the applicant. As a result, UDOT requires all applicants to contact the appropriate Region Permitting Office to schedule a pre-application coordination meeting before applying for a Grant of Access.

It is a goal of UDOT to improve public safety in the development, design, and operation of the state highway system. In exercising this public safety duty, UDOT enacts the access management rule (R930-6), which was updated in August 2013, to limit the number of conflict points at driveway locations, separate highway conflict areas, reduce the interference of through traffic, and adequately space at-grade signalized and unsignalized intersections. UDOT works closely with property owners and local authorities to provide reasonable access to the state highway system that is safe, and enhances the movement of traffic. UDOT utilizes all of the state highway right-of-way to the best advantage for highway purposes through a permit process that assesses and grants the number, location, width, and design of connecting streets and driveways.

## Virginia

In 2006, after a presentation by VDOT staff on the benefits of access management to the Senate Finance and Transportation Committees of the General Assembly, the General Assembly directed VDOT to develop a legislative proposal for a comprehensive access management program. This proposal was considered by the 2007 General Assembly. An access management bill was then submitted by the Governor and approved unanimously by the Virginia House and Senate. The bill added statutory language to the Code of Virginia expanding the powers of VDOT with respect to their authority to manage access on the state highway system.

After forming an internal Technical Committee consisting of VDOT representatives from around the state, a detailed literature review of other state DOT practices was used to develop the proposed access management regulations and standards. A Policy Advisory Committee (PAC) was formed consisting of representatives from local governments; land development, environmental, and transportation engineering organizations; VDOT leadership; and the Office of the Secretary of Transportation. The role of the PAC was to review the proposed regulations and standards and provide comments and feedback. In addition, over 250 comments were received from the public after news releases were published in over 13 newspapers. The PAC completed their review of the implementation of the comments in the fall of 2007 and by December 2007 the new standards and regulations were approved and published.

The General Assembly adopted legislation to require the access management regulations and standards to be implemented in phases starting with the roadways functionally classified as principal arterials effective July 2008. The second phase, which included minor arterials, collectors, and local streets, were then effective in October 2009.

The implementation of access management in Virginia was a challenging process that took over 10 years to gain traction. The approval of this program required broad outreach to key legislators and it also required an access management champion at the VDOT executive leadership level. It was important to clearly explain how access management could make more efficient use of the state highway expenditures by squeezing more capacity out of the existing roadway network. While no comprehensive manual has been created, VDOT's website contains all necessary information on access management in a single location for interested parties<sup>7</sup>.

### Washington

In 1991, the Legislators passed and the governor approved RCW 47.50, titled Highway Access Management. This new law directed the Washington Department of Transportation (WSDOT) to develop two new sets of rules to be included in the Washington Administrative Code (WAC) for those state highways not already Limited Access Highways. The result was a new class of access control called Managed Access Highways. The first set of new rules, WAC 468-51, titled Access Permits - Administrative Process, was prepared and then adopted by WSDOT in July 1992. This first WAC established a permit fee schedule and application process for only those state highways under the access permitting jurisdiction of WSDOT.

The second set of new rules, WAC 468-52, titled Access Classification System and Standards, was prepared and then adopted by WSDOT in January 1993. This second WAC created a classification system and established design standards for all Managed Access Highways, including those Managed Access State Highways within the incorporated limits of a town or city.

Beginning in 1998, WSDOT began reviewing the two existing Highway Access Management WAC 468-51 and 468-52 for possible modifications and improvements. After numerous meetings with representatives from the private sector, government, lawmakers, and public comment, WSDOT adopted a newly revised set of WACs in March 1999.

In November 1996, WSDOT prepared the original Highway Classification and Access Guide, which was then updated in 1999 to be called the Highway Access Management Guidebook. In Washington, there are two types of state highways with respect to access control: limited access highways and managed access highways. Limited access highways are defined as full, partial, or modified limited access control. Managed access highways, also known as controlled access highways, are highways in which access is regulated by the governmental entity having jurisdiction over the facility.

Managed access highways are classified from Class 1, which is the most restrictive, to Class 5, which is the least restrictive. Access classifications were applied to all segments of managed access highways. Access connection permits are issued on all managed access highways.

### **4.3 MULTIMODAL ACCESS/COMPLETE STREETS**

Smart Growth America reported in 2013 that 27 states, 51 regional planning organizations, 48 counties, and 482 municipalities had approved Complete Streets policies, which are similar to TDOT's Multimodal Access concepts. The following highlights surrounding and peer state considerations for all highway users; state provisions range from a general routine accommodation policy to an inclusive and comprehensive Complete Streets policy and program.

### Alabama

While ALDOT does not have an Accommodation policy or Complete Streets policy, their 2010 Statewide Bicycle and Pedestrian Plan does state that "ALDOT supports local planning efforts and encourages the continuation of local efforts by working with local planning partners, considering

7 [http://www.virginiadot.org/info/access\\_management\\_regulations\\_and\\_standards.asp](http://www.virginiadot.org/info/access_management_regulations_and_standards.asp)

bicycle and pedestrian accommodations where appropriate and advocating safety on all state facilities". Interestingly as well, while ALDOT does not have a statewide Complete Streets policy, 15 communities in Alabama do have local Complete Streets policies.

### Arkansas

AHTD does not currently have a Complete Streets policy. However, AHTD does have an adopted Accommodation policy (adopted in 2005), which calls for the consideration of sidewalk and bikeway facilities in the design and construction of transportation improvements by AHTD.

### Florida

Florida was an early adopter of Complete Streets principles as the legislature took a relatively simple policy approach by requiring full consideration of bicycle and pedestrian facilities in transportation projects, plans, and programs in 1984. The law allows for only three exceptions and encourages collaboration with other government agencies to create an integrated statewide network for people walking and bicycling. Additionally, in 2010 FDOT established a statewide initiative focusing on pedestrian and bicycle mobility. As part of the initiative, FDOT created the Florida Bicycle and Pedestrian Partnership Council, made up of FDOT staff, agency partners, and other stakeholders, to provide guidance on policies and issues relating to bicycle and pedestrian mobility. The Council produced the state's first *Pedestrian and Bicycle Strategic Safety Plan*. Partnering with the Council, FDOT provides a Resource Center on its website which includes education materials, media campaigns, and brochures for various stakeholders. FDOT's *Plans Prep Manual* was also recently updated to include guidance on applying Transportation Design for Livable Communities (TDL) when possible.

### Georgia

GDOT's Complete Streets policy calls for the consideration of all users in transportation infrastructure projects. GDOT coordinates with local governments and regional planning agencies to ensure that pedestrian, transit, and bicycle needs are addressed throughout system planning and project stages. In accordance with the Georgia's Bicycle and Pedestrian Safety Action Plan, GDOT's *Design Policy Manual* incorporates context sensitive design and Complete Streets facilities to accomplish their goal in increasing pedestrian and bicycle safety. GDOT also provides a *Guidebook for Pedestrian Planning* to help agencies and citizens implement improvements to pedestrian facilities.

### Indiana

Indiana state legislation requires the adoption of Complete Streets guidelines for INDOT projects regarding street design, while also requiring compliance with such guidelines in INDOT contracts. The inclusion of these guidelines was incorporated in the INDOT's *Design Manual*. Furthermore, INDOT's context sensitive solutions policy encourages the accommodation of all users in transportation project planning and development.

### Kentucky

KYTC does not have a Complete Streets policy; however, they do have an Accommodations policy which has been in place since 2002. The Accommodations policy, which is part of KYTC's *Highway Design Manual*, states "It is KYTC's policy to enhance operational efficiency, promote program goals, and enrich the quality of life through the development of a Pedestrian and Bicycle Travel Policy". The intent of this policy is to ensure planning, design, and construction and maintenance activities reflect community and environmental values. Currently the City of Louisville is Kentucky's only community with an adopted Complete Streets policy.

## Minnesota

MnDOT has a Complete Streets policy which addresses the transportation needs of non-motorized users as well as the needs of transit, freight, and other vehicular traffic. A stated goal of the policy is to balance the needs of all users in a manner that allows safe access to destinations regardless of mode. MnDOT considers Complete Streets as part of every project the agency delivers. The needs of all transportation users are evaluated when planning and designing every project. Affecting every stage of planning and project development, the policy directs staff to consider and incorporate multimodal alternatives in the design and improvement of all appropriate projects within a growth area of a town or city. MnDOT provides an excellent *Implementation Complete Streets Resource Guide* for local agencies to assess their current practices and assist them in developing their own implementation process.

## Mississippi

While the MDOT has an accommodation policy for bicyclist and pedestrians, it does not have a formal Complete Streets policy; however, the state's bicycle and pedestrian advocacy organization (BikeWalk Mississippi) is currently in the process of campaigning state and local officials, calling for MDOT to enact a Complete Street policy. Seven communities in the state have adopted their own Complete Streets policy thus far.

## Missouri

The state of Missouri adopted a Complete Streets resolution in 2011 that commends and urges entities to adopt Complete Streets policies. However, MoDOT has not adopted any general policy elements into their long range plan, funding priorities, or Engineering Policy Guide. Instead, MoDOT, like Mississippi, specifically focuses their efforts on accommodating pedestrians and bicyclists. MoDOT policies include the consideration of sidewalk construction, bicycle-friendly grate standards, tracking bicycle/pedestrian crashes, and creating bicycle route maps to name a few. An important partner in the state's Bicycle and Pedestrian Advisory Committee (BPAC), MoDOT works closely with planning partners to create facilities for all pedestrian and bicycle users.

## North Carolina

NCDOT adopted a Complete Streets policy in 2009. The policy requires planners and designers to consider and incorporate multimodal alternatives in the design and improvement of transportation projects. NCDOT is also required to collaborate with municipalities during the planning and design phases of new streets or improvement projects. In addition to collaborating during these phases, the NCDOT offers two-day training courses and regional workshops for engineering and planning professionals, providing information on Complete Streets concepts and implementation strategies. Furthermore, NCDOT offers an excellent *Complete Streets Planning and Design Guidelines* resource providing comprehensive guidance for incorporating these concepts into everyday practice.

## Texas

TxDOT's bicycle and pedestrian accommodations policy is documented in the Department's *Environmental Handbook*. The policy states "It is TxDOT's policy to proactively plan, design, and construct facilities to safely accommodate bicyclists and pedestrians. Consideration and discussion of bicycle and pedestrian facilities shall be accomplished as part of the project scoping and environmental planning processes."

TxDOT considers the inclusion of bicycle and pedestrian facilities in the construction or improvement of the transportation system. These accommodations are evaluated on a case-by-case and project basis by the district engineer. When applicable, TxDOT incorporates public input and considers



local city and metropolitan planning bicycle/pedestrian plans.

## Utah

UDOT does not have a Complete Streets policy. Instead, UDOT provides resources for developing facilities for pedestrians and bicyclists as well as providing public educational, promotional, and safety programs. UDOT provides a Pedestrian and Bicycle Guide for UDOT staff and citizens interested in improving the bicycle and pedestrian network. The Guide includes design and maintenance topics, funding options, and UDOT's project development processes to encourage interest groups to participate in UDOT projects.

## Virginia

Due to changing development patterns, VDOT implemented a policy in 2004 to routinely consider accommodating bicyclists and pedestrians in all state and federally funded projects. This policy statement outlines a basic decision-making process to ensure that accommodations are considered for all VDOT projects. The policy ended the practice of requiring 50% local match for bicycle and pedestrian projects, allows for standalone retrofits, and considers non-motorized travel in a variety of Department activities. VDOT provides a Bike and Pedestrian Implementation Guide for Locality Involvement, a Bicycle Facility Resource Guide, and a Bicycle and Pedestrian Accommodation Decision Process for Construction Projects in order to assist professionals wishing to incorporate facilities into their projects.

## Washington

In 2011, the Washington legislature established a Complete Streets policy including the establishment of the Complete Streets Grant Program. Administered by WSDOT, the program awards grant money to communities that have adopted a Complete Streets ordinance (or equivalent) and have integrated it into their community plan. The Program encourages local governments to adopt arterial retrofit street ordinances based on safe access for all users. WSDOT has a Community Design Assistance department to help communities apply Complete Streets principles. Their website also offers a brochure detailing the typical costs of these principles in addition to other supportive documents such as a Walkability Audit.

## **4.4 HEALTH AND ENVIRONMENT**

The U.S. Department of Transportation (USDOT) recognizes the importance of promoting consideration of health outcomes in the transportation planning process and has provided the following objectives related to health and quality of life issues:

- Promote safety;
- Improve air quality;
- Respect the natural environment through Context Sensitive Solutions;
- Improve social equity by improving access to jobs, health care and other community services;
- Create additional opportunities for the positive effects of walking, biking, public transportation, and ride and vehicle sharing; and
- Conduct research on transportation's role in improving quality of life.

In 2012, FHWA established an in-house working group to explore how the agency addresses health-related issues and requests for information. There is no formal policy for FHWA on health, but there is recognition that public health is important

and should be considered as part of the transportation planning process. The working group defined health in transportation, identified FHWA programs related to health, and developed an annotated bibliography of health-related resources. A health response team was developed and tasked with coordination with state and local agencies. Health related topics being considered by FHWA as part of the long range transportation planning process include:

- Reducing the severity and number of obesity cases through more walkable communities, Complete Streets, and livability goals;
- Understanding health impact assessments;
- Identifying infrastructure that supports or hinders transportation to human services;
- Addressing urban food deserts;
- Measuring response times for emergency medical services in congested corridors; and
- Assessing crash survivability in smaller electric or energy-efficient cars.

More information on FHWA's initiatives on health in transportation can be found on FHWA's website ([http://www.fhwa.dot.gov/planning/health\\_in\\_transportation/](http://www.fhwa.dot.gov/planning/health_in_transportation/)). The working group is coordinating its activities with the Secretary of Transportation, the Federal Transit Administration, and the National Highway Traffic Safety Administration. FHWA recommends incorporating health in transportation decision making through the following system plans:

- Bicycle and Pedestrian System Plans,
- Congestion Management Process (CMP),
- Long Range Transportation Plan (LRTP),
- Metropolitan Transportation Plan (MTP), and
- Strategic Highway Safety Plan (SHSP).

Given the emergence of this topic with state DOTs, the following synopsis is limited to two states from the surrounding and peer state review (North Carolina and Minnesota) as well as information on Massachusetts practices given their efforts in health and environmental policies related to transportation.

#### **North Carolina**

NCDOT integrates public health considerations in its initiatives, plans, and policies, and explores the use of health impact assessments. The NCDOT mission statement is: "Connecting people and places safely and efficiently, with accountability and environmental sensitivity to enhance the economy, health and well-being of North Carolina." The challenge recognized by the North Carolina Board of Transportation was that there is "a strong connection between the built environment and public health outcomes, including rates of chronic disease, obesity, levels of physical activity, safety, and general well-being". Opportunities exists for NCDOT to "support positive health outcomes by considering public health implications in our decision making across all transportation modes, programs, [and] policies . . . and through all stages of the life of a transportation project."

#### **Minnesota**

MnDOT initiated Minnesota GO, a 50-year vision for transportation in November 2011. A visioning process was conducted as part of the transportation plan development to better align the transportation system with expectations for quality of life, economy, and the natural environment. A series of challenges and opportunities were identified as part of the visioning process. One challenge identified was the need for transportation alternatives that allow for regular and sustained

physical activity as described in the following challenge statement: “The increased frequency of several chronic diseases related to obesity - heart disease, diabetes, and cancer - coupled with an aging population, places enormous strains on the ability to pay for health care. Unless significant measures are taken, the deaths, diseases, and health care expenditures attributable to physically inactive lifestyles will only increase. Regular and sustained physical activity can help Minnesotans lead healthier lives. Health advocates will continue to push and recommend more active lifestyles and higher levels of daily physical activity, including through transportation choices such as biking and walking.”

### **Massachusetts**

The Massachusetts Healthy Transportation Compact created an interagency initiative to “facilitate transportation decisions that balance the needs of all transportation users, expand mobility, improve public health, support a cleaner environment, and create stronger communities.” A goal of the Compact was to “Adopt best practices to increase efficiency to achieve positive health outcomes through the coordination of land use, transportation and public health policy.” Representative agencies in the group include the Massachusetts Secretary of Transportation, the Secretary of Health and Human Services, the Secretary of Energy and Environmental Affairs, MassDOT Highway Administrator, MassDOT Transit Administrator, and Commissioner of Public Health. The Compact is forming partnerships with the public and private sectors, advocacy groups, and transportation, land use, and public health stakeholders.

## 5.0 CONCLUSION AND RECOMMENDATIONS

Accessibility can be described as the ability to reach destinations in an efficient way. Improvements in accessibility can be achieved through changes in land use, access management, and implementing Multimodal Access principles. Transportation accessibility impacts the health of Tennesseans and our environment in a number of ways.

The purpose of this policy paper is to describe current policies and programs of the state for accessibility through land use planning, access management policies, Multimodal Access/Complete Streets, health and environment initiatives and to provide recommendations for plans, policies, and programs consistent with the Guiding Principles of TDOT's 25-Year Policy Plan.

### 5.1 SUMMARY OF FINDINGS

Land use policies that promote mixed uses can lead to lower travel demand, which can result in reduced travel times for commuting and other trip purposes, such as shopping and school trips. Although TDOT cannot set land use policy in the state, TDOT's Office of Community Transportation (OCT) is an important resource for local planning agencies to understand the impacts of their land use decision on the transportation system.

Integrating land use and transportation is necessary to provide consistency between transportation improvements and state and local planned growth and economic development. Enhanced coordination between land use and transportation planners is a trend that should continue to help build partnerships that create sustainable and livable communities.

Access management can be implemented at the statewide, corridor, project, or permit level. A statewide policy that manages access across the entire system and includes associated design and spacing standards at legislative direction is usually the most effective way to successfully implement access management. Although there are elements of access management included in Tennessee Code Annotated (TCA) 1680-2-1, it does not incorporate the key components of an access management plan or policy. The Traffic Operations Division of TDOT is currently considering the development of an access management policy. The TDOT Highway Access Management Committee has been formed to lead the development of an access management policy.

As previously mentioned, Multimodal Access/Complete Streets involves the planning, design, and operation of streets for safe, convenient access to the system by all users regardless of transportation mode. Similar policies are being implemented at the state and local level across the country. Smart Growth America reported in 2013 that 27 states, 51 regional planning organizations, 48 counties, and 482 municipalities had approved Complete Streets policies. Considerable interest in Complete Street principles exists across Tennessee with the cities of Chattanooga, Kingsport, Knoxville, Memphis, and Nashville having adopted formal policies. Continued development of its Multimodal Access policy and program would be the next logical step in advancing TDOT closer to its stated vision "to serve the public by providing the best multimodal transportation system in the nation".

The transportation system helps shape how communities operate, and it can have a profound influence, both positive and negative, on public health. Transportation impacts air pollution and the environment, communities, safety, physical activity, and access to jobs, services, healthcare, and recreational opportunities. Many communities across the country are increasingly interested in linkages between health and transportation. This policy paper illustrates how DOTs across the U.S. are integrating public health into their transportation planning and decision-making processes. A range of options are provided for TDOT's consideration in promoting health, transportation, and the environment.

## 5.2 RECOMMENDATIONS

In conclusion, the following summarizes existing plans, policies, and programs, future growth, trends, and technology related to land use planning, access management, Multimodal Access/Complete Streets, and health and environment.

- TDOT has begun to organize various functions of the DOT at the region level and around activities that position the Department to respond to local land use-transportation impacts.
- TDOT has begun to establish various planning efforts (e.g. major thoroughfare plans, corridor management agreements, access management committees, etc.) to better integrate land use and transportation decisions.
- State DOTs can and many do play a larger role beyond driveway permitting in the land use-development approval process.
- State DOTs have increased their role in the interaction of land use and transportation by providing resources and training to local municipalities and other partners.
- A growing number of state DOTs are developing and adopting policies and guidelines for Complete Streets or similar concepts.
- A growing number of state DOTs have formal, comprehensive Access Management programs.
- A number of state DOTs require traffic impact studies as part of their state highway access/driveway approval process.
- Successful programs (Access Management, Multimodal Access/Complete Streets, site impact review, etc.) require well documented and communicated policies and procedures and often include technical resources and training (for both internal and external staff).
- Consideration of health and transportation is slowly becoming a growing area of interest among state DOTs.
- Integration of health into a DOT's plans, policies, and programs has been most successful when the state DOT has partnered with the state's public health agency and other state organizations.
- State DOTs are playing a more active role in the review and development of local comprehensive plans and local and regional transportation plans.
- State DOT participation at the regional level (both at the metropolitan and rural levels) is shifting from one of passive engagement to one of proactive technical liaison/leader.
- Compared to surrounding and peer states, Tennessee is lagging behind other state DOTs when it comes to policies and programs pertaining to land use planning (specifically at the development review and site impact level), having a comprehensive Access Management program, and having a formal policy to address the needs for all users of the transportation system.