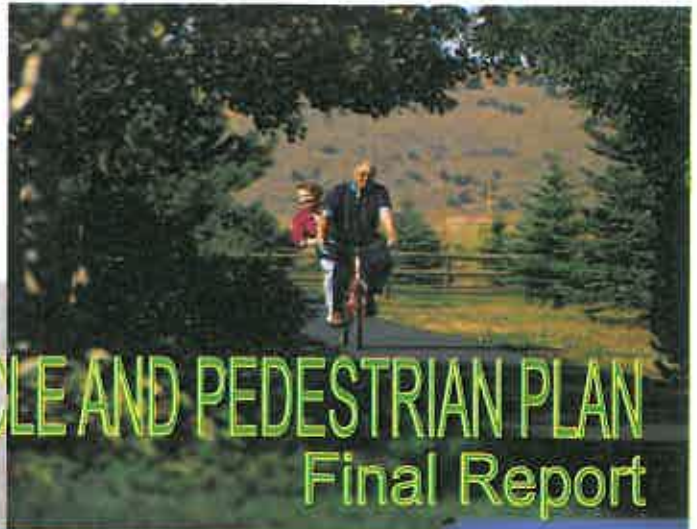
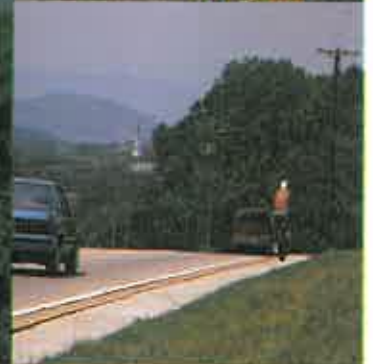


LAKEWAY AREA METROPOLITAN TRANSPORTATION PLANNING ORGANIZATION



REGIONAL BICYCLE AND PEDESTRIAN PLAN Final Report



September 2008

Table of Contents

EXECUTIVE SUMMARY	i
SECTION		Page
1.0 THE PLANNING PROCESS.....		1.1
1.1 Introduction.....		1.1
1.2 Purpose of the Plan.....		1.2
1.3 Plan Development.....		1.2
1.4 Goals and Objectives.....		1.4
1.5 Study Area.....		1.6
2.0 EXISTING PLANS AND POLICIES.....		2.1
2.1 Morristown Greenway Master Plan.....		2.1
2.2 The Morristown Transportation Plan (2001-2010).....		2.2
2.3 LAMTPO Sidewalk Regulations.....		2.3
2.4 Transportation Improvement Plan (TIP).....		2.5
2.5 Long-Range Transportation Plan 2005-2030 (LRTP).....		2.5
2.6 Tennessee's Bicycling Rules of the Road.....		2.6
2.7 TDOT's Bicycle and Pedestrian Policies.....		2.6
2.8 State Bicycle and Pedestrian Plan.....		2.8
2.9 State Transportation Improvement Plan (STIP).....		2.8
2.10 Existing Federal Policies and National Standards		2.8
2.11 Other Policies and Programs.....		2.9
3.0 EXISTING AND PLANNED CONDITIONS.....		3.1
3.1 Existing Roadway Network.....		3.1
3.2 Planned Roadway Network.....		3.2
3.3 Existing Public Transit Facilities.....		3.3
3.4 Existing Railroad Facilities		3.4
3.5 Existing Pedestrian Facilities		3.4
3.6 Existing Bicycle Facilities.....		3.6
3.7 Planned Bicycle and Pedestrian Facilities.....		3.9
3.8 State Park Systems		3.9
3.9 Current Land Uses.....		3.10
4.0 TRIP GENERATORS.....		4.1
5.0 OPPORTUNITIES AND OBSTACLES.....		5.1
5.1 Opportunities for Bicycle and Pedestrian Travel.....		5.1
5.2 Obstacles to Bicycle and Pedestrian Travel		5.2

6.0	RECOMMENDED BICYCLE AND PEDESTRIAN PROGRAM.....	6.1
	6.1 Recommended Policies, Ordinances, Practices, And Programs To Facilitate And Promote Bicycling And Walking.....	6.1
	6.2 Bicycling and Walking Educational and Encouragement Activities	6.6
	6.3 Recommended Bicycle and Pedestrian Facilities.....	6.8
	6.4 Opinions of Probable Cost for the Recommended Facilities.....	6.10
	6.5 Implementation Mechanisms-Project Evaluation Tool.....	6.13
	6.6 Implementation Mechanisms-Potential Funding Sources.....	6.14
	6.6.1 Federal/State Funds.....	6.14
	6.6.2 Local Funds.....	6.17
	6.6.3 Other Funding Sources.....	6.18

FIGURES

1.1	LAMTPO Study Area Map.....	1.7
3.1	Existing and Planned Bicycle and Pedestrian Facilities	3.7
6.1	Recommended Bicycle and Pedestrian Facilities- Phase 1 Plan.....	6.11
6.2	Recommended Bicycle and Pedestrian Facilities- Long Range Bicycle and Greenway Plan.....	6.12

TABLES

4.1	Major Trip Generators in the LAMTPO Area.....	4.1
6.1	Project Evaluation Tool.....	6.13

APPENDICES

A	Bicycle and Pedestrian Advisory Committee (BPAC) Meeting Notes
B	General Demographics:1990 and 2000 Census Data
C	Project Cost Summary

EXECUTIVE SUMMARY

The Lakeway Metropolitan Transportation Planning Organization (LAMTPO) is responsible for promoting a coordinated, continuous and comprehensive (3-C) multimodal transportation planning process. The MPO is strategically planning for the future of transportation by developing plans and programs to promote efficient and effective transportation and ensuring that the LAMTPO area complies with regional air quality standards.

Traditionally, transportation planning focuses on the development of automobile infrastructure. However, these five LAMTPO entities recognize the need to plan for bicycle and pedestrian facilities as both a transportation mode and a recreational feature. As the region experiences continued growth in residential and commercial development, failure to plan for bicyclists and pedestrians may reduce the area's ability to expand its full intermodal opportunities in the future.

Several LAMTPO communities have already developed their own greenways and sidewalks plans. However, there is no single bicycle and pedestrian plan that combines these individual plans to create a regional non-motorized transportation network.

The broad objectives of the *LAMPTO Regional Bicycle and Pedestrian Plan* is to seek, preserve and enhance the area's bicycling and pedestrian network and to improve safety, convenience, attractiveness, and the overall possibility of cycling and walking as legitimate transportation alternatives.

The *LAMTPO Regional Bicycle and Pedestrian Plan* focuses on the goal of establishing a network of non-motorized transportation routes throughout the region. This plan will provide direction to the residents and local governments in the LAMTPO region to promote these non-motorized transportation modes. Each LAMTPO community is expected to utilize this plan and its recommendations as a tool to follow when addressing bicycle and pedestrian planning efforts.

At the start of the planning process, goals and objectives were developed cooperatively by LAMTPO staff, the Bicycle and Pedestrian Advisory Committee (BPAC), and the public. The goal statement emphasizes safe and connected bicycle and pedestrian networks, promotes health benefits and increases mobility for LAMTPO residents of all ages and abilities. Additionally, policies were suggested and recommendations for improved bicycle and pedestrian facilities were proposed.

This Bicycle and Pedestrian Plan will become an element of the LAMTPO Long-Range Transportation Plan (LRTP) and will provide the strategies and programs necessary for a complete multi-modal transportation plan for the LAMTPO region. Currently, an update to the LRTP is being performed and should be completed by 2010. The LAMTPO Regional Bicycle and Pedestrian Plan shares the goals and principles of the LAMTPO Long Range Transportation Plan (LRTP) while specific goals relating to non-motorized transportation options promote and reduce the dependency on automobiles and create opportunities for more independence for children, seniors, the disabled and those that don't drive.

The goals of the Bicycle and Pedestrian Plan also addresses public awareness relative to the study's goals, objectives and process as well as provide opportunity for the public to give input throughout the process. As outlined in Chapter 1, the Public Involvement Process (PIP) included the formation of the BPAC to assist LAMTPO staff in developing the Plan and participate in public workshops and discussions as part of the planning process.

An evaluation of the existing transportation infrastructure in each LAMTPO community (street type, existing sidewalks and bike facilities, land use patterns, schools, parks, and major generators) was necessary to define areas where it would be possible to create more walkable and bicycle-friendly communities.

A review of the existing policies, ordinances, programs and plans for each of the five LAMTPO municipalities resulted in making recommendations for updates and revisions to current ordinances and policies in order to support community goals for the development of continuous and complete pedestrian and bicycle facilities during new development and redevelopment projects. The review also urges each local government and planning commission to include more pedestrian and bicycle facilities in site plans and development practices. Historically, the local jurisdictions within LAMTPO have established guidelines to provide sidewalks under certain criteria. Currently, White Pine, Morristown and Jefferson City have areas with sidewalks, but have limited bicycle travel lanes and shared- and off-road bicycle facilities. This plan, once adopted will provide more opportunity for non-motorized transportation use in the area as well as promote public health and recreational benefits.

This plan addresses LAMTPOs commitment to balance the needs and requirements of the various transportation modes (automobile, bicycle, pedestrian and transit) with emphasis on convenience and accessibility when planning and building bicycle and pedestrian facilities. This plan includes a system of share road facilities and off-road facilities that will create connected routes to White Pine, Morristown and Jefferson City. A future system of rural bike routes and regional trails is also envisioned to attract bicyclists from across neighboring states into the LAMTPO region which support the goals and mission of the statewide bicycle plan. The plan also identifies major bicycle and pedestrian attractors and generators including parks, schools, universities and colleges, tourist attractions and regional shopping centers.

This Plan also presents a Project Evaluation Tool (PET) that should be used to establish priority listing of bicycle and pedestrian projects for each LAMTPO community. The project evaluation tool considers a number of factors that help identify/predict the need for bicycle and/or pedestrian facilities.

Utilizing the Plan's established goals and objectives, the BPAC, LAMTPO staff and the public identified proposed and potential facilities for the region. With the growing interest of cycling and walking, these planning partners understand the importance of identifying and implementing the LAMTPO Regional Bicycle and Pedestrian Plan. However, implementation can not occur without funding. Due to the competitiveness for funds, there may not be enough money to fund all projects. Therefore, it is important for each jurisdiction to prioritize local projects and work closely with the Tennessee

Department of Transportation to incorporate pedestrian and bicycling facilities into road construction projects throughout the region.

Proper and adequate funding sources are vital in making sure that bicycle and pedestrian projects will be constructed. This plan will identify improvements for bicycle and pedestrian facilities over the next 25 years, including developing and implementing designated bike routes, eliminating gaps and barriers, funding maintenance programs for bicycle and pedestrian improvements and funding to bring deficient pedestrian facilities into ADA compliance. Funding will also be provided for educational materials and promotional brochures, developing design standards, training and workshops, and a Bicycle and Pedestrian Coordinator position. Funding will also be provided with grant programs administered through TDOT and other public and private organizations.

In conclusion, the LAMTPO Regional Bicycle and Pedestrian Plan will be utilized to guide future decision-making relative to bicycle and pedestrian facilities and amenities. This plan appeals to the five LAMTPO governing entities, community residents and pedestrian advocacy groups to be a part of the effort to improve the LAMTPO region for bicycling and walking. The overall expectation of this plan is to educate each LAMTPO community on the various opportunities that are available for integrating bicycle and pedestrian planning into their municipalities' plans and projects.

1.0 THE PLANNING PROCESS

1.1 Introduction

Bicycling and walking have always been popular recreational activities, and, in recent years, have been gaining in popularity as modes of travel for transportation. Rising fuel costs, in conjunction with an increasing demand to preserve natural resources, has spurred the demand for alternative modes of travel, including bicycling and walking. Like many communities across the country, the Lakeway Area Metropolitan Transportation Planning Organization (LAMTPO) recognizes this need and has undertaken this study to help plan the multi-modal transportation system that its citizens demand and deserve.



This LAMTPO region, also called the "Lakeway" area, is surrounded by Cherokee and Douglas Lakes

Both bicycling and walking are clean, efficient, healthy, and fun ways to travel. Many of the trips that Americans make every day consist of short distances that are within five miles¹. These trips are short enough to be accomplished on foot or bicycle. Moreover, walking and bicycling trips can reduce traffic congestion on roadways. Today, many major arterial and collector streets carry more traffic than they were designed to handle resulting in gridlock, wasted time and energy, pollution, and driver frustration. Biking and walking trips, as alternative transportation choices, can help you reap the health rewards of increased physical activity, feel more connected to your community, help protect the environment, and save money normally spent on gasoline and parking costs. All of these impacts result in a higher quality of life. Also, these travel modes can provide mobility and independence to those who cannot drive because of age, disabilities, or income.

On August 10, 2005, President George W. Bush signed into law the *Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users* (SAFETEA-LU). Similar to its predecessors, the *Intermodal Surface Transportation Efficiency Act* of 1991 (ISTEA) and the *Transportation Equity Act for the 21st Century* (TEA-21), SAFETEA-LU allocates federal dollars for highways, highway safety, and public transportation projects. To date, SAFETEA-LU represents the largest surface transportation investment in history addressing many challenges facing today's transportation system including improving safety, reducing traffic congestion, increasing intermodal connectivity, and protecting the environment.

¹ Transportation Benefits, walkinginfo.org

Bicycling and walking promote all of these initiatives. SAFETEA-LU also offers state and local transportation decision makers more flexibility for solving transportation problems in their communities.

LAMTPO, consisting of the cities of Morristown, Jefferson City and White Pine and portions of Hamblen and Jefferson Counties in Tennessee, has committed to strategically plan for the future of transportation by developing plans and coordinating initiatives among the jurisdictions and supporting agencies to promote an efficient and effective transportation system for the Lakeway region. With this plan, LAMTPO is establishing a comprehensive policy-level bicycle and pedestrian plan that is consistent with all requirements of the SAFETEA-LU legislation and the various implementing rules, regulations, and policies of the Federal Highway Administration (FHWA) and the Tennessee Department of Transportation (TDOT), as well as the requirements of the MPO's Long Range Transportation Plan (LRTP).

1.2 Purpose of Plan

The *LAMTPO Regional Bicycle and Pedestrian Plan* is a policy-level plan that seeks to enhance the mobility and meet the access needs of the Lakeway community by recommending improvements that can be successfully integrated into a multi-modal transportation system while improving the safety, attractiveness, and overall viability of bicycling and walking as transportation alternatives.

As a policy-level plan, the intent of this plan is to result in a coordinated system of greenways, bikeways, and sidewalks connecting residential areas, employment centers, schools, parks, recreation areas, and other activity centers. In addition to identifying recommended future facilities, this plan includes policy guidance to aid LAMTPOs communities in planning and implementing bicycle and pedestrian facilities. The plan considers opportunities for connection of bicycle and pedestrian travelers with other travel modes, including transit, and recognizes the importance of preserving and enhancing the existing transportation infrastructure. This plan includes recommended actions to create an interconnected, well maintained, and integrated bicycle and pedestrian network that meets the needs of all users, as well as the initiatives of the local jurisdictions.

The plan identifies the most feasible bicycle and pedestrian routes and recommends specific types of facilities for each location. The intent of the plan is not to secure funding for every project, but to guide local and regional planning and to assist jurisdictions in identifying available funding sources.

1.3 Plan Development

The planning process began in January 2008 and included the following major project tasks:

- **Project Initiation** – At the beginning of the planning process, a kick-off meeting was held with the MPO Coordinator to finalize the project schedule, outline the tasks to be completed, and to finalize future project meeting dates. At the same time, a Bicycle

and Pedestrian Advisory Committee (BPAC) was also established to guide the development of the plan. The BPAC included representatives from each of the local jurisdictions, as well as other key stakeholders. At that time, relevant data was also collected. This data included Geographic Information System (GIS) data, aerial photos, available roadway and sidewalk inventory data, roadway classifications, annual average daily traffic volume data, existing and proposed land use maps, existing and proposed bicycle and greenway routes, and available data identifying bicycle/pedestrian attractors and generators (including schools, civic buildings, commercial and residential developments, major employment centers, parks, transit stops, etc.). Field inventories were conducted to collect various roadway data, including measurements, existing features, and photographs. Additionally, current ordinances, regulations, and design standards were also collected from each jurisdiction.

- **Evaluate Existing Connectivity and Infrastructure and Develop Preliminary Alternatives** – The collected data was thoroughly evaluated to identify existing bicycle and pedestrian facilities, determine connectivity between facilities and between trip generators, and to identify current and planned conditions that impact bicycling and walking in the LAMTPO region. A meeting with the BPAC was then held to present the results of the evaluations, gather community input, and identify project issues.
- **Prepare Draft Report** – Based on the results of the evaluations and on the input received from BPAC, preliminary recommendations for bicycle and pedestrian projects, programs, and policies were developed.
- **Coordinate with MPO and BPAC / Conduct Public Workshop** – The preliminary recommendations were presented to the community at a BPAC/public meeting where additional input from the public and the BPAC was received.
- **Prepare Bicycle and Pedestrian Plan** – Based on the analyses conducted and the input received, the LAMTPO Bicycle and Pedestrian Plan was prepared. This plan was made available for public viewing at various public facilities. In August 2008, a public hearing was held at the LAMTPO Executive Board meeting to present the plan in draft form to receive public comments and suggestions. Representatives of the MPO, the BPAC, and the region's citizens were in attendance. All input received is contained in this final LAMTPO Regional Bicycle and Pedestrian Plan which was adopted in September 2008.

As identified in the project initiation task, a Bicycle and Pedestrian Advisory Committee (BPAC) was formed at the beginning of the planning process. The primary function of the BPAC was to assist the consultant team with local knowledge and to provide guidance and feedback on local transportation and land development issues. The BPAC consisted of a 15 member advisory committee representing a variety of perspectives and experiences including pedestrian and bicycling planning, neighborhood and community involvement, school administration, public health, and urban design. Committee members included representatives of local, regional and state transportation and public works agencies, Hamblen County Public Schools, Morristown Chamber of Commerce, Jefferson City Parks and Recreation Department, Panther Creek State Park, bike and pedestrian advocate

groups, and local citizens. Members of the BPAC are listed in the Appendix of this document.



Members of the BPAC provided input and suggestions to establish the goals and objectives of the Plan.

Two meetings were held with the BPAC throughout the planning process. The first BPAC meeting was held on February 26, 2008. This initial meeting focused on a wide range of tasks including the creation of a vision statement, development of goals and objectives and the discussion of existing policies and plans. The meeting also included an interactive workshop in which BPAC members were invited to review maps of the study area and mark with highlighters the locations of desirable and undesirable bicycle and pedestrian routes, physical barriers and constraints, and other related needs and features. Information gathered from the February meeting was updated on the project maps and discussed at a second BPAC meeting on March 25, 2008. The second meeting focused on implementation policies and recommendations, reviewing plan alternatives, setting project priorities, and establishing design standards.

A public meeting was held for the project on April 22, 2008, and BPAC members were encouraged to attend. This interactive meeting included discussions on the preliminary recommendations. The format of this public meeting was patterned after the BPAC workshops, with participants focusing on bicycle and pedestrian needs in their own neighborhoods and work areas, as well as throughout the region. Attendees were also asked to review project maps identifying the existing, planned, and proposed bicycle and pedestrian facilities and to provide input.

A public hearing to present a draft plan to the MPO Executive Board was held on August 13, 2008. Citizens were encouraged to attend the meeting to give suggestions that will assist in finalizing the plan. The final plan was adopted by the LAMTPO Executive Board in September 2008.

1.4 Goals and Objectives

The *LAMTPO Regional Bicycle and Pedestrian Plan* will serve as the bicycle and pedestrian component of the MPO's Long Range Transportation Plan (LRTP). The adopted LRTP goals and objectives address the required SAFTEA-LU planning factors and are as follows:

- Goal #1: Provide for an Efficient Transportation System
 - ◆ Coordinate land use and transportation activities to ensure their compatible relationship.
 - ◆ Preserve and maintain the existing transportation infrastructure.
- Goal #2: Improve the Safety of the Transportation System
 - ◆ Identify the most effective strategies for reducing crashes.
 - ◆ Improve the relationship between motorized and non-motorized users by further developing the transportation network for bicycle and pedestrian uses.
 - ◆ Support traffic safety education and traffic enforcement efforts.
- Goal #3: Promote Security within the Transportation System
 - ◆ Provide adequate demand response-services within the LAMTPO study area.
 - ◆ Identify critical facilities within the transportation system.
 - ◆ Promote technologies, such as ITS, proper street lighting, or surveillance initiatives that increase security.
- Goal #4: Maintain and Improve the Quality of the Natural Environment
 - ◆ Implement transportation policies and programs that reduce vehicle emissions and the demand for energy.
 - ◆ Increase mass transit ridership.
- Goal #5: Improve Mobility of Persons and Freight
 - ◆ Provide a multimodal transportation system that supports safe, efficient and convenient travel options for the movement of people and goods.
 - ◆ Reduce congestion and improve access to jobs, markets, and services.
 - ◆ Improve multimodal traffic flow by separating the rail network from the roadway, bicycle, and pedestrian transportation network.
- Goal #6: Effectively Manage Financial Resources for the Transportation Network
 - ◆ Consider cost (capital, operating and maintenance) constraints in selecting the highest priority short and long-range improvements and programs.
 - ◆ Utilize existing transportation facilities and rights-of-way efficiently to provide improved levels of service at minimal capital cost.

The SAFETEA-LU planning factors and the LRTPs goals and objectives were used as a basis to establish a goal statement for the *LAMTPO Regional Bicycle and Pedestrian Plan* early in the planning process to provide overall direction for the plan. The statement, which was developed according to input provided by the BPAC, MPO staff, and general public, is as follows:

“To develop a plan that will provide for a safe and connective network of attractive bicycle and pedestrian facilities that improve mobility and health by linking communities and providing access to destinations.”

The goal statement encompasses a number of objectives that can be categorized to address safety, connectivity and mobility, aesthetics, and health. The specific objectives of the plan are outlined below.

- **Safety**
 - ◆ To incorporate design standards that reflect national best practices.
 - ◆ To provide a network of facility types that meet the needs of all types of users.
 - ◆ To provide clear and dedicated paths for motorists, bicyclists, and pedestrians.
 - ◆ To provide adequate lighting.
 - ◆ To provide sufficient regulatory and directional signage.
 - ◆ To provide safe routes to schools.
 - ◆ To minimize conflicts between motorists, bicyclists, and pedestrians.
 - ◆ To ensure that all new streets are safe and comfortable for motorists, bicyclists, and pedestrians.
- **Connectivity and Mobility**
 - ◆ To link the communities within the LAMTPO area.
 - ◆ To provide connections between residential, employment, retail, and other activity centers.
 - ◆ To link the communities within the LAMTPO area.
 - ◆ To provide connections between residential, employment, retail, and other activity centers.
 - ◆ To maximize the multi-modal function of existing streets.
 - ◆ To reduce traffic congestion by increasing the percentage of bicycling and walking trips in the LAMTPO area.
- **Aesthetics**
 - ◆ To provide for the development of design guidelines to complement the region.
- **Health**
 - ◆ To promote health by increasing the percentage of bicycling and walking trips in the LAMTPO area.

1.5 Study Area

The study area for the *LAMTPO Regional Bicycle and Pedestrian Plan* consists of the entire LAMTPO region, which roughly includes a triangular-shaped area between the cities of Morristown, Jefferson City, and White Pine, as well as portions of Hamblen County and Jefferson County, Tennessee. In May 2002, these areas were reclassified as an urbanized area based on the US Census.² See Figure 1.1 for a map of the study area.

² Lakeway Area Metropolitan Transportation Planning Organization (LAMTPO), LRTP 2005.

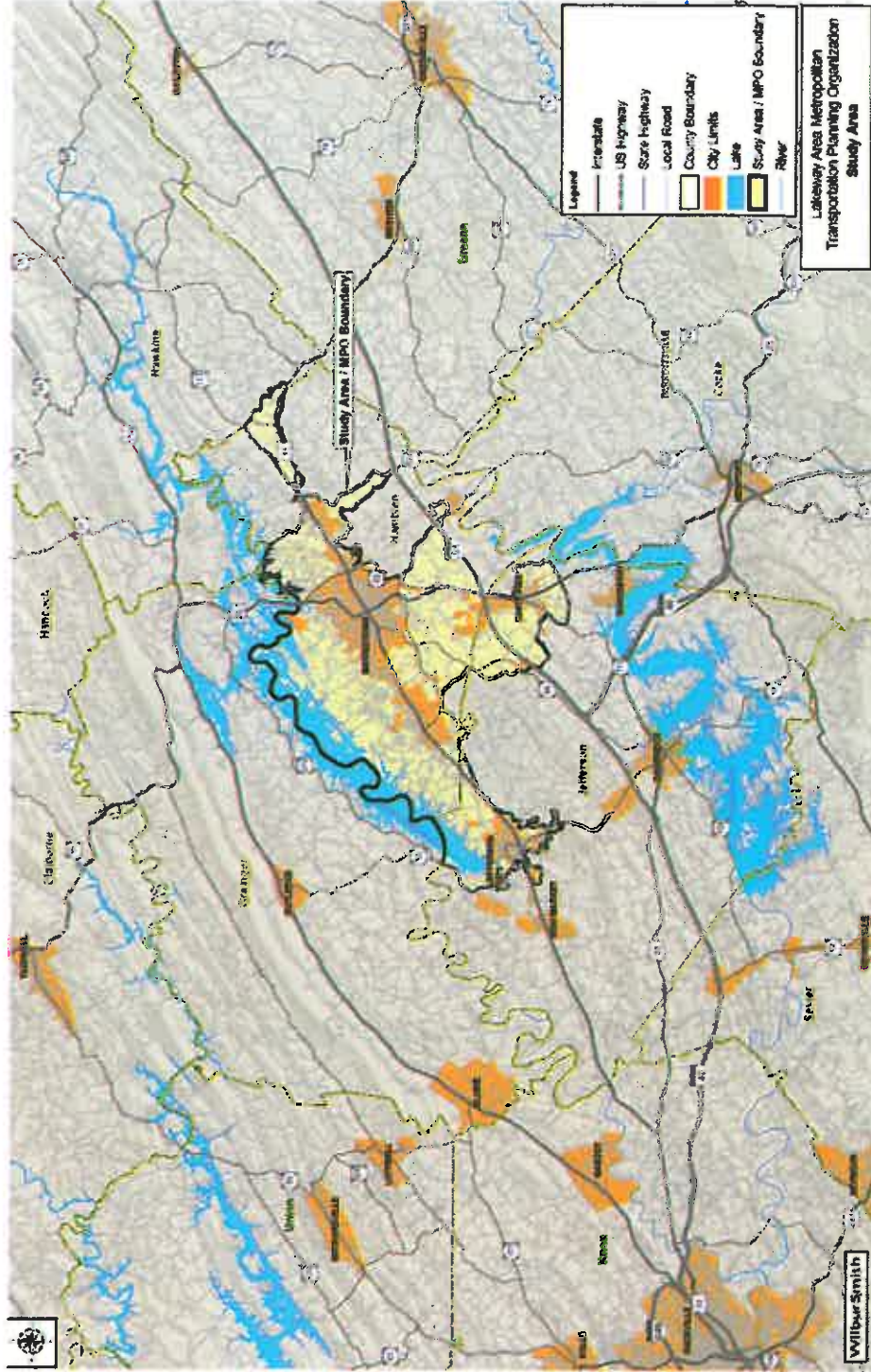


Figure 1.1 LAMTPO Study Area

2.0 EXISTING PLANS AND POLICIES

In May 2002, the US Census Bureau designated portions of Morristown, Jefferson City, White Pine, and Hamblen and Jefferson Counties as an urbanized area. Each of these five jurisdictions within the MPO has guidelines and recommendations in place for zoning and subdivision practices. Based on a review of the area's various policies, plans, and practices, each jurisdiction with LAMTPO understands that the design and development of the transportation infrastructure should improve conditions for bicycling and walking through the following steps:

- Planning projects for long-term. New facilities should anticipate likely future demand for bicycling and walking facilities
- Addressing the need for bicyclists and pedestrians to cross corridors as well as travel along them. The design of intersections and pedestrians should accommodate bicyclists and pedestrians in a manner that is safe, convenient and accessible
- Local jurisdictions should adopt appropriate codes and ordinances for sidewalks, shared-use paths, bikeways, greenways and related improvements.

The areas plans, policies, and practices that impact bicycle and pedestrian travel within the region are summarized below.

2.1 Morristown Greenway Master Plan

In March 2002, the City of Morristown commissioned a study of potential greenways within its planning boundaries. What was once the initial greenway study for the Turkey Creek Sanitary Sewer Interceptor project evolved into the City's *Greenway Master Plan*.

The plan involved the collaborated efforts of residents, city staff and area stakeholders to develop the most useful, enjoyable and attractive greenway system for pedestrians and bicyclists in the area. Many existing destinations and points of interest for pedestrian and bicyclists use served as the initial step to begin the actual planning process for the greenway routes. The master plan resulted in three major greenway route classifications consisting of Type A (on-road facility), Type B (on-road facility with sidewalks), and Type C (traditional off-road facility exclusively for non-motorized traffic). It also included design criteria and implementation strategies for incorporating the plan into overall goals of the City.

As reported in the 2002 study, there are approximately 37 miles of sidewalk within the City's corporate boundaries. Also the city has a "skyway", which is an elevated walkway in the downtown business district.

The *Greenway Master Plan* addresses potential areas for bike trails or paths. The plan consists of nine major trailheads and thirteen minor trailheads linking neighborhoods, schools, parks, hospitals, and public buildings. Major trailheads allow users to access the greenway system once leaving their vehicle. Parking and signage is provided to identify

route and regulatory information. Lighting and restroom facilities are considered optional amenities. For users approaching a greenway by foot or bicycle, a minor trailhead can serve as a primary access point. Usually they serve as junctions for greenway segments. Signage at minor trailhead points would pertain to motorized vehicles.

A potential trail is proposed along Davy Crockett Parkway (U.S. 25E). This trail will connect Cherokee Lake to the north, Douglas Lake to the south, and U.S. 11W, which is part of the state-wide bike trail. The complete state-wide bike trail will extend from Memphis to Bristol.

Jefferson City has incorporated several greenway projects. The use of abandoned railroad corridors provides connections to neighborhoods and other bicycle and pedestrian attractors and generators which may be located along the corridor.

Each jurisdiction within LAMTPO has a major roadway plan which classifies its street system by function. Physical improvements are considered necessary to make the region more bicycle and pedestrian-friendly and achieve goals and objectives to enhance and expand opportunities for walking and biking.



Abandoned railroad corridors provide connectivity to neighborhoods and parks in Jefferson City

2.2 The Morristown Transportation Plan (2001-2010)

The 2001-2010 *Transportation Plan* consists of two sections: 1) Major Streets and Roadway Classifications and 2) Sidewalks and Greenways. The plan helps to provide guidance to determine what roadways need improvements to meet classification functions and to identify future land use growth and patterns within the City.

Two new roadways are being constructed within Morristown, State Highway 66 (Martin Luther King Jr. Parkway) and Veterans Parkway. Merchants Greene Boulevard (State Route 474) is proposed to connect to Interstate 81 at Exit 4 and transverse north, crossing Highway 160 and connecting to US 11 E near Bellwood Road. The roadway will consist of a five-lane section with a 48-foot wide median. The right of way varies from 84 feet for the five-lane section to 250 feet for the divided roadway (four-lane) with a 48-foot wide median.

Martin Luther King, Jr. Parkway (SR66) is completed from SR160 to W. Morris Blvd (11E). It is going to be extended from Morris Boulevard to W AJ Highway. This is a two-lane facility (although portions have an additional center turn lane), with sidewalks and greenways along some segments.

Veterans Parkway connects Highway 160 near SR342/ Alpha Valley Home Road and extends northeast, connecting to the new Colgate Plant. The section from Colgate to Merchants Greene Blvd/ SR474 is under construction right now, and eventually it will continue eastward to tie into W Morris Boulevard near the Bartlett Place office building. This is a two-lane road. However, it is wide enough to become a four-lane road in the future.

Morristown's street system forms a rectangular grid pattern in the central part of the city. However, away from the downtown area, the street system changes to a non-grid form, partly due to topographic conditions such as streams, hillsides, and ridges.

Portions of Jefferson and Hamblen Counties roadway improvements include improvements along SR 66 from north of Interstate 81 at SR 341 in Jefferson County to SR 160 in Morristown. In Jefferson County, interchange improvements at SR 341 (Exit 4) in White Pine have been completed. The improvements consist of ramp improvements with the addition of sidewalks on each side of SR341 under the bridge.

2.3 LAMTPO Sidewalk Regulations

In establishing subdivision regulations, the five municipalities within the LAMTPO area have implemented guiding principles for the development of sound, healthful, and economically stable residential, commercial, industrial and public areas. The guidelines established for sidewalk regulations can be found within the subdivision regulations established for each municipality. The subdivision regulations are adopted under authority granted by Sections 13-3-401 through 13-3-411 (Jefferson County), Sections 13-3-401 through 13-3-411 and 13-7-301 through 13-7-306 (Morristown), Sections 13-601 through 13-609 and 130-301 through 13-311 (White Pine) and Sections 13-3-401 and 13-4-301 (Jefferson City) of the *Tennessee Code Annotated*. The sidewalk provisions of the various Subdivision Regulations are summarized as follows:

- For the safety of pedestrians and children at play, installation of sidewalks on both sides of streets may be required.
- Sidewalks, if required, shall be located not less than one foot from the property line to prevent interference of encroachment by fencing, walls, hedges, or other plantings or structures placed on the property line at a later date.
- In single-family residential areas, concrete sidewalks shall be four feet wide.
- In multi-family or group housing developments, sidewalks shall be five feet wide.
- In commercial areas, sidewalks shall be ten feet wide.
- Sidewalks shall be four inches thick.



Sidewalks provide safe access and connections for pedestrians on the Carson-Newman College campus.

Jefferson City requires Planned Unit Developments to have an approved pedestrian circulation system unless this requirement is waived by the Planning Commission. Wherever possible, greenways and bike trails shall connect with biking/walking trails or sidewalks within other developments. The Planning Commission reserves the right to mandate bike trails/greenways and connections (Article III, Section H.3. - *Jefferson City Municipal and Regional Subdivision Regulations*).

The City of Morristown's 2001 *Sidewalk Plan* was prepared by the Morristown Community Development and Planning Department. This report was the basis to establish a program for new sidewalk construction and sidewalk repair, as well as extend the greenway system. Provisions that apply to new streets in Morristown are as follows:

- Sidewalks shall be required if the development is off of a principal arterial, minor arterial or collector street as classified in the current *Transportation Plan*.
- Sidewalks shall be required if the development lies within ½ mile of a school.
- Sidewalks shall be required if the development is within ½ mile of existing sidewalks.
- Sidewalks measuring four feet in width are required on one side of all new local streets, and sidewalks measuring five feet in width shall be installed on all other streets that require sidewalks.
- The developer shall install, or post a bond as with all other subdivision improvements, all required sidewalks and greenways if shown on the *Greenway Master Plan*. These facilities shall be designed according to the specifications in the *Greenway Master Plan*.

Each municipality addresses the consideration for public use by allotting areas suitably located and of adequate size for playgrounds and parks for local or neighborhood use, as well as public service areas. Where a school, neighborhood park, recreation area, or public access to water frontage (shown on an official map or plan) is located in whole or in part in a subdivision, the Planning Commission may require the dedication or reservation of such open space within the subdivision up to and including a total of ten percent of the gross area or water frontage of the plat, for park, school, or recreation purposes.

2.4 Transportation Improvement Program (TIP)

The TIP identifies, prioritizes, and estimates the costs of transportation projects and activities that are planned to occur within the LAMTPO study area. LAMTPO is required by federal regulations to develop and maintain this program of projects within its study area. The TIP is a four-year program that must be update at least every four years. The TIP is set by joint regulations by FHWA and the FTA (23CFR Part 450 and 1410; 49 CFR Part 613 and 621) and documents how federal funds will be spent on highway and public transportation improvements within the LAMTPO area. All projects in the TIP come from the 2005-2030 LRTP and are approved by the five governing entities that serve on the LAMTPO Executive Board. Projects in the LRTP are categorized by short-term (3-5 years) and long-term (6-20 years).

Over the past few years, LAMTPO has made significant progress in the construction of shared use facilities. Either existing or planned, such projects will be considered in the development of a greenway/bikeway system. A list of projects for FY 2008-2011 related to bikeway/greenway connectivity include:

- Hamblen County- Southside West Andrew Johnson Highway (SR474/Merchants Greene to Sugar Hollow Road to US 11E) - New three-lane roadway with curb and gutter and sidewalks
- Walters Drive widening from W. Andrew Johnson Highway to N. Economy Road - Road access improvement, adding a center turn lane and sidewalk on one side for 1000 feet
- Turkey Creek Greenway - Pedestrian trail from Cherokee Drive to Fairview Marguerite School
- Morristown College Area Enhancement - Downtown pedestrian improvement adjacent to the college campus and housing district
- SR 66 widening to three lanes with five-foot wide sidewalks and ten-foot wide greenway from Jarnigan Avenue to US 11E (Morris Boulevard).

2.5 Long Range Transportation Plan 2005-2030 (LRTP)

The region's current LRTP was adopted by the LAMTPO Executive Board and Technical Advisory Committee (TAC) on March 15, 2006. This was the first LRTP for the study area and was amended in June 2007 to comply with SAFETEA-LU requirements. Currently, LAMTPO is in the process of updating its LRTP.

The LRTP includes long and short-range strategies and actions for an integrated intermodal transportation system to facilitate the efficient movement of people and goods and anticipates the demand on the regional transportation system that serves the LAMTPO region. The LRTP should influence the decisions that affect the regional transportation system. In its efforts to improve and promote efficient and effective transportation, the LRTP incorporates the following principles:

- To protect and enhance the environment
- To promote energy conservation,
- To improve quality of life
- To promote consistency between transportation improvements and State and local planned growth and economic development patterns.

As part of the LRTP, LAMTPO supports the various governing entities to apply for transportation enhancement grants and other grants that will improve the safety of all motorized and non-motorized transportation users. As per the LRTP, sidewalks, greenways, and bike trails should be incorporated into projects to promote other alternate modes of transportation within the LAMTPO urbanized area.

2.6 Tennessee's Bicycling Rules of the Road

Tennessee Code 55-8-17x (amended July 1, 1985) recognizes the bicycle as a vehicle, with bicyclists having the same rights and responsibilities as other motorists on the road. The amendment also allows bicyclists to ride upon the roadway rather than a designated bike path.

2.7 TDOT's Bicycle and Pedestrian Policies

As a continuation to establish bicycle and pedestrian policies into larger transportation planning projects, TDOT adopted elements of the *US DOT Policy Statement* by adopting its own *Bicycle and Pedestrian Policy* (TCA 4-3-2303) in 2003 in an effort to promote and facilitate the use of non motorized modes of transportation throughout Tennessee.



Non-motorized transportation use can be enhanced by adding bicycle facilities to a roadway

LAMTPO utilizes TDOT's adopted guidelines for the development of bicycle and pedestrian systems when opportunities occur for new development and redevelopment projects. These guidelines are summarized below.

- Provisions for bicyclists and pedestrians will be integrated into new construction and reconstruction of roadway projects through design features that are appropriate for the context and function of the transportation facility.

- The design and construction of new facilities should anticipate likely future demand for bicycling and walking facilities and not preclude the provision of future improvements.
- Addressing the need for bicyclists and pedestrians to cross corridors as well as travel along them, the design of intersections and interchanges should accommodate bicyclists in a manner that is accessible and convenient.
- The design of facilities for bicyclists and pedestrians will follow design guidelines and standards as developed by the department.
- The measurement of usable shoulder width for bicyclists and pedestrians does not include the width of a gutter pan.
- Where shoulders with rumble strips are installed, a minimum clear path of four feet of smooth shoulder is to be provided for bicyclists and pedestrians.
- In cases where a minimum shoulder width of four feet cannot be obtained, such as in restrictive urban areas, an increased curb lane width will better accommodate bicycles and motor vehicles within the shared roadway. The recommended width for shared use in a wide curb lane is 14 feet.
- Pedestrian facilities must 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 (including over and under-crossings) and other infrastructure must be constructed so that all pedestrians, including people with disabilities, can travel independently.

There are conditions where it is generally inappropriate to provide bicycle and pedestrian facilities. These exceptions to the above guidelines include:

- Facilities where bicyclists and pedestrians are prohibited by law from using the roadway, such as along interstates. In such instances, a greater effort may be necessary to accommodate bicyclists and pedestrians elsewhere within the same transportation corridor.
- Bridge Replacement/ Rehabilitation projects funded with Highway Bridge Replacement and Rehabilitation Program (HBRRP) funds on routes where no pedestrian or bicycle facilities have been identified in a plan advanced to the stage of having engineering drawings, or any state bridge maintenance funded projects.
- Other factors where there is a demonstrated absence of need or prudence. Exceptions for not accommodating bicyclists and pedestrians in accordance with this policy will be documented describing the basis for the exception. For exceptions on Federal-aid highway projects, concurrence from the Federal Highway Administration (FHWA) must be obtained.
- Facilities for bicyclists and pedestrians which conflict with federal, state, or local municipal plans to accommodate bicycles and pedestrians, or as requested by the Commissioner of the Department of Transportation.

2.8 State Bicycle and Pedestrian Plan

TDOT has prepared a Bicycle and Pedestrian Element as a part of the State's LRTP. The bicycle and pedestrian element aims to recognize Tennessee as one of the most progressive states for bicycling and walking for the next 25 years. The plan address important issues related to Tennessee's bikeways and walkways such as planning, community involvement, utilization of existing resources, facility design, multi-modal integration, safety and education, maintenance, programs and funding.

Many of the laws from the *State Bicycle and Pedestrian Plan* originated from Federal laws that required planning for non-motorized transportation. Laws and policies from TEA-21, ISTEA, and now SAFETEA-LU place strong emphasis on creating a seamless transportation system that all users can enjoy and use efficiently and safely. TDOT adopted elements of the *US DOT Policy Statement* by adopting its own *Bicycle and Pedestrian Policy* through TCA 4-3-2303 (12) in January 2003.

The plan proposed eight new state bicycle routes that were developed using a suitability index, attractor/generator analysis, and local input. The proposed state routes connect to existing state bicycle routes and bicycle routes in adjoining states, parks, cities, and scenic areas. Nine bicycle connector routes are also proposed to provide linkages to major cities and transportation networks such as bus and train routes. The plan has identified several attractors and generators within the LAMTPO area including Carson-Newman College, Crockett Tavern and Museum, and Panther Creek State Park. Eventually, the state bicycle network will extend through the LAMTPO area, connecting Memphis to Bristol.

2.9 State Transportation Improvement Program (STIP)

TDOT develops a STIP every four years. As a condition to receiving Federal funds for projects, the STIP must list all highway and public transit transportation projects proposed for funding under Title 23 (highways) and Title 49 (transit) of the US Code and must be SAFETEA-LU compliant. It must also contain projects consistent with the State LRTP, as well as State and locally funded regionally significant transportation projects regardless of the funding source. The STIP includes State and local roadway, bridge, bicycle, pedestrian, safety, and public transportation (transit) projects.

2.10 Existing Federal Policies and National Standards

On August 10, 2005, the President signed into law SAFETEA-LU with guaranteed funding for highways, highway safety, and public transportation. SAFETEA-LU addresses the many challenges facing our transportation system today, challenges such as improving safety, reducing traffic congestion, improving efficiency in freight movement, increasing intermodal connectivity, and protecting the environment, as well as laying the groundwork for addressing future challenges. SAFETEA-LU promotes more efficient and effective Federal surface transportation programs by focusing on transportation issues of national

significance, while giving state and local transportation decision makers more flexibility for solving transportation problems in their communities.

SAFETEA-LU continued programs for bicycle and walking that were established in earlier federal transportation legislation (ISTEA and TEA-21), added new directives, increased funding, and gave more flexibility to some programs. Key provisions in SAFETEA-LU regarding bicycling and walking are summarized below:

- Provided \$612 million over five years for new Safe Routes to School program designed to make it safer for children to bike and walk to school
- Increased funding for the Recreational Trails Program (RTP) which requires a minimum of 70 percent of the trails to be suitable for walking and bicycling
- Increased Congestion Mitigation and Air Quality (CMAQ) program funding by nearly 26 percent to help communities support less polluting nonmotorized transportation modes like bicycling and walking
- Created the new Highway Safety Improvement Program (HSIP) to provide more funding for bicycling and pedestrian safety.
- Created a nonmotorized transportation pilot program in four separate cities to fund nonmotorized transportation infrastructure projects to study the extent to which bicycling and walking can represent a major portion of the transportation solution in certain communities.
- Requires that, prior to approval of a TIP, a listing of “investments in pedestrian walkways” and “bicycle transportation facilities” obligated from federal funds needs to be made public. This requirement increases accountability of bicycle-related projects and regional priorities and can be used to inform future TIP decisions.

2.11 Other Policies and Programs

- **AASHTO's Policy on the Geometric Design of Highways and Streets** (commonly known as the Green Book) provides design guidance for roadways, including bicycle and pedestrian facilities.
- **AASHTO's Guide for the Development of Bicycle Facilities** offers planning and design guidance for implementing bicycle facilities.
- **AASHTO's Pedestrian Facilities Users Guide - Providing Safety and Mobility**, was developed in March 2002. This document offers design guidance for pedestrian facilities.
- **AASHTO's Guide for the Planning, Operation, Design, and Operation of Pedestrian Facilities**, dated July 2004, offers guidance for implementing pedestrian facilities.

Although AASHTO's policy guides are not federal documents, they are the most widely-accepted national standards for roadway and bikeway design.

- The **Americans with Disabilities Act (ADA)**, Administered by the Department of Justice, prohibits state and local governments from discriminating against people with disabilities in all programs, services, and activities, including public transportation.

- The **FHWA's Accommodating Bicycle and Pedestrian Travel: A Recommended Approach** outlines the Federal government's bicycle and pedestrian planning policy. The document establishes overall policy as well as performance measures.
- The **Manual on Uniform Traffic Control Devices (MUTCD)** is a nationally accepted design guide manual developed jointly by the FHWA, AASHTO, Institute of Transportation Engineers (ITE) and the American Traffic Safety Services Association. This manual addresses signage, signals, pavement markings, and other traffic control devices. It also includes specific sections for guidance in designing bicycle and pedestrian facilities.

Other related federal policies include:

- **Context Sensitive Solutions (CSS)** - The objective of context sensitive solutions is to improve the environmental quality of transportation decision making by incorporating context sensitive solution principles in all aspects of planning and the project development process.
- **National Environmental Policy Act (NEPA)** - This Act provides protection for the human environment by requiring federal agencies to integrate environmental values into their decision making processes by considering the environmental impacts of their proposed actions and reasonable alternatives to those actions.
- **The Clean Air Act (CAA)** - This legislation, amended in 1990, sets requirements for air pollution prevention and control. The improvement of bicycle and pedestrian transportation, as nonpolluting transportation modes, supports many of the objectives of the CAA act.

3.0 EXISTING AND PLANNED CONDITIONS

The Lakeway area is named for the five communities of Morristown, Jefferson City, and White Pine, and portions of Hamblen and Jefferson Counties in East Tennessee, which make up an urbanized population of over 54,000 residents. Together these entities make up the Morristown, Tennessee Metropolitan Statistical Area. The total land area is 45.41 square miles that sits between Cherokee and Douglas Lakes. Hamblen County and Morristown, Tennessee (the county seat) are located in a valley between the Great Smoky Mountains and Clinch Mountain. Jefferson County, the lakeside of the Smoky Mountains, is a historic county with rich cultural heritage. Morristown is located less than eight miles from Interstate 40, and Interstate 81 is located at the southern tip of the city. Morristown is also at the crossroads of two US routes, 25E and 11E. Morristown has the largest population within the Lakeway urbanized area, with a population over 24,700. Morristown continues its reputation as a thriving and progressive city for the Lakeway region with several retail centers, a community college, and three industrial districts. Jefferson City, located on US 11E between Morristown and Knoxville, is home to Carson-Newman College. White Pine, located off Interstate 81 in the northeast portion of the LAMPTO region, is contained in portions of both Hamblen and Jefferson counties. The highest population densities are within the center cores of Morristown, Jefferson City and White Pine. Both Hamblen and Jefferson counties have a combined population over 102,000 residents. The population of the Lakeway area is projected to increase considerably over the next 30 years. The unique location of the Lakeway area enables both Hamblen and Jefferson counties to provide its communities of White Pine, Jefferson City, and Morristown with a variety of living environments. Despite the array of employment opportunities throughout the LAMTPO area, Morristown provides the largest employment opportunity, pulling most of its labor force from Hamblen County and seven surrounding counties. With more than 20,000 people living and working in Hamblen County, nearly 9,000 people commute into Hamblen County from other areas to work³.

3.1 Existing Roadway Network

Morristown's street system forms a rectangular grid pattern in the central part of the city. However, away from the downtown area the street system changes shape in part due to the topographic conditions (i.e., streams, hillsides, ridges and cul-de sacs).

The major arterials in Morristown are US 25E (Davy Crockett Parkway), US 11E (E. and W. Andrew Johnson Highway, Morris Boulevard), State Route 160 (Gov. Dewitt Clinton Senter Parkway) and State Route 343 (Cumberland Street, Buffalo Trail). These roads are considered the main "gateways" into Morristown.

Davy Crockett Parkway (US 25E) is designated as a Tennessee State Scenic Parkway. From the south, the parkway connects the White Pine and Witt communities to Morristown. The parkway also connects to Interstate 81 to the south. To the north, the parkway

³ US Census Bureau, 2000 Statistics (www.census.gov)

connects neighboring Grainger and Hawkins counties. Walters State Community College and Cherokee Lake are also accessible from Davy Crockett Parkway.

State Route 160 is a four-lane divided east-west high that operates as a southern by-pass for the city of Morristown. It intersects with Interstate 81 at Exit 12 and continues west, terminating at West Andrew Johnson Highway (US 11 E).

State Route 343 is a major north-south arterial which bisects Morristown. Also known as Cumberland Street and Buffalo Trail, this roadway connects to US 25 E on both ends.

US 11E is the primary east-west route into Morristown. Also known as Andrew Johnson (AJ) Highway, this principal arterial also is a major route for Jefferson County to the west and proceeds into Greeneville further east.

State Route 341 is a major transportation route in White Pine. The route bisects Interstate 81 as the Exit 4 interchange. Recent modifications to this interchange include the addition of sidewalk. To the north, the road extends to US 11E (Andrew Johnson Highway). To the south, SR 341 is more popularly known as Old Airport Road where it continues into Hamblen County.

State Route 113 in White Pine bisects US 25 E and Interstate 40 as the Exit 424 interchange. Known as Main Street, this primary route for White Pine residents extends into Hamblen County.

State Route 66 (Valley Home Road) runs parallel to Interstate 81 in Jefferson County extend from the Dandridge Area into Hamblen County.

State Route 92 is a north-south connector route that bisects Interstate 40 at Exit 417. This arterial extends south from Sevier County and continues north into Grainger County at US 11W.

3.2 Planned Roadway Network

Two new roadways are being constructed within Morristown, State Highway 66 (Martin Luther King Jr. Parkway) and Veterans Parkway. Martin Luther King Jr. Parkway is proposed to connect Interstate 81 at Exit 4 and transverse north crossing Highway 160 and connecting to U.S. 11 E near Bellwood Road. The roadway will consist of a 5 lane section with a 48-foot median. The right of way varies from 84 feet for the 5-lane section to 250 feet for the divided roadway (4-lane) with a 48-foot median. Martin Luther King, Jr. Parkway will be a newly added gateway for the city. This parkway will connect West Andrew Johnson Highway near the Bellwood Road area. This parkway will also be designated as a Tennessee Scenic Highway.

Veterans Parkway is proposed to be a 2-lane highway, with a 3-lane as a center turn lane. Veterans Parkway will reroute Jamigan Avenue between Highway 160 and Morris

Boulevard. A first phase of Veterans Parkway has been completed with additional land acquisition being the next step for completion of the project.

Martin Luther King Parkway (SR 66) is completed from SR160 to W. Morris Blvd (11E). It is going to be extended from Morris Blvd to W AJ Hwy. This is a 2 lane (portions has a 3rd lane-center turn lane) and portions of it has sidewalks and bike path/ greenway trail.

Veterans Parkway connects SR 160 near SR 342/Alpha Valley Home Road and extends northeast connecting to the new Colgate Plant. The section from Colgate to Merchants Greene Blvd/ SR 474 is under construction right now, and eventually it will continue eastward to tie into W. Morris Blvd near the Bartlett Place office building. This is a two lane facility; however it is wide enough to accommodate four lanes in the future.

Recently constructed SR 474 (Merchants Green Boulevard) is a five- lane facility that provides north-south connection from SR 160 to US 11E. This new facility has accommodations for pedestrian travel by having sidewalks on both sides of the roadway. Portions of Jefferson and Hamblen County roadway improvements include improvements along SR 66 from north of Interstate 81 at SR 341 in Jefferson County to SR 160 in Morristown. In Jefferson County, interchange improvements at SR 341 (Exit 4) in White Pine have been completed. These improvements consisted of ramp improvements with the addition of sidewalks on each side of SR 341 under the bridge.

3.3 Existing Public Transit Facilities

Although the cities of Morristown, Jefferson City and White Pine, as well as sections of Hamblen County and Jefferson County, have been classified as urbanized areas, there is no public transportation system within the LAMTPO area. Public transportation services are currently available to the general public through the East Tennessee Human Resource Agency (ETHRA). ETHRA is the designated rural transportation provider for a sixteen-county region in east Tennessee, including Hamblen and Jefferson Counties. ETHRA services are available to the general public on a demand-response basis. In addition to services by ETHRA, there are three private taxi services, as well as the Morristown Housing Authority, that provide transportation for the elderly and the disadvantaged.

The designation of the Lakeway area as an "urbanized area" enables LAMTPO to receive federal funding for public transportation from the Federal Transit Administration (FTA). Such funding could provide services to help support the administrative, operating, and capital costs associated with the provision of transit service, as well as transit related facilities. Although public transportation for the Lakeway area is not provided now, as the urbanized area continues to grow, the need for public transportation may become necessary for the general public. The *Transportation Improvement Program (TIP)* includes a budget and timeframe for mass transit within the LAMTPO study area, which would be done in consultation with ETHRA.

3.4 Existing Railroad Facilities

The Norfolk Southern Railway has two main lines that travel through Morristown, White Pine, and Jefferson City. Thirty-nine at-grade railroad crossings are located with Morristown, six are located within White Pine, and nine are located within Jefferson City. Hamblen County has twenty-two at-grade railroad crossings, and three crossings are located within Jefferson County. In addition to increasing safety issue related to motorists, these crossings can serve as barriers to bicyclists and pedestrians, as well as increase safety issues for bicyclists and pedestrians. Currently, LAMTPO is conducting a rail feasibility study to recommend the relocation of rail lines to eliminate some at-grade rail crossings in the study area. Significant delays exist at railroad crossings due to trains stopping for an unexpected period of time. Blockage of at-grade crossings presents significant delays

3.5 Existing Pedestrian Facilities

In the past, facilities for pedestrian movement were not evident during urban development in the region. This is evident as sidewalks were rarely installed as part of the area's residential development. Recently, the cities of Morristown, Jefferson City, and White Pine have focused on walkability. These cities have committed to build more sidewalks and trails to make their communities safe and accessible places to walk. More recently, portions of Hamblen and Jefferson counties, including the cities of Morristown, Jefferson City, and White Pine have become proactive in their focus on walkability. These cities have committed to build more sidewalks and include provisions in subdivision regulations in order to make their communities safe and accessible places to walk. Morristown, White Pine, and Jefferson City generally have continuous sidewalks present on at least on side of the roadway on many of its arterials and collector streets.

As part of the city's urban renewal project in 1969, the City of Morristown introduced an overhead sidewalk system in the downtown area. The downtown "Sky Mart" was one of the most ambitious projects ever attempted in the city. The project added a second, overhead sidewalk to Morristown's Main Street. The upper sidewalk fronts the buildings on the main street, with bridges connecting both sides of the street and ramps going from ground level to the walkway. This design doubled the retail store front area of downtown



Downtown Morristown's "Skywalk"

Morristown. Recent development changes along US 25 E and US 11E have moved commercial and retail businesses. However, the "Sky Mart" remains one of the most unique and interesting attractions in Morristown and continues to be used for a host of downtown events.

In April 2001, the Morristown Planning Department produced the *2001 Sidewalk Plan for the City of Morristown, Tennessee*. The plan recommends new sidewalks at several pedestrian generators and also identifies areas in need of sidewalk repair. Other efforts including extending new sidewalk construction along the right-of-ways of collector and arterial streets, public/semi public uses (parks, hospitals) and pedestrian paths to neighborhoods that already have sidewalks to create a larger pedestrian network. As part of this study, the city produced a deficiencies list that identified areas of high priority where sidewalks replacement and repair should occur.

Currently, Morristown contains approximately 37 miles of roads with sidewalks. However, as mentioned earlier, the sidewalk placement varies from sidewalk on both sides of roadways to sidewalks only on one side of the road in some locations.

Jefferson City produced a pedestrian plan in 1997 to link sidewalks to public buildings, including schools, parks, and recreational facilities. A major thoroughfare like Highway 92 has portions of the roadway with sidewalks on both sides as it leads into Jefferson City. The southern portion of the highway toward Dandridge is equipped with wide shoulders. With the assistance of several funding grants, Jefferson City obtained the Rails to Trails Grant for a greenway system that utilized an unused rail corridor to connect the Carson-Newman College campus to Centennial Park and Andrew Johnson Highway. Other grant opportunities help to design and build a greenway system adjacent to the Jefferson City Industrial Park providing recreation and fitness options to employees of the industrial park.



Greenway along Municipal Drive
near Jefferson City Industrial Park

Pedestrian facilities in White Pine vary from those in neighboring Morristown and Jefferson City. Along Main Street, sidewalks are placed in some locations on both sides of the roadway and connect to Town Hall and areas where public housing is located. From Main Street, the sidewalk connects to Roy Messer Highway and Lions Park. Recent improvements include sidewalk additions at the I-81 interchange. The majority of sidewalks in White Pine are in fair conditions. The typical sidewalk width is four feet.

Within each of these LAMTPO communities, the residential street patterns and properties adjacent to major arterial streets are laid out in a grid pattern format. However, in some

areas where topography creates some limitations, street patterns become less connected presenting fewer choices in pedestrian paths and connectivity.

Additionally, LAMTPO has engaged in numerous efforts to establish a regional network of pedestrian and greenway recommendations throughout Jefferson and Hamblen counties. As development continues, all LAMTPO municipalities should work together to fill in gaps and link their respective pedestrian networks.

3.6 Existing Bicycle Facilities

The region's existing bicycle facilities are shown in Figure 3.1. As shown, the regions current bicycle facilities consist of localized greenways and state bicycle routes.

Within LAMTPOs road systems are several US and State Routes that are designated as Bicycle Routes. These bicycle routes use regular roads of the state, county, and city roadway systems with no special lanes provided for bicyclists. Along US 11E (Andrew Johnson Highway), the roadway surface gives bicyclists adequate width making it easier to share the roadway with motorists. Other routes including US 25 E and Highway 92 have shoulders at least 4 feet wide to provide sufficient space for bicyclist to coexist with motorists. An earlier TDOT policy signed all state roadways with shoulders of 4 feet in width or greater as a designated bike route. Although this practice has seized, TDOT has recommended to add facilities for non-motorize users in many of its transportation projects. Figure 3-1 shows the locations of existing state route bicycle facilities with the LAMTPO region.



Bicyclists Traveling Along SR 92



Most bike route designations are seen in the outskirts of the city or county away from areas where there is a higher volume of traffic. Years ago, roadways that were once an acceptable route for bicyclists have now seen an abundance of traffic volumes especially along major state highway arterials like US 25 E and US 11E as a result of new retail and commercial development. The development of regional market places and offices lacked planning judgment in the

Portions of US 11E (Andrew Johnson Highway) are signed as a State Bike Route

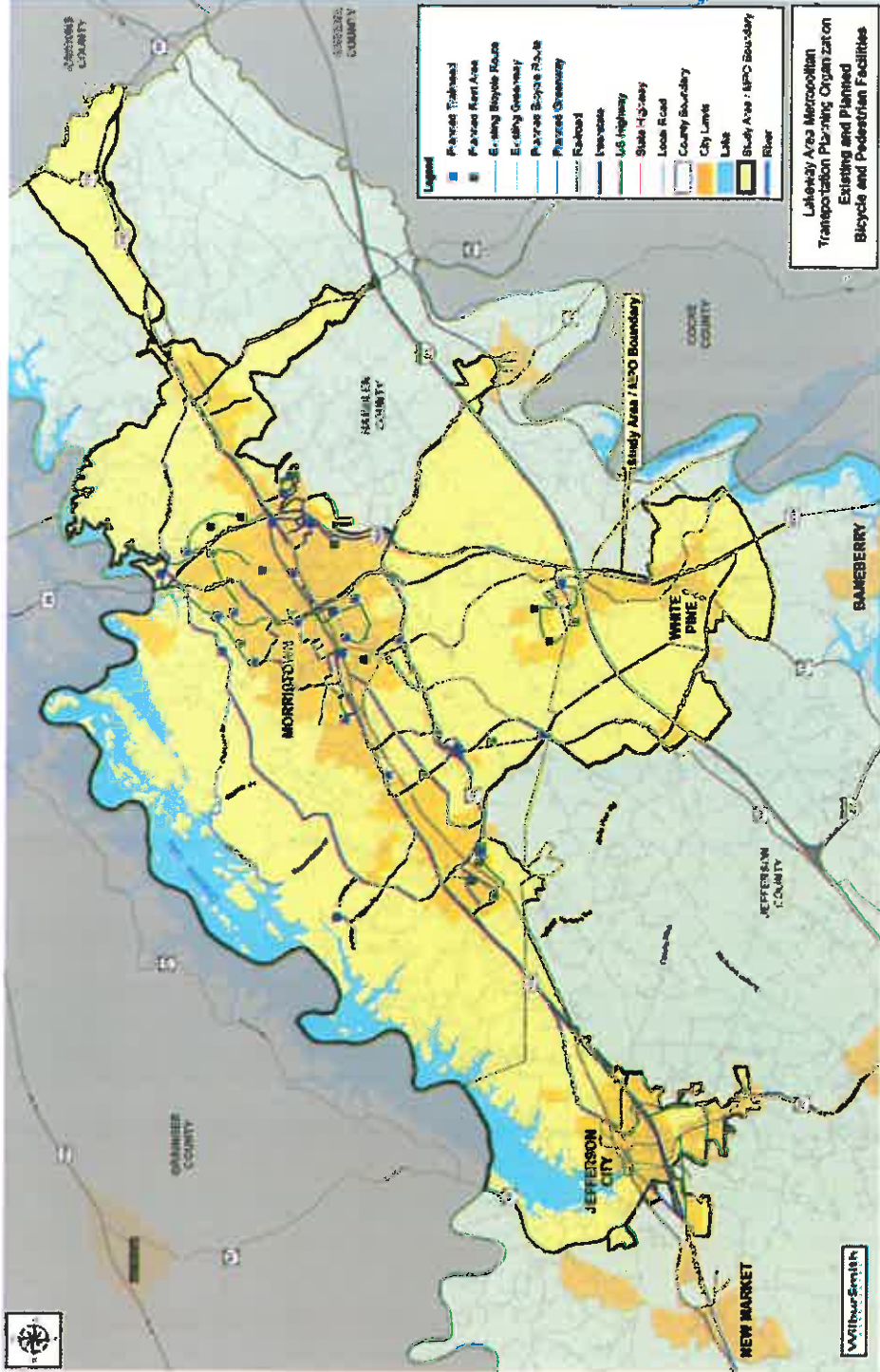


Figure 3.1 Existing and Planned Bicycle and Pedestrian Facilities

idea of providing accessibility for pedestrians. When planning for regional markets, planning was more focused on provided parking spaces for automobiles. As a result, in gaps in connectivity to commercial and retail businesses for pedestrians creating hazardous walking and bicycling conditions which later contributed to the decline of walking and bicycling in highly commercialized areas.

A greenway corridor is an off-road facility that only serves non-motorized users, such as bicyclists and pedestrians. Typically, greenway corridors follow along roadways, linear stream or railroad corridors, easements, or tracts of open space. The greenway systems of the LAMTPO municipalities should integrate with and serve as an off-road extension of the on-road bicycle and pedestrian network.

In 2002, the City of Morristown commissioned a study of potential greenways. The initial plan was for a greenway system for the Turkey Creek Sanitary Sewer project but evolved into a twenty-year plan for future greenway locations throughout Morristown. Recommendations included three types of greenway facilities and a construction estimate for each type of facility proposed. These facility types consisted of:

Type A (Acceptable for bicycle traffic only)

Designated by a combination of signage and roadway striping;
Generally follows existing roadways with high traffic volumes; and,
Remotely located from pedestrian centers.

Type B (Typically found in downtown or suburban areas)

Includes both pedestrian and bicycle facilities;
Bicycle users are restricted to the paved roadway surface; and,
Designated with striping and signage.

Type C (an off-road greenway)

Off road trails away from vehicular traffic;
Trails typically follow a linear alignment along stream, easements or railroad corridors; and,
Provide recreational benefits by linking parks, schools and recreational centers

The Greenway Master Plan also included a variety of amenities for pedestrians and bicyclists. The types of amenities include parking facilities, signage, benches, trash receptacles, water fountains, bollards, bike racks, restrooms, shelters, bridges, lighting, and landscaping. Other recommendations in the greenway plan help to identify areas such as US 25 E (Davy Crockett Parkway) to propose a trail to connect Cherokee Lake to Douglas Lake and US 11W. This corridor offers long distance alternative transportation and recreation benefits.

3.7 Planned Bicycle and Pedestrian Facilities

Over the past few years, LAMTPO has made significant progress in the construction of shared-use facilities. Either existing or planned, such projects will be considered in the development of a greenway/bikeway system. As part of the region's commitment to improve the area's transportation network to include more transportation options for non-motorized use, LAMTPO has planned several relative projects in its 2005-2030 LRTP. These projects are categorized as short-term (3-5 years) or long-term (6-20 years). A list of projects for FY 2008-2011 related to bikeway/greenway connectivity include:

- Hamblen County- Southside West Andrew Johnson Highway (SR474/Merchants Greene to Sugar Hollow Road to US 11E) - new three-lane roadway with curb and gutter and sidewalks
- Walters Drive widening from W. Andrew Johnson Highway to N. Economy Road - road access improvement, adding a center turn lane and sidewalk on one side for 1000 feet
- Turkey Creek Greenway - Pedestrian trail from Cherokee Drive to Fairview Marguerite School
- Morristown College Area Enhancement - Downtown Pedestrian Improvement adjacent to the college campus and housing district
- SR 66 widening to three-lanes with five-foot wide sidewalks and a ten-foot wide greenway from Jarnigan Avenue to US 11E (Morris Boulevard).

The City of Jefferson City is preparing to install over one-mile of additional sidewalk along Old Andrew Johnson Highway as a continuing effort in extending the City's greenway system. In addition to sidewalk repair and restructuring as part of this task, the project includes the construction of two pedestrian bridges to cross over a railroad and Mossy Creek. Overall, the proposed route will connect several land uses including parks and businesses along Old Andrew Johnson Highway, the post office, Glenmore Victorian Mansion (a historic site) and the Jefferson City Industrial Park.

3.8 State Park Systems

Hamblen County is the home to two state parks, Panther Creek State Park and Cherokee Park. These two parks border offer the most in visitor experience with a variety of walking and mountain bike trails. Within a one hour drive of the Great Smoky Mountains National Park and its resort communities of Gatlinburg, Sevierville, and Pigeon Forge, regional linkages between the park systems for non-motorized users is foreseeable. The Tennessee Department of Environment and Conservation (TDEC) maintains over 800 miles of trails which consists primarily of hiking trails and footpaths⁴. Currently there are nine existing state bicycle routes. TDOT's LRTP proposes eight new state routes and nine connector routes. TDOT's continuing roles is to coordinate with other agencies including TDEC and the National Park Service (NPS) to ensure that each facility is built according to

⁴ Tennessee Department of Transportation, Tennessee Long-Range Transportation Plan, Bicycle and Pedestrian Element, December 2005.

standard guidelines, properly managed and maintained and provides good regional connectivity.

The area's topography of rolling terrain, streams and lakes cause some constraints for bicycle and pedestrian travel. The Lakeway area also retains some rural character between the major population centers and has some rural and agricultural area located along the outer edges of Hamblen and Jefferson County.

3.9 Current Land Uses

Land use, population, and the design and placement of land uses enhance the opportunity to provide a variety of transportation options in a community. Within the LAMTPO area, the predominate land use is residential, consisting of single-family and multi-family homes. Within Hamblen County, Morristown contains most of the industrial uses, within three industrial parks: the East Tennessee Progress Center (ETPC), Morristown Airport Industrial District (MAID), and the East Tennessee Valley Industrial District (ETVID). ETPC is the newest industrial park located adjacent to Highway 25E and Interstate 81. Most of the LAMTPO municipalities have subdivision regulations that take into account the placement and location of sidewalks to provide accessibility and connectivity in some residential areas.

Commercial development occurs primarily along the arterial corridors, such as US 11E (Andrew Johnson Highway) through Jefferson City and Morristown, SR 343 (Cumberland Rd/Buffalo Trail) in Morristown, Old Andrew Johnson Hwy in Jefferson City, US 25E in Morristown and White Pine, and SR 113 in White Pine. College Square Mall and the

Super Wal-Mart, which is located in Morristown and Jefferson City, is the largest retail business in the study area. Developed pedestrian infrastructure is most prevalent along major arterial streets like US 11E. Portions of US 11E have sidewalks throughout portions of Morristown and Jefferson City.

However it is noted that the sidewalks are in need of repair and connectivity to nearby businesses and retail.



Bicyclists Traveling Along US 11E



Pedestrians utilizing sidewalk along newly constructed SR 474 (Merchants Green Boulevard)

The newly constructed SR 474 (Merchants Greene Boulevard) from US 11E to SR 160 consists of a five-lane highway and will be a high-use commercial corridor for the city. The section of SR 66 from SR 160 to I-81 will be a four-lane divided highway through areas that are predominately agricultural.

Existing major corridors like US 11E, US 25E, Interstate 81 and SR 343 will continue to experience an increase in traffic volumes. LAMTPO communities must implement sidewalk policies upon new construction or reconstruction road projects to introduce walking as a transportation choice in an effort to reduce vehicular traffic, particularly during short trips.

4.0 TRIP GENERATORS

For the LAMTPO region to obtain a successful bicycle and pedestrian network, the design, as well as the location, of its bicycle and pedestrian facilities should provide for connective, convenient, and direct accesses to major/popular destinations. These destinations, which are referred to as trip generators, typically include schools, major employment centers, parks, churches, civic facilities (such as libraries and post offices), major retail centers, hospitals and pharmacies, major residential developments, low-income and elderly housing facilities, entertainment centers, grocery stores, transit stops, and other key attractions. By connecting places where people live, work, shop, and recreate with sidewalks and bikeways, LAMTPO can help improve the quality of life in its communities by providing safe and healthy transportation alternatives.



The Jefferson City Community Center is just one of the region's trip generators. The City's new Municipal Center will be built adjacent to the Community Center.

Morristown's *Greenway Master Plan* identified forty-seven key trip generators in Morristown. As part of the planning process for the *LAMTPO Regional Bicycle and Pedestrian Plan*, additional trip generators throughout the LAMTPO area were identified by members of the BPAC and are listed in Table 4.1.

Table 4.1 Major Trip Generators in the LAMTPO Area

• Morristown Town Hall	• Hamblen County Courthouse
• Downtown Morristown	• Rose Center
• Frank Lorino Park*	• Skywalk System in Morristown
• Jaycees Park	• Panther Creek State Park
• Fred Miller Park*	• Wildwood Park*
• Cherokee Park	• Valley Home Residential Area*
• Walters State Community College	• East Tennessee Progress Center*
• West View Middle School*	• Carson Newman College*
• Wayne Hansard Park*	• Jefferson City Industrial Park
• College Square Mall	• Centennial Park-*
• Lakeway Regional Hospital	• White Pine Farmers Market
• Morristown College*	• WSCC Expo Center
• Witt Elementary School	• Jefferson City Community Center
• Morristown Country Club	• Glenmore Victorian Mansion
• Morristown Hamblen Healthcare System	

* Proposed Major Trailhead Locations identified from the Morristown Greenway Plan

Crockett Tavern and Museum and Carson-Newman College are LAMTPO regional landmarks that are prominent trip generators identified in the statewide plan for developing bicycle and pedestrian linkages throughout Tennessee.



Carson-Newman College generates a high volume of bicycle and pedestrian trips on a daily basis and is considered to be a key trip generator for the region.

The LAMTPO communities of White Pine, Morristown and Jefferson City have in their subdivision regulations ordinances to address connectivity to nearby pedestrian generators like schools and adjacent neighborhoods. Jefferson City has recently placed sidewalks and greenway paths in the vicinity of neighborhoods near US 11E and Carson-Newman College. Jefferson City has sidewalks on both sides of SR 92 to link residences to Andrew Johnson Highway. This link also provides connectivity to the proposed site for the City's municipal center and the recently completed Jefferson City Community Center.

Along US 11E (Andrew Johnson Highway) are several pedestrian generators, such as restaurants and grocery stores, near the Carson-Newman College campus. Sidewalks are in place on both sides near the College Square Shopping Center linking the various retail and commercial businesses together.



This sidewalk provides connectivity to nearby restaurants and other retail for pedestrians in the Carson-Newman College area.

Along US 11 E between Jefferson City and Morristown sidewalk is provided in most areas of retail and commercial businesses. Also adequate shoulder width is also available for bicyclists.

Morristown has taken opportunities to provide pedestrian linkages to its public buildings including the town's City Center and the Hamblen County Courthouse. These key trip generators are equipped with sidewalks that link to other commercial and retail developments within the town's Central Business District. Recently, Morristown completed a streetscape project along East First Street North. The new addition of sidewalks creates a traditional neighborhood setting, providing accessibility to the downtown business area. A main objective in the *Morristown, Tennessee Future Land Use Plan 2001-2010* encourages the development of pedestrian trails/paths to link to all public and semi-public uses.

5.0 OPPORTUNITIES AND OBSTACLES

5.1 Opportunities for Bicycle and Pedestrian Travel

Nationally, bicycle and pedestrian travel options are recognized as cost-effective ways to address mobility and air-quality concerns while improving physical health and quality of life. One of the difficulties in establishing a connective network of bicycle and pedestrian facilities is finding opportunities to implement these facilities. Some of the opportunities that exist within the LAMTPO region are identified below.

- **Wide Roadways / Right-of-ways** – Some of the region's roadway currently have adequate right-of-way, and even sufficient pavement width in some instances, to provide bicycle and/or pedestrian facilities.
- **Existing Bicycle and Pedestrian Facilities** – Morristown, Jefferson City, and White Pine all have some existing non-motorized facilities. Also, there are existing state bicycle routes in the area. These facilities serve a good basis for establishing a connective network.
- **Future Road Improvements** – As future roadway widening and new roadway construction projects occur, the local governments should include considerations for bicyclists and pedestrians in the planning process. Whenever possible, bicycle and/or pedestrian facilities should be provided unless circumstances require otherwise. In addition, as roadways are repaved, the roadway conditions should be evaluated to determine if bicycle facilities could be incorporated by increasing the roadway width.
- **Abandoned Railroad Corridors** – These corridors provide excellent opportunities for Rails-to-Trails facilities. Jefferson City and Morristown have already begun to take advantage of these opportunities.
- **Waterways** – Banks of rivers, streams, lakes, and other waterways serve as ideal locations for greenway corridors.



N. College Street at Carson-Newman College currently has sufficient pavement width to accommodate an on-road bicycle facility.



This greenway in Jefferson City is located along an abandoned railroad corridor.

- **Pedestrian Crossing Improvements** –Installing pedestrian improvements, such as crosswalks, pedestrian refuge islands, pedestrian signals, and appropriate signage, drastically improves conditions for pedestrians crossing the roadway. These type of improvements increase mobility by eliminating the barriers caused by congested intersections.
- **Development Proposals** – As developments are proposed within the region, local governments should include bicycle and pedestrian considerations in the development review process. Clear and direct paths of travel should be provided between parking lots, adjacent sidewalks, and building entrances. Also, pedestrian paths between adjacent developments should be required.

5.2 Obstacles to Bicycle and Pedestrian Travel

During the BPAC and public workshops, community members were given the opportunity to identify specific problems that they encounter when walking or bicycling in their communities. They were asked to report on problematic conditions that made their trips unsafe or inconvenient, or discouraged them from walking or biking. Some of the obstacles identified in the LAMTPO region include the following:

- **Narrow Roadways / Right-of-ways** – Narrow right-of-ways and pavement widths can make it difficult to accommodate dedicated facilities for bicyclists and pedestrians. Typically, it is ideal to provide a sidewalk or bikeway for such forms of travel. However, when conditions are restricted, narrow widths can be overcome by providing shared-use facilities or by providing an alternate non-motorized route, such as a greenway.
- **Narrow Bridges** – Narrow bridges also serve as barriers to bicycle and pedestrian travel. Overpasses and bridges are expensive to construct, and, within the LAMTPO region, have historically been designed and constructed with only vehicular traffic in mind. They typically do not include sidewalks or additional pavement width for bicycle facilities.
- **Interchanges** – Interchanges can be problematic for bicyclists and pedestrians due to free-flow vehicular movements and traffic speeds and volumes. Special consideration should be made at interchanges to accommodate bicyclists and pedestrians to reduce potential conflicts between travel modes.
- **Lack of Existing Bicycle and Pedestrian Facilities** – The lack of sidewalks and bikeways connecting trip generators can discourage people from walking or biking. On commercial sites, the lack of adequate non-motorized facilities causes

The lack of clear and dedicated pedestrian facilities forces pedestrians to walk through the parking lot at this Wal-Mart, increasing the potential for conflicts between motorists and pedestrians.



safety concerns for both bicyclists

and pedestrians. For example, the Super Wal-Mart Shopping Center on US 25 E (Davy Crockett Parkway) has a variety of other land uses, including popular restaurants and retail chains. However, the layout of the development provides pathways dominated by vehicular movements, requiring pedestrians to walk through the parking lot to connect to the outparcels. Also, there is a lack of bicycle and pedestrian facilities to connect to neighboring trip generators, such as Walter State Community College and College Square Mall. Generally, the US 25E corridor serves as a barrier to bicycle and pedestrian travel. Local regulations requiring bicycle and pedestrian connectivity could prevent such barriers in future developments.

- **High-Speed and/or High-Volume Roadways** – The volume of traffic and the speed at which traffic travels can discourage people from walking or bicycling along the roadway if these factors are too high. In such cases, dedicated bicycle and/or pedestrian facilities or alternate non-motorized routes should be provided.
- **Topography** – The Lakeway Area is notably recognized for its unique winding trails and rolling hills that would entice most bicyclists or hikers. Surrounded by Cherokee and Douglas Lakes, the area contains lush, fertile valleys between the Great Smoky Mountains and the Clinch Mountain. The rugged terrain and steep slopes in some portions of the Lakeway region may create difficulties for both bicyclists and pedestrians, especially where roadways are characterized by dips and sharp turns. Maneuvering by bicycle can be dangerous especially when sight distance is limited.
- **Lack of Roadway Crossing Facilities** – The lack of sufficient crossing facilities at major intersections creates a barrier to pedestrian travel, and this practice discourages walking trips. Pedestrian conditions at wide and/or congested intersections can be dramatically improved by installing crosswalks, pedestrian crossing signals, pedestrian refuge islands, appropriate signage, and other similar measures.
- **At-Grade Railroad Crossings** – These types of crossings pose unique safety considerations for both bicyclists and pedestrians. For example, bicyclists' wheels can get caught in the rail lines if the crossing is not perpendicular. Similarly, pedestrian crossings at railroad crossings must be designed to be ADA compliant. Also, the need for controlling non-motorized movements across the railroad should be given the same consideration as the need for controlling vehicular movements across the railroad.
- **Other Obstacles** – Very often, obstacles such as telephone poles, mailboxes, lighting poles and signal poles block the walkway. These obstacles not only cause inconvenience, but they can also serve as potential hazards for sight and mobility-impaired users.



Major intersections along US 11 E (Andrew Johnson Highway) in Jefferson City, lack crosswalks and pedestrian signals near retail and commercial areas.

6.0 RECOMMENDED BICYCLE AND PEDESTRIAN PROGRAM

The recommended bicycle and pedestrian program presented in this plan will enable LAMTPO and its jurisdictions to establish a successful regional bicycle and pedestrian network. The recommended program includes a menu of policies, educational and encouragement activities, facilities, and implementation mechanisms that are intended to address each of the plan's goals.

6.1 Recommended Policies, Ordinances, Practices, And Programs To Facilitate And Promote Bicycling And Walking

This plan focuses on providing a safe and connective network of bicycle and pedestrian facilities that improve mobility throughout the LAMTPO region. One of the first steps in achieving this goal is to establish appropriate region-wide policies and standards that ensure sufficient consideration is given to bicycle and pedestrian-related issues and sufficient and consistent accommodations are provided as part of every project and process.

Currently, each jurisdiction within the LAMTPO region follows its own policies and practices, and these policies and practices address bicycle and pedestrian facilities and issues on different levels. The policy recommendations contained in this plan are based on national best practices and apply equally to LAMTPOs jurisdictions. It is, therefore, recommended that the jurisdictions within the LAMTPO region adopt policies that are consistent with those identified below and that the jurisdictions incorporate these policies into their subdivision regulations, zoning ordinances, and development review processes.

Bicycle and Pedestrian-Friendly Policies

- Require all sidewalks to be at least five feet wide, with wider sidewalks required along streets that have a high volume of pedestrian traffic. Sidewalks in downtown districts should be at least 10 feet wide.
- Require sidewalks along both sides of all residential streets in all new subdivisions having lots less than one acre in size.
- Require sidewalks along all new local, collector, and arterial streets that are located within ½ mile of a commercial center, school, civic building, public housing, or other major activity center.



Sidewalks should be provided along both sides of residential streets that have lots less than one acre in size.

- Require sidewalks on both sides of all streets that have curbs. The sidewalks should be separated from the roadway by a landscaped buffer strip that is a minimum of four feet wide. On streets without curbs, careful consideration for pedestrian access should be made. On these types of streets where pedestrian traffic is heavy, a dedicated pedestrian pathway, preferably a sidewalk should be provided.



Landscaped areas and/or on-street parking serve as buffers between vehicular and pedestrian traffic, increasing both safety and comfort for pedestrians.

- Require all development proposals to incorporate sidewalks along existing and new roadways, and require developers to dedicate right-of-way, as needed, to accommodate these sidewalks. In special circumstances, such as if sidewalk connections are not provided on either side of the proposed project, this requirement could be waived if an "in lieu" fee is paid by the developer to the local jurisdiction. The "in lieu" fee should be equal to the estimated cost of the required sidewalk, and the local jurisdiction could utilize this payment to fund other planned pedestrian improvements.

- Develop and implement a plan to remove sidewalk obstructions and improve sidewalk maintenance. Potential issues include horizontal and vertical offsets in sidewalk sections, damaged sidewalk sections, overgrown trees and landscaping, utility poles, and other obstructions that may provide unsafe conditions or that do not meet the guidelines of the *Americans with Disabilities Act* (ADA).



Sidewalk obstructions create safety hazards for pedestrians, particularly for sight or mobility-impaired pedestrians. They also reduce pedestrian visibility at intersections.

- Develop and implement a plan to install missing sidewalk segments to provide continuous pedestrian routes. Local jurisdictions should first focus these efforts in areas surrounding schools (the Safe Routes to School Program is a potential source) and between major residential areas and major activity centers.
- Require sidewalk connections between adjacent commercial developments.

- Require sidewalk and/or greenway connections between trip origins and nearby destinations, such as between residential neighborhoods, shopping centers, schools, parks, employment centers, significant historical sites, transit stops, civic buildings, and other major destinations.
- Require developers to provide off-street pedestrian connectors, such as sidewalks or greenways, between cul-de-sac termini and nearby developments. This will provide shorter walking distances to nearby destinations, which will help encourage residents to walk to these destinations instead of driving.
- Require traffic calming features to be incorporated into the design of all new and reconstructed roadway facilities. Such features could include landscaped medians, street trees, horizontal curves in the roadway alignment, pedestrian bulbs at intersections and mid-block crossings, raised pedestrian crossings, narrow travel lanes, and other measures. Careful consideration should be made when identifying appropriate traffic calming measures, particularly for collector streets, arterial streets, and other major thoroughfares.
- Require marked crosswalks, indicated with pavement markings, and pedestrian signals at all signalized intersections. Marked crosswalks should also be provided at unsignalized intersections that have high volumes of pedestrian traffic or where increased pedestrian crossing awareness is desired.
- Require curb radii at intersections to be the shortest length possible that will accommodate turning movements of the anticipated vehicular traffic. This recommendation will not only reduce the crossing distances for pedestrians, but will also reduce the amount of time pedestrians are in the roadway.



Refuge medians, special pavement treatments, narrow travel lanes, and on-street parking help to slow traffic speeds and create a bicycle and pedestrian-friendly environment.



Crosswalks should be installed at unsignalized intersections where pedestrian activity is high, such as this intersection near Carson-Newman College.

- Require two curb ramps per corner, one at each radius return, for pedestrian crossings at intersections. Unlike diagonally placed ramps (which result in one ramp per corner), this placement will provide the shortest crossing distances and will not require pedestrians to realign themselves while in the roadway in order to remain in the crosswalk. This is particularly important for sight and mobility-impaired pedestrians
- Develop and implement a plan to provide end-of-trip facilities, such as seating, drinking fountains, restrooms, showers, and lockers at major destinations, such as shopping centers, employment centers, and recreational facilities. For new developments, these facilities can be required to be provided by the developers. For existing developments, local jurisdictions could partner with local retailers and organizations to provide these facilities (such as an "Adopt a Bench" program).
- Adopt sidewalk regulations (widths, allowable uses, etc.) for urban and pedestrian-oriented areas (particularly in downtown districts) that accommodate sidewalk cafés and pedestrian and bicyclist appurtenances, such as landscaping, benches, pedestrian-scaled lighting, and bicycle parking (bike racks and bike lockers).
- Adopt policies that improve pedestrian safety, such as requiring commercial developments to have buildings that front streets with windows on the lower level (to provide "eyes on the street"), ensuring that adequate lighting is



Curb ramps should be parallel with the direction of pedestrian travel, which requires two ramps per corner. Diagonal ramps tend to direct pedestrians toward the center of the intersection, which can be hazardous for sight-impaired pedestrians.



Bicycle racks should be placed near building entrances to provide safety and convenience for bicyclists, which encourages bicycling for transportation.



Wide sidewalks, sidewalk cafes, landscaping, pedestrian-scaled lighting, and buildings with windows that front streets help to create a pedestrian-oriented atmosphere.

provided for pedestrian travel, and increasing police patrols in areas that have a potential for high pedestrian volumes.

- In the development review process for commercial and office developments, include careful consideration of bicyclists and pedestrians. Ensure that safe, direct, and obvious paths of travel are provided from parking lots to main building entrances.

- Develop policies that encourage bicycle and pedestrian-oriented site development.

- Require bicycle and pedestrian facilities, such as sidewalks and bike lanes, or greenways, to be provided on all new or improved bridges. Ideally, these facilities should be provided along both sides of the bridge.



Narrow bridges create safety issues for non-motorized roadway users. Therefore, all new bridges should include accommodations for both bicyclists and pedestrians.

- Designate bicycle facilities on roadways identified in this plan and adopt roadway cross-sections that provide additional width for bike lanes, shoulder bike lanes, and wide outside lanes. As new roads are planned, these roadways should be carefully evaluated to determine the need for on-street bicycle facilities.

- Require bicycle-friendly inlet grates on all new streets, and implement a program for replacing hazardous grates along existing and planned preferred bicycle routes.

- Integrate bicycle and pedestrian facilities into all new developments and roadway planning, design, and construction projects.



New and improved roadways should be designed as complete streets, providing accommodations for vehicles, bicycles, and pedestrians.

- Routinely maintain roadways (such activities include street sweeping, pavement painting and striping, pavement surface maintenance, tree trimming, and other maintenance as necessary) for the safe operation of bicycles.

- LAMTPO should establish a regional Bicycle and Pedestrian Coordinator position. The Bicycle and Pedestrian

Coordinator should be responsible for all bicycle and pedestrian-related matters, including coordinating with and assisting local jurisdictions, reviewing all regional plans, implementing facilities, coordinating with adjacent communities, implementing public awareness and community events, and filing grant applications for bicycle and pedestrian projects.

- Adopt national design standards and national best practices for bicycle and pedestrian facilities to ensure safety and consistency in facility design. Recommended guidelines include the following:
 - ◆ FHWA's *Accommodating Bicycle and Pedestrian Travel: A Recommended Approach*
 - ◆ AASHTO's *Policy on the Geometric Design of Highways and Streets*
 - ◆ AASHTO's *Guide to the Development of Bicycle Facilities*
 - ◆ AASHTO's *Pedestrian Facilities Users Guide- Providing Safety and Mobility*
 - ◆ *Manual on Uniform Traffic Control Devices (MUTCD)*

6.2 Bicycling and Walking Educational and Encouragement Activities

The lack of awareness of bicycle and pedestrian-related issues, including the benefits provided by bicycling and walking, serves as a major obstacle to establishing a successful network of sidewalks and bikeways. In many cases, motorists do not understand the rights of bicyclists and pedestrians. Similarly, bicyclists and pedestrians do not understand their responsibilities as roadway users. This lack of awareness increases safety concerns for all roadway users. Also, because the current transportation system focuses on vehicular travel modes, many people do not even think about their options when it comes to transportation. They default to the automobile without a thought of walking or bicycling.

To change these unconscious behaviors and raise awareness of bicycling and walking-related issues, LAMTPO and its jurisdictions should implement programs that educate the community on the rights and responsibilities of roadway users and the benefits of non-motorized travel. Encouragement activities should also be implemented to give people that little extra push they may need to help them feel comfortable traveling on bike or by foot.

The following is a list of recommended educational and encouragement activities for the LAMTPO region.

- Promote increased enforcement of bicycle and pedestrian-related violations on the part of motorists, bicyclists, and pedestrians.



Pedestrians and bicyclists need to be educated as to their responsibilities as roadway users, just as motorists need to be educated as to the rights of other roadway users.

- Educate staff (such as planning, engineering, and law enforcement) regarding bicycle and pedestrian rules, regulations, and safety.
- Coordinate with adjoining communities and TDOT to ensure that future bicycle and pedestrian facility plans are compatible.
- Coordinate with the School Board and the State of Tennessee to include bicyclist and pedestrian curriculum in the region's elementary schools.
- Improve bicycle handling and operational skills through bicycle rodeos, class room instruction, physical education classes, and bicycle fairs.
- Coordinate with local bicycle and pedestrian advocacy groups, bicycle shops, and other bicycling and walking groups to provide informational workshops to educate motorists, bicyclists, and pedestrians. As part of this effort, develop and distribute bicycling rules and safety brochures.
- Establish a "LAMTPO" bicycle route that can be utilized to promote the region, encourage bicycling, and promote tourism.
- Establish bicycle and pedestrian routes that highlight and promote scenic areas and public recreational facilities.
- Encourage bicycling and walking in the community by developing bicycling and walking maps that identify preferred routes, points of interest (such as major destinations), and end-of-trip facilities (such as restrooms). The maps can be made available on LAMTPOs and the local jurisdictions' Web sites, at local retailers, at schools, and at civic buildings.
- Support Safe Routes to School efforts that include educational and incentive programs to encourage more students to bicycle or walk to school.
- Participate in national activities, such as Walk to School Day and Bike to Work Day, to promote bicycling and walking.



Routes that connect to recreational facilities and other local points of interest encourage non-motorized travel.

6.3 Recommended Bicycle and Pedestrian Facilities

To accommodate users of all skill levels and abilities, this plan recommends a network of facilities that includes both on-road facilities and off-road facilities. These facilities should include a mix of sidewalks, greenways, bicycle routes, and bicycle lanes. Brief descriptions of each facility type are provided below for reference.



- A **sidewalk** is a dedicated non-motorized facility that is typically provided within a road right-of-way or easement for pedestrian travel. Sidewalks primarily serve pedestrian traffic, although bicyclists are permitted on sidewalks in most areas. However, because bicyclists travel at much higher speeds than pedestrians, this practice is typically discouraged.
- A **greenway** is an off-road non-motorized facility that can be utilized by bicyclists, pedestrians, and other non-motorized users. Greenways are typically located along water bodies, in easements, along abandoned railroad corridors, or along other corridors. Because greenways are popular among recreational users and do not often provide direct connections between destinations, advanced bicyclists and bicyclists traveling for transportation tend to prefer on-road facilities.
- A **bicycle route** is a roadway that is designated as a preferred route for bicyclists but does not provide a dedicated travel lane for bicyclists. Bicycle routes include **signed shared roadways** (which are conventional roadways that do not provide additional accommodations for bicyclists), **wide outside lanes** (which are conventional roadways that provide a couple of extra feet of width in the outer lanes to accommodate bicyclists – this allows a motorist to pass a bicyclist without encroaching into the adjacent travel lane), and a **shoulder bikeway** (which is a roadway that has a wide paved shoulder that accommodates bicyclists as well as other uses – many State bicycle routes are actually shoulder bikeways). Pavement markings can be used in addition to signage to designate a bicycle route.
- A **bicycle lane** is a travel lane that is designated with both signage and pavement markings for the exclusive use of bicyclists.

The facilities recommended in this plan focus on bicycle travel, although greenways accommodate both bicyclists and pedestrians. Recommended pedestrian facilities are addressed through the policy recommendations identified in Section 6.1 of this plan. Also, the *Morristown Greenway Master Plan* includes pedestrian facility recommendations for the City of Morristown.



Sidewalk



Greenway



Signed Shared Road



Wide Outside Lane



Shoulder Bike Lane
(State bicycle routes are commonly shoulder bike lanes)



Bike Lane

Figure 6.1 presents the Recommended Bicycle and Pedestrian Facilities – Phase 1 Plan. This plan identifies key facilities that provide connections between the region’s communities, as well as destinations within the communities. It is the intent of this plan that the region focus on trying to complete this network of facilities within the next five to ten years. For identified on-road facilities, bicycle lanes or bicycle shoulders should be provided whenever possible. However, until such time that bicycle lanes/shoulders can be implemented, these roadways should be signed for the shared use of both motorists and bicyclists.

Figure 6.2 presents the Recommended Bicycle and Pedestrian Facilities – Long Range Plan. This plan identifies facilities that are desirable for implementation within the next 25 to 30 years. It serves as a “wish list”, representing a future network that considers all potential opportunities. As opportunities to incorporate these facilities arise, such as with roadway improvement projects or new developments, measures to incorporate these facilities should be taken.

6.4 Opinions of Probable Cost for the Recommended Facilities

Implementation costs for the various facilities recommended in this plan will vary, some significantly, depending upon site-specific situations. Changes in slope, soil, subsurface composition, crossing water features, railroads, and other factors can greatly impact the cost of a project. Implementation of the proposed bicycle and pedestrian system will require funding from local, state, and/or federal sources and potentially coordination with multiple agencies. To facilitate funding efforts, conceptual-level opinions of probable costs for the proposed facilities were developed.

For this plan, conceptual project costs were established based on unit costs for the following:

- Bicycle Routes - Signage only
- Bicycle Routes/Lane- Signing and striping only (additional pavement widening costs would likely be required to provide a bicycle lane)
- Greenways (Off-road facilities) - Construction of a 10’ wide asphalt shared use path on a stone sub-base. Includes striping and signage.

These conceptual costs estimates were prepared utilizing TDOT’s established average unit prices for actual costs of construction materials. All cost estimates are highly conceptual, since there is no feasibility or preliminary design completed. Also, the design and administration costs included in these estimates may not be sufficient to fund environmental clearance studies. In particular, this conceptual project costs would need more detail as individual projects advance to implementation. These conceptual costs do not include easement or property acquisition costs and do not include costs for pedestrian and bicycle access over bridges, waterways, or rail crossings. Additionally, construction costs can rise quickly, impacting the cost estimates. The cost estimates for the proposed projects and the process of how the conceptual costs were derived are contained in the Appendix.

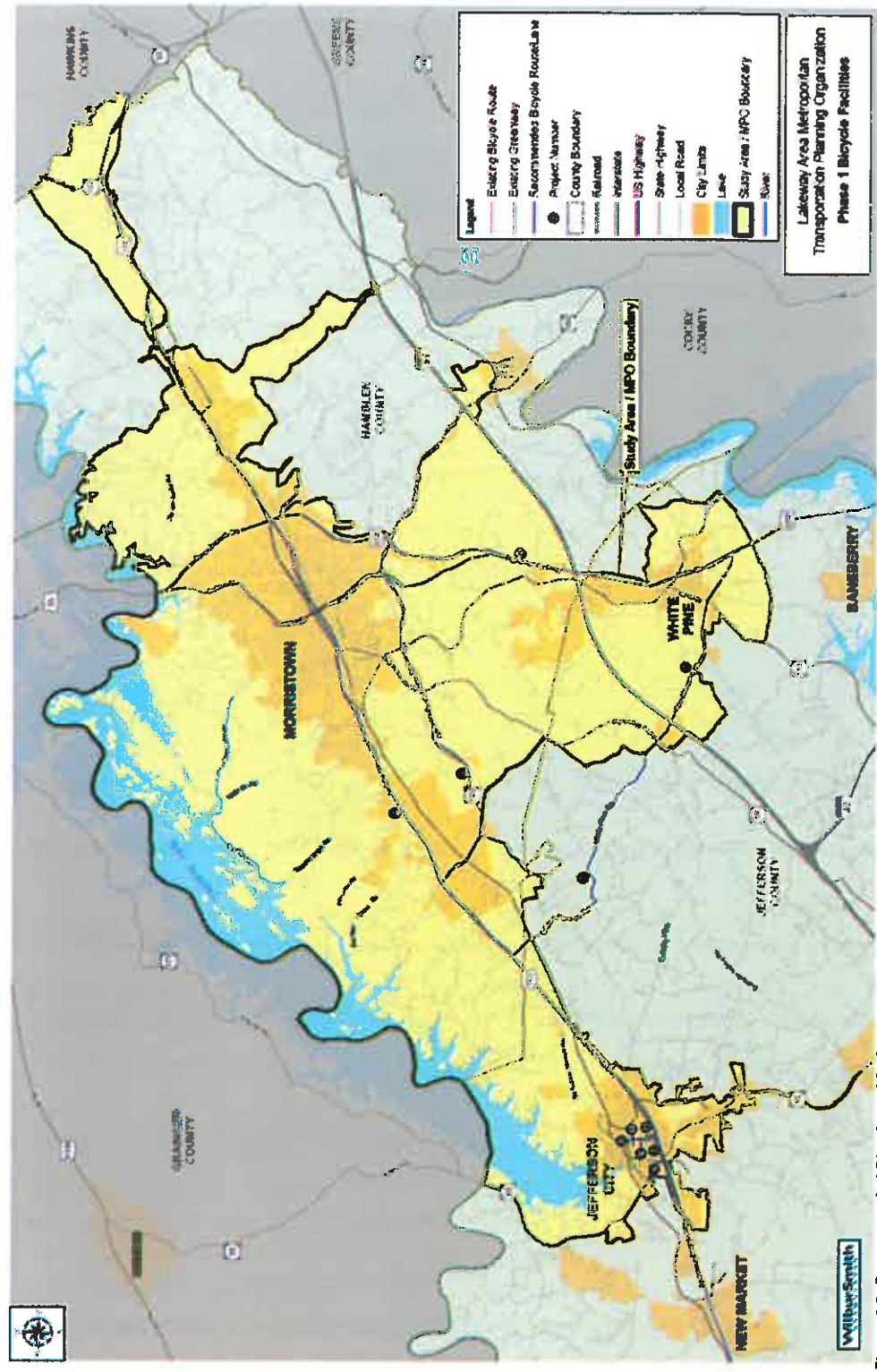


Figure 6.1 Recommended Bicycle and Pedestrian Facilities –Phase 1 Plan

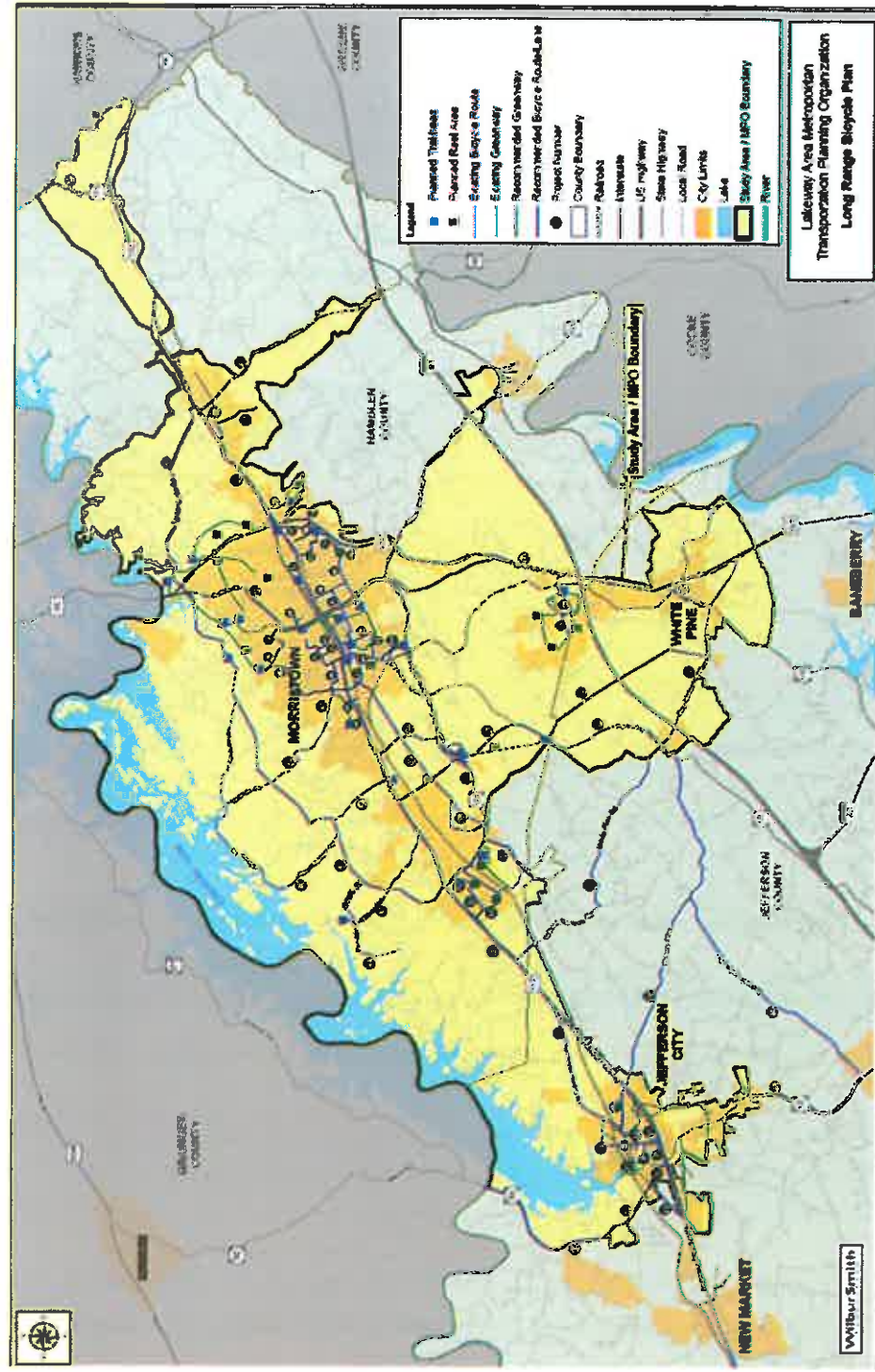


Figure 6.2 Recommended Bicycle and Pedestrian Facilities—Long Range Bicycle and Pedestrian Plan

As outlined in Section 6.3, recommended projects have been categorized in a Phase 1 Plan and a Long Range Plan. Some of the projects identified as being currently planned have already secured full or partial funding due to their listing in LAMTPOs TIP. Typically, more expensive and complex projects may take longer to implement. Each LAMTPO municipality should determine which projects are priorities, and these projects should be implemented as funding becomes available. The timing of projects is also difficult to predict due to projects in other regions also competing for available funding sources, timing of roadway and development improvements, and the economy.

6.5 Implementation Mechanisms – Project Evaluation Tool

As previously mentioned, all opportunities for project implementation should be taken advantage of, and, therefore, the recommended projects have not been officially prioritized. However, it is likely that LAMTPO and/or its jurisdictions will have access to available funding for which projects may compete. For this reason, a tool for evaluating and prioritizing projects was developed.

The project evaluation tool considers a number of factors that help identify/predict the need for bicycle and/or pedestrian facilities. These factors include proximity to trip generators, completion of networks, public support, safety factors, roadway classifications, and environmental impacts. The proposed project evaluation tool, which can be used to evaluate both existing and planned bicycle and pedestrian facilities, is presented in Table 6.1

Table 6.1 Project Evaluation Tool

Factors	Possible Points
Attractors and Generators (1/2 mile for sidewalks, 2 miles for bikeways)	
Elementary School, Middle School, or College	10
High School	5
Major Commercial Center	5
Civic Building	5
Public Housing	10
Transit Stop	5
Recreational Area	5
Completing a Network / Installing a Missing Segment (1/4 mile)	
Public Support	up to 10
Eliminating a Hazard	10
Arterial Street	15
Collector Street	10
Causing Negative Environmental Impacts, Hardships, or Other Negative Impacts	-10
Possible Points	95

6.6 Implementation Mechanisms – Potential Funding Sources

Bicycle and pedestrian projects can be funded by local and state sources, and most projects are eligible for funding from almost all of the major Federal-aid highway, transit, safety, and other programs. In order to receive funding from the federal government, bicycle and pedestrian projects must be “principally for transportation, rather than recreation purposes” and must be designed and located pursuant to the transportation plans required of States and Metropolitan Planning Organizations⁵.

There are several varieties of local, state and federal funding sources available that can be used to fund pedestrian and bicycle projects for LAMTPO communities. This list is not exhaustive, but there has been an attempt to identify major funding sources that can be utilized to fund bicycle and pedestrian planning, project development, and construction. In some cases, these funds may also be used to fund programmatic activities.

For urbanized areas, like LAMTPO federal funds are distributed by TDOT and then to the MPO. The MPO is in charge of creating the long-and short-range plans for the region. The TIPs are the short-range plans (updated every four years) that determine which prioritized projects will receive transportation funding.

6.6.1 Federal/ State Funds

Virtually all of the funding sources that were available for bicycle and pedestrian projects or planning under ISTEA and TEA-21 have been continued under the new SAFETEA-LU legislation. This section summarizes several federal funding sources available for non-motorized transportation projects.

State and federal transportation funds are administered through TDOT and local MPOs. To be eligible for funding, LAMTPO projects must be included in the 2005-2030 LRTP, the TIP, and the State Implementation Plan (SIP), as well as meet other state and federal requirements. Brief summaries of the eligible programs are provided below.

- **National Highway System (NHS)** - The NHS is comprised of the 42,000-mile Interstate system and another 113,000 miles of roads identified by states based on their importance to the national and regional economy, and their connectivity. NHS funding for projects on NHS roadways can be used for bicycle and pedestrian improvements on NHS system highways or on land adjacent to any NHS system highway, including interstate highways. This includes incidental improvements within larger projects which enable bicycle compatibility such as paved shoulders and bicycle safe drainage grates, designated bicycle facilities such as bikeways, signed routes, bike lanes and paths, and pedestrian accommodations such as sidewalks, signals, overpasses and crosswalks. It also includes funding of independent bicycle and pedestrian projects (projects that are initiated primarily to benefit bicycle and pedestrian travel) along or in the vicinity of NHS roadways. Projects could include shoulder paving, bicycle safe drainage grates,

⁵ Funding Sources for Bicycle and Pedestrian Projects, US Department of Transportation, Federal Highway Administration (www.fhwa.dot.gov/environment/bikeped.html)

construction of sidewalks or bikeways, installation of pedestrian signals, crosswalks, or overpasses.

- **Surface Transportation Program (STP) Funds** - STP funds give states the flexibility to invest in a variety of transportation activities. Bicycle and pedestrian facilities and walkways are specifically listed as eligible activities under this program. Like NHS, some pedestrian and bicycle improvements may be incidental projects within larger projects. STP funds can also be used for independent bicycle and pedestrian projects along or within the vicinity of roadways. Projects could include shoulder paving, bicycle safe drainage grates, construction of sidewalks or bikeways, installation of pedestrian signals, crosswalks, or overpasses. Under SAFETEA-LU guidelines, STP funds may be used for the modification of sidewalks to comply with the Americans with Disabilities Act (ADA). STP funds have also been used for non-construction projects including the publishing of maps, brochures and public service announcements that are related to safe bicycle use and walking. STP funds are administered partially through TDOT and LAMTPO.

- **Transportation Enhancement (TE) Program** - This program sets aside ten percent of STP funds to support non-traditional transportation projects whose objectives support livable communities, enhance travel experiences, and promote new transportation investment partnerships. The Transportation Enhancement Program links state and federal policy. This program help local governments creatively integrate transportation facilities into their local surroundings. Several projects that are funded with this grant are directly related to pedestrian and bicycle facilities and activities including:
 - ◆ Provision of Facilities for Bicyclists and Pedestrians
 - ◆ Provision of Safety and Educational Activities for Pedestrians and Bicyclists
 - ◆ Preservation of Abandoned Railway Corridors (including the conversion and use thereof for pedestrian and bicycle trails)
 - ◆ Acquisition of scenic easements and scenic or historic sites
 - ◆ Landscaping and scenic beautification, as part of a streetscape project that can be beneficial to pedestrians.

- **Highway Safety Improvement Program (formerly known as the Hazard Elimination Safety (HES) Program)** - The Hazard Elimination Safety Program (HES) is a federal safety program that provides money annually to counties and municipalities for the improvement of known safety hazards on local or county roadways. This programs focuses on crash prone locations and may include but not be limited to intersections and other road improvements including installation and replacement of guard rail and pavement marking to enhance pedestrian and vehicular safety. Improvements that either directly or indirect improve conditions for pedestrians can be funded.⁶

⁶ Source <http://www.fhwa.dot.gov/environment/bikeped/bp-broch.htm>

- **Congestion Mitigation and Air Quality Improvement Program (CMAQ)** - CMAQ funds are available only to fund transportation projects in Clean Air Act designated non-attainment areas for ozone and carbon monoxide. These funds are mainly used to assist communities in non-attainment areas and maintenance areas to reduce emissions. Jefferson County is the only municipality within the LAMTPO planning area classified as a non-attainment area for ozone. Non-attainment areas are those areas designated by the Environmental Protection Agency (EPA) as not meeting the National Ambient Air Quality Standards (NAAQS).

CMAQ funds can support bicycle and pedestrian programs by creating trails or storage facilities or marketing efforts designed to provide a non-motorized form of transportation like bicycling and walking. CMAQ also funds education and outreach programs to increase public knowledge about the benefits of bicycling and walking.

CMAQ funds require a state or local match. Usually this results in 80 percent federal funding and 20 percent state or local funding. The funds are usually made available through the MPO and TDOT. Some local municipalities also provide a portion of the funding as a match. Some non-profit organizations, as well as private organizations as part of public-private partnerships also provide support to construct these facilities. CMAQ funding is controlled by the Knoxville TPO, as the EPA has classified Jefferson County within the Knoxville/Knox County non-attainment area for ozone. Therefore projects submitted to LAMTPO for CMAQ funding is then forwarded to the Knoxville TPO for concurrence.

- **Safe Routes to School (SRTS)** - The Safe Routes to School (SRTS) program is a federal-aid program created in SAFETEA-LU and administered by the State DOT. The program provides funds to the State to substantially improve the ability for primary and middle school students (Grades K-8) to walk and bicycle to school safely. The purposes of the program are to make bicycling and walking to school a safer and more appealing transportation alternative, thereby encouraging and promoting healthy and active lifestyles for school age children. This program also facilitates the planning, development, and implementation of projects and activities that will improve safety and reduce traffic, fuel consumption, and air pollution in the vicinity (approximately two miles) of primary and middle schools.⁷
- **Scenic Byways** - Funding provided for this program is used to construct facilities along designated Scenic Byways. This program requires an 80 percent federal and 20 percent state or local funding match. Designated roadways identified as National Scenic Byways, America's Byways and All-American Roads are roadways with outstanding scenic, historic, cultural, natural recreational and archaeological qualities. Funds for this program can be used in for tourists' implementation; and construction of bicycle and pedestrian facilities, including overlooks, trailheads and other enhancements for visitors.

⁷ Source, "Safe Routes to School", www.saferoutesinfo.org.

- **Job Access and Reverse Commute Grants (JARC)** - Funding from the JARC grants supports bicycle-related services for welfare-recipients and eligible low-income individuals to and from employment.
- **Section 402 Safety Funds** - These funds are administered by the National Highway Traffic Safety Administration (NHTSA) to be spent on non-construction activities to improve the safety of the traveling public. Funded projects must be supported by the State's Highway Safety Plan which is developed on an annual basis. Section 402 projects are 100 percent federally funded.
- **Federal Transit Administration (FTA) Funds** - SAFETEA-LU contains provisions allowing for transit funds to be used for bicycle and pedestrian access to transit facilities, to provide shelters, and parking facilities for bicycles in and around transit facilities, and to install racks and other equipment for transporting bicycles on transit vehicles.

Presently, FTA provides the LAMTPO area with funding for its on-call transit service managed by the East Tennessee Human Resources Agency (ETHRA). A 2005 transit feasibility study define three transit options to benefit the LAMTPO area, however the LAMTPO Transportation Advisory Committee and its Executive Board did not see a need for mass transit and continued the ETHRA on-call services. Section 5307 funding is available to provide services to the area. When the need arises, for public transit services for LAMTPO communities, FTA could provide additional funding for pedestrians and bicyclists linkages to transit services through its Urbanized Area Formula Grants and Transit Enhancement Grants.

- **Federal Community Development Block Grant (CDBG) Program** - Community Development Block Grants (CDBG) is administered by the US Department of Housing and Urban Development (HUD). Although projects completed with CDBG monies assist with the rehabilitating or constructing affordable housing or job-creating economic development. Other types of projects that can be used for bicycle and pedestrian projects include land acquisition for public purposes and building public improvements or facilities, like sidewalks and recreational centers.

The City of Morristown has received CDBG funding to assist repairing the City's downtown skywalks. Other funding efforts include improvements to park buildings and preparation for the City's community center.

- **Recreational Trails Program** - This program was established to develop and maintain non-motorized and multi-use recreation trail projects.

6.6.2 Local Funds

Local funding sources that may be utilized for bicycle and pedestrian improvements include:

- **General funds** - Tax revenue allocated annually for each of the LAMTPO governing entities for use in their respective areas.
- **Municipal bond fund** - Bonds available to each municipality for capital improvement projects.
- **County and Municipal Road Aid Funds** - State gas tax funds allocated by the state and budgeted annually through city or county governments.

Most likely funding for bicycle and pedestrian improvements will come from general funding, along with TE funds. Presently, the City of Morristown has \$3 million in TE funds, which 20 percent will be covered with general funds for the local match.

When bicycle and pedestrian improvements are incidental to other capital or maintenance projects, other departments within the governing agency can be responsible for the implementation and prioritization for bicycle and pedestrian improvements in the Lakeway area. Coordination among the following departments and setting project priorities will assist with preparing the annual budget to ensure that funding requests are properly allocated.

- **Public Works Department** - Responsible for all major and minor improvements of city streets, including right-of-way maintenance, street signs, pavement markings, brush and snow removal, street cleaning and storm drains
- **Parks and Recreation Department** - Walking/bike path construction or maintenance
- **Codes Enforcement** - Sidewalk maintenance and installation; street lighting installation
- **Police Department** - Bicycle and pedestrian enforcement
- **Engineering Department** - Responsible for land development, construction and maintenance, construction site plans
- **Planning Department** - Bicycle and pedestrian plans and studies

6.6.3 Other Funding Sources

There are many other mechanisms for funding bicycle and pedestrian-related projects. Examples of these include:

- **Private donations** - Corporate investments and private donations from individuals or foundations may be used for bicycle and pedestrian improvements.
- **Grants** - There are virtually hundreds of grants available nationally for bicycle and pedestrian programs and facility improvements. Awards can range from a few hundred dollars, but generally fall within a range from \$2,500 to \$50,000. Most grants have a funding duration of one year. Submittal deadlines, matching funds requirements and other stipulations are unique to each grant.
 - ◆ **Bicycle Transportation Alliance**
 - ◆ **Bike Belongs Grants Program**(www.bikesbelong.org) - This program helps put more people on bicycles more often by awarding grants to important and influential projects that leverage federal, state, and local money and build momentum for bicycling. These projects include paved bike paths and rail-trails as well as mountain bike trails, bike parks, BMX facilities, and large-scale bicycle

advocacy initiatives. Grants were awarded to build a bike bridge in Mountain City, Tennessee and an urban mountain bike trail in Chattanooga, Tennessee.

- ◆ **The National Institutes of Health (www.grants.nih.gov)** - Funds projects that study environmental factors that contribute to inappropriate weight gain in children, adolescents and adults. The project goals, including good nutrition, for bicyclists and pedestrians include:
 - **Promoting walking and bicycling to school or to work**
 - **Increasing physical activities before and after school**
 - **Decreasing sedentary behaviors in children and adolescents**
 - **Promoting physical activities at work**
 - **Increasing family participation in physical activities**
- ◆ **Partnerships** - Collaborative efforts with major corporations, local businesses, local governments, bicycle advocacy groups, schools, and health organizations can create support and educate the community on providing biking and walking as a non-motorized transportation option for LAMTPO communities. Partnerships with area residents and key stakeholders (businesses, schools, etc) are necessary to provide the necessary support in order to achieve the goals and mission established in this plan.



**APPENDIX A:
BICYCLE AND PEDESTRIAN ADVISORY COMMITTEE
(BPAC) MEETING NOTES**

LAMTPO Regional Bicycle and Pedestrian Plan

Bike Pedestrian Plan Advisory Committee

<u>Name</u>	<u>Affiliation</u>
Rich DesGroseilliers	LAMTPO
Kellie Smith/ Meghan Brooks	HCBOE
Carl Storms	Morristown Chamber
Walter Gibson	Jefferson City Parks and Recreation
Craig Price	Morristown Parks and Recreation
Jake Greear	Citizen-Bike Ped activist
Todd Ellis/ Sandra Smith	White Pine
Jeff Branham/ Bryan Fowler	Morristown Engineering Dept.
Deborah Fleming	TDOT
Danny Young/ Jim Riley	Hamblen County
Rusty Staggs	TDOT
Walters State Community College Personnel	
Carson Newman College personnel	
Jefferson County personnel	
John LaCroix	Panther Creek State Park
Earl Stroup	Hamblen County Citizen
Dawn Foster	Wilbur Smith Associates
Rebecca Brooks	Wilbur Smith Associates

**Meeting Agenda
LAMTPO Bicycle and Pedestrian Plan
January 28, 2008**

1. **Introductions**
2. **Project Scope and Schedule**
3. **Bicycle and Pedestrian Advisory Committee (BPAC)**
4. **Future Meeting Dates**
 - **First MPO/BPAC Meeting (mid-February)**
 - **Second MPO/PAC Meeting (end of March)**
 - **Public Workshop (end of April)**
 - **MPO Executive Board Meeting / Public Hearing (late June)**
5. **Issues and Goals**



MEMO To: Rich DesGroseilliers, MTPO Coordinator

C: Rebecca Brooks, P.E.

Date: January 30, 2008

From: Dawn Michelle Foster

Subject: LAMTPO Bikeway/Pedestrian Plan
Project Set-Up Meeting

I. Purpose

On January 28, 2008, Wilbur Smith Associates (WSA) met with Rich DesGroseilliers, Lakeway MTPO Coordinator, and others in an informal meeting to discuss the upcoming LAMTPO Bicycle and Pedestrian Plan. The purpose of the meeting was to outline the project's scope and schedule, develop the Bicycle and Pedestrian Advisory Committee (BPAC), establish future meeting dates, identify the project's goals, and to identify other related issues. The meeting also offered an opportunity to redefine particular areas of the scope.

II. Attendees

The following is a list of attendees at the meeting:

Deborah Fleming- TDOT
Jake Greear
Jim Riley
Walter Gibson- Jefferson City Parks and Recreation Department
Carl Storms
Alan Hartman- Director of Planning (Morristown)
Rich DesGroseilliers, MTPO Coordinator
Rebecca Brooks- Wilbur Smith Associates
Dawn Michelle Foster- Wilbur Smith Associates

The meeting sign-in sheet, which includes contact information for each attendee, is attached to this memo.

III. Project Scope and Schedule

The project's scope was discussed. It was agreed that, in order to reduce the number of revision to the report, project deliverables would be submitted in the form of a working draft. Near the completion of the project, a final draft will be issued, followed by the approved document.

WSA will begin compiling data that will be needed for the evaluations. It is anticipated that WSA either already has, or already has access to, some of this data. For the remainder of the data, WSA will prepare a data needs list and submit this list to Rich DesGroseilliers for coordination.

The project is set to begin in February and will be completed by the end of June. A discussion of the project timeline offered an opportunity to tentatively schedule meeting dates with the MPO, BPAC (Bicycle and Pedestrian Advisory Committee), and the public, as well as to set dates in which deliverables could be expected. No comments were made regarding the project deliverable dates. The tentative meeting dates are as follows:

February 27 – MPO /BPAC Kick-Off Meeting
March 26 or 27 – MPO/BPAC Meeting
April 23 or 30 – Public Workshop
June 11 – Public Hearing

The meeting dates and times should be finalized by the next LAMTPO Board meeting.

IV. Bicycle and Pedestrian Advisory Committee (BPAC)

WSA offered assistance in reviewing the composition of the BPAC. It was recommended that the BPAC consist of 10 to 15 members. To ensure key stakeholder involvement, it was recommended that the BPAC include representatives of the following groups and organizations:

LAMTPO
Tennessee Department of Transportation (TDOT)

Chamber of Commerce
Hospital/ Healthy Living Groups
Bike Shop Owners
Bicycle and Pedestrian Advocacy Groups
Greenway Organizations
Schools
Walter State Community College
Carson Newman College

V. Issues and Goals

Attendees were offered an opportunity to discuss project goals and identify issues related to the project. One of the identified goals was to develop a plan that can be used by LAMTPO and the local jurisdictions in applying for grant money for bicycle and pedestrian facilities. Another identified goal was to develop a greenway system that would connect each of the local communities. Identified issues included barriers to bicycle and pedestrian travel, such as disconnected facilities, narrow bridges, topography, and major roadways.



MEMO To: Rich DesGroseilliers, LAMTPO Coordinator

C: Rebecca Brooks, PE

Date: February 26, 2008

From: Dawn Michelle Foster

Subject: LAMTPO Bicycle and Pedestrian Plan
Bicycle/Pedestrian Advisory Committee (BPAC) Meeting

The BPAC held its kickoff meeting during lunch to discuss the project scope and scheduling for the project. The meeting was facilitated by Rebecca Brooks, Dawn Michelle Foster (Wilbur Smith Associates) and Rich DesGroseilliers (LAMTPO Coordinator). Members of the BPAC were given a project notebook that contained relevant materials including scope, project timeline, meeting minutes and contact information. Members in attendance consisted of representatives from TDOT, Morristown, Jefferson City Parks and Recreation Department, Panther Creek State Park, Hamblen County, Board of Education and a Morristown resident. The sign in sheet is attached to this memo. Extra notebooks were left with Rich DesGroseilliers for anyone that missed today's meeting or interested in being on the BPAC.

Rebecca Brooks discussed each of the six project tasks outlined in the scope of services to solicit additional suggestions and comments from the BPAC. She placed special emphasis to have items listed in Task 2 and Task 3 prepared for the next BPAC meeting which consisted of the following:

- 1) identify tools to prioritize projects (short- and long-term);
- 2) prepare a draft facility recommendation

Future meeting dates were scheduled as follows:

Second BPAC meeting- Tuesday, March 25, 2008 at 11:00am in the Council Chambers at the City Center

Public Meeting-Tuesday, April 22, 2008 at 11:00am in the Council Chambers at the City Center

Final Presentation and Public Hearing- July 9, 2008 at 12 noon, in the Council Chambers at the City Center (at Executive Board Meeting)

The main focus of this kick-off meeting with the MPO and BPAC was to gather information, collect input and ideas related to the development of the plan. Members were asked to identify goals and objectives, obstacles, and opportunities for the plan. Ideas and suggestions were listed as follows:

I. Goals

- Access
- Safety
- Signage
- Separation (pedestrians, bicyclists and motorists)
- Connectivity to major generators, attractors, and major routes
 - Linkage to Morristown, Jefferson County, White Pine
- Plan safe routes to schools
- Plan for attractive facilities (aesthetics)
- Lighting for safety and appearance
- Bike Path on Main Roads

II. Obstacles

- Traffic Volumes
- Lack of Right-of -Way
- Locations of Railroads
- Locations of Stream Crossings
- Too many access points (entrances) disconnecting sidewalks
- Some areas not ADA compliant for wheelchairs and other disabilities
- Street debris

III. Opportunities

- Utilize existing infrastructure
- SR-160 should have bike/ped amenities
- Identify the LAMTPO area for potential bike/pedestrian use
- Have Morristown, White Pine and Jefferson City designate bike routes to obtain funding on those that are on state routes
- Educate the public on bike and pedestrian use an alternative mode of transportation

Next, several maps of the LAMTPO area were made available for the BPAC Members located planned and new roadway developments and connections, existing and proposed bikeways, existing and proposed greenways, major employment

centers, schools, state parks, proposed residential developments. Members also identified routes that they did not favor as routes for pedestrians or bicyclists. Members also indicated on the maps area where connectivity would best serve both pedestrians and bicyclists.

Next Steps

By the next BPAC meeting (March 25, 2008), Wilbur Smith Associates will compile the information gathered at today's meeting and update on maps for additional review. The information will be listed with recommendations for prioritizing projects as well as preparing a draft facility recommendation.



MEMO To: Rich DesGroseilliers

C: FILE

Date: March 27, 2008

From: Dawn Michelle Foster

Subject: LAMTPO Bike/Pedestrian Plan
BPAC Meeting

The second meeting of the Bicycle Pedestrian Advisory Committee (BPAC) was held Tuesday, March 25, 2008. The meeting facilitated by Rebecca Brooks and Dawn Michelle Foster (Wilbur Smith Associates) discussed the comments and suggestions gathered during the initial BPAC meeting in January by PowerPoint presentation. Attached is a list of attendees at the March 25, 2008 meeting.

BPAC members were updated with the project status and next steps as well as establishing a goal statement, targeting the objectives (connectivity and mobility within the LAMTPO communities, develop design guidelines that complement the region, quality of life, healthy living and having safe, accessible and convenient streets and/or paths for all users.

The discussion on the policies and plans for each jurisdiction of LAMTPO identified that subdivision regulations and zoning ordinance make it possible to establish improve conditions for bicycling and walking through the design and development of its transportation infrastructure (on a regional level).

Following the presentation, BPAC members were encouraged to form recommendations and guidelines that the LAMTPO region and each municipality should work towards achieving when installing bicycle and pedestrian facilities. In consensus, the group requested that WSA return with some recommendations and guidelines from other bike/pad projects that have been performed in order to establish a base. Members stated that bikeways needed to be addressed as well as street connections and crossings.

**A Project Evaluation Tool will be created to set priorities and phasing of projects..
The factors that were considered criteria in the Project Evaluation Tool consisted of:**

- **Phase 1 plan/LRTP or Master Plan**
- **Cost (Local) (Total)**
- **Public Support**
- **Funding Sources**
- **Accessibility, gap completion**

After the presentation BPAC members were asked to review maps of each jurisdiction to add information they felt was relevant to serve both pedestrians and bicyclist. Information received help establish the basis for prioritizing projects as well as preparing a draft report to submit to LAMTPO.

A Public Workshop is scheduled for Tuesday, April 22, 2008 at the Morristown City Center Building in the City Council Chambers at 11:00am.



MEMO To: Rich DesGroseilliers

C: Rebecca Brooks

Date: April 24, 2008

From: Dawn Michelle Foster

Subject: LAMTPO Bike/Pedestrian Plan
BPAC Meeting/ Public Meeting

The third meeting for the LAMTPO Bicycle and Pedestrian consisted of a public meeting which included BPAC members. The meeting was held Tuesday, April 22, 2008 at 11:00am at the Morristown City Center. The public meeting was facilitated by Rebecca Brooks and Dawn Michelle Foster (Wilbur Smith Associates). The details of this meeting discussed the review of the draft report and the development of the project evaluation tool in order to establish priorities and phasing of projects.

The presentation began with a brief overview of the project's goals and objectives, existing conditions, and local/state/federal plans and standards. Then recommended policies were discussed. This discussion included facility design standards, roadway crossing treatments, education and enforcement, encouragement of bicycle and pedestrian-oriented site development, encouragement of bicycling and walking, and the establishment of a LAMTPO bicycle/pedestrian coordinator.

During the previous workshops, the BPAC members were encouraged to form recommendations and guidelines for the planning and design of bicycle and pedestrian facilities within the LAMTPO region. BPAC members were tasked with the creation of a project evaluation tool (PET) to assist in setting project priorities. The PET discussions resulted in the following criteria and ranking values:

- **Attractors and Generators (1/2 mile for sidewalks; 2 miles for bikeways points)**
 - Elementary school, middle school, or college = 10 points
 - High school = 5 points
 - Major commercial center = 5 points
 - Civic building = 5 points
 - Public housing/LMI = 10 points
 - Transit stop = 5 points
 - Recreational area = 5 points

- **Completing a network/installing a missing segment (1/4 mile) = 5 points**
- **Public support = Range from 0 points to 10 points**
- **Eliminating a Hazard = 0 points**
- **Causing negative environmental impacts, hardships, or other negative impacts = subtract 10 points**
- **Arterial = 15 points**
- **Collector = 10 points**

Values for each factor are assigned based on the number of occurrences. For example, if a potential project would be located near two elementary schools, it would receive 20 points for that factor (10 points for each nearby elementary school). The PET scores will be used to prioritize projects according to short term and long term projects.

At the conclusion of the public meeting, attendees were asked to review the project maps which revealed the existing and planned bicycle facilities. Members were asked to provide any additional information on the maps.



APPENDIX B: GENERAL DEMOGRAPHICS 1990 AND 2000 CENSUS DATA

Hamblen County: General Demographics: 1990 and 2000 Census

Subject	1990 Census		2000 Census		Change 1990 to 2000	
	Number	Percent	Number	Percent	Number	Percent
Total Population	50480	100	58128	100		
Total Households (HH)	19429	100	57338	100		
Mean number of persons per HH	2.56		2.47			
Workers 16 years and older	23678	100	27039	100		
Means of Transportation to Work						
Drove Alone	19923	84	22873	85		
Carpooled	2900	12	3477	13		
Public Transportation (including taxi)	24	0	59	0		
Bicycle or Walked	210	1	232	0.05		
Motorcycle or Other Means	91	1	112	0.05		
Worked at Home	500	2	286	1		

Morristown, Tennessee: General Demographics: 1990 and 2000 Census

Subject	1990 Census		2000 Census		Change 1990 to 2000	
	Number	Percent	Number	Percent	Number	Percent
Total Population	21385	100	24965	100		
Total Households (HH)	8715	100	24175	100		
Mean number of persons per HH			2.35			
No vehicle available						
Mean vehicles per HH						
Workers 16 years and older	8919	100	10962	100		
Means of Transportation to Work						
Drove Alone	7409	83	8698	77		
Carpooled	1200	13	1985	18		
Public Transportation (including taxi)	25	1	37	0		
Bicycle or Walked	119	1	108	1		
Motorcycle or Other Means	49	1	62	1		
Worked at Home	117	1	72	1		

Jefferson County: General Demographics: 1990 and 2000 Census

Subject	1990 Census		2000 Census		Change, 1990 to 2000	
	Number	Percent	Number	Percent	Number	Percent
Total Population	33016	100	44294	100	11278	74.5
Total Households (HH)	12329	100	42632	100	30303	28.9
Mean number of persons per HH	2.55		2.49			
No vehicle available						
Mean vehicles per HH						
Workers 16 years and older	14948	100	20211	100	5263	74.0
Means of Transportation to Work						
Drove Alone	11579		16652	82	5073	69.5
Carpooled	2307		2182	11	-125	
Public Transportation (including taxi)	33		50	2	17	66.0
Bicycle/Walked	13/457		15/626	2		
Motorcycle or Other Means	91		15	1	-76	
Worked at Home	461		602	2	141	76.6

Jefferson City, Tennessee: General Demographics: 1990 and 2000 Census						
Subject	1990 Census		2000 Census		Change 1990 to 2000	
	Number	Percent	Number	Percent	Number	Percent
Total Population	5494	100	7760	100	2266	41
Total Households (HH)	1888	100	6462	100	4574	
Mean number of persons per HH			2.29			
No vehicle available						
Mean vehicles per HH						
Workers 16 years and older	2179	100	3145	100		
Means of Transportation to Work						
Drove Alone	1643	75	2692	75		
Carpooled	225	10	2360	11		
Public Transportation (Including taxi)	0	0	332	0.5		
Bicycle or Walked	0	0	10	11		
Motorcycle or Other Means	8	12	15	0.5		
Worked at Home	47	1	22			
		2	75	2		

White Pine, Tennessee: General Demographics: 1990 and 2000 Census

Subject	1990 Census		2000 Census		Change 1990 to 2000	
	Number	Percent	Number	Percent	Number	Percent
Total Population	1771	100	1997	100		
Total Households (HH)	723	100	1997	100		
Mean number of persons per HH			29			
No vehicle available						
Mean vehicles per HH						
Workers 16 years and older	793	100	792	100		
Means of Transportation to Work						
Drove Alone	630	79	665	85		
Carpooled	122	15	88	11		
Public Transportation (including taxi)	2	1				
Bicycle or Walked	9	3	10	1		
Motorcycle or Other Means	8	1	7	1		
Worked at Home	7	1	22	2		



APPENDIX C: PROJECT COST SUMMARY

LAMTPO
Proposed Projects

	New Project Number	Old Project Number	Facility Name	Terminal From	Terminal To	Length in miles	Facility Type	Total Cost
PHASE 1	1	22	Talbott Kansas/White Pine Rd.	U.S. Hwy. 11E.	Valley Home Rd.	5.0	Proposed Bike Route/Lane	\$61,200
	2	23	Roy Messer Hwy	Valley Home Rd.	US Hwy. 25E.	4.0	Planned Bike Route	\$6,400
	3	3	U.S. Hwy. 11E.	Old Andrew Johnson Hwy.	Proposed Merchant's Green Rd.	11.3	Planned Bike Route	\$18,000
	4	24	US Hwy. 25E.	Study Area/MPO Boundary	Hamblen County Boundary	13.6	Planned Bike Route	\$21,600
	5	34	St. Hwy. 160	U.S. Hwy. 11E.	I-81	11.3	Planned Bike Route	\$18,000
	6	15	Sizer Ave.	U.S. Hwy. 11E..	Jefferson St.	0.2	Proposed Bike Route/Lane	\$3,000
	7	13	Jefferson St.	Russell Ave.	Branner Ave.	0.2	Proposed Bike Route/Lane	\$3,000
	8	14	E. College St.	Branner Ave.	Bishop Ave.	0.4	Proposed Bike Route/Lane	\$5,000
	9	11	Branner Ave.	U.S. Hwy. 11E.	Old Andrew Johnson Hwy.	0.7	Proposed Bike Route/Lane	\$8,800
	10	10	N. College St.	Russell Ave.	Walnut Ave.	0.3	Proposed Bike Route/Lane	\$3,800
	11	12	Pearl Ave.	Mountcastle St.	U.S. Hwy. 11E..	0.2	Proposed Bike Route/Lane	\$3,000
PHASE 2	12	9	Walnut Ave.	U.S. Hwy. 11E.	Old Andrew Johnson Hwy.	1.0	Greenway Plan (Off-Road)	\$80,100
	13	7	Old Andrew Johnson Hwy.	Walnut Ave.	U.S. Hwy. 11E.	1.7	Planned Bike Route	\$2,400
	14	8	Municipal Dr.	Russell Ave.	Old Andrew Johnson Hwy.	1.7	Planned Bike Route	\$2,400
	15	6	Chucky Pk.	Chucky Pk. Proposed Bike Route/Lane (P5)	Old Andrew Johnson Hwy.	0.9	Planned Bike Route	\$1,600
	16	16	Old Andrew Johnson Hwy.	Broadway Blvd.	Westview St.	1.0	Planned Bike Route	\$1,600
	17	17	North Hwy. 92	Old Andrew Johnson Hwy.	Apache Way	1.4	Planned Bike Route	\$2,400
	18	18	North Hwy. 92	Apache Way	County Boundary	3.3	Proposed Bike Route/Lane	\$40,100
	19	19	Proposed Greenway	Old Andrew Johnson Hwy.	Cherokee Dr.	0.4	Greenway Plan (Off-Road)	\$33,800

LAMTPO

Proposed Projects

	New Project Number	Old Project Number	Facility Name	Termini From	Termini To	Length in miles	Facility Type	Total Cost
PHASE 2	20	20	Proposed Greenway	Cherokee Lake	Russell Ave.	0.6	Greenway Plan (Off-Road)	\$47,300
	21	21	Old Andrew Johnson Hwy.	Overlook Ave.	Bishop Ave.	0.1	Planned Bike Route	\$400
	22	1	State Hwy. 92	Colony Dr. / Hinchey Hollow Rd.	Dumplin Valley Rd.	2.9	Planned Bike Route	\$4,800
	23	2	Dumplin Valley Rd.	State Hwy. 92	Chucky Pk.	5.3	Proposed Bike Route/Lane	\$64,300
	24	4	Proposed Greenway	U.S. Hwy. 11E.	Old Andrew Johnson Hwy.	4.6	Greenway Plan (Off-Road)	\$364,700
	25	25	Main St.	Roy Messer Hwy.	US Hwy. 25E.	1.0	Proposed Bike Route/Lane	\$12,100
	26	26	Proposed I-81 exit 6 connector	Roy Messer Hwy.	P28	5.4	Planned Bike Route	\$8,800
	27	27	Valley Home Rd.	White Pine Rd.	Alpha Valley Home Rd.	2.7	Proposed Bike Route/Lane	\$32,600
	28	28	Merchants Green Rd.	Alpha Valley Home Rd.	U.S. Hwy. 11E.	3.7	Planned Bike Route	\$5,600
	29	29	Buell St./Amy Dr./Dearing Rd.	Buell St.	St. Hwy. 160	1.7	Proposed Bike Route/Lane	\$20,000
	30	30	Proposed Greenway	Commerce Blvd.	St. Hwy. 160	1.9	Greenway Plan (Off-Road)	\$151,550
	31	31	Commerce Blvd.	U.S. Hwy. 11E.	St. Hwy. 160	1.6	Planned Bike Route	\$2,400
	32	32	Superior Dr.	Commerce Blvd.	Commerce Blvd.	0.8	Planned Bike Route	\$800
	33	33	Astor Rd.	Superior Dr.	St. Hwy. 160	0.4	Planned Bike Route	\$400
	34	5	Chucky Pk.	Chucky Pk. Planned Bike Route (P6)	White Pine Rd.	7.5	Proposed Bike Route/Lane	\$92,000
	35	35	Proposed Veterans Pkwy.	St. Hwy. 160	U.S. Hwy. 11E.	4.5	Planned Bike Route	\$7,200
	36	36	Proposed Bike Route/Lane	St. Hwy. 160	Proposed Veterans Pkwy. (P35)	4.5	Proposed Bike Route/Lane	\$55,200
	37	37	US Hwy 11e	U.S. Hwy. 11E.	S. High St.	1.2	Proposed Bike Route/Lane	\$14,200
	38	38	Sugar Hollow Rd.	Merchants Green Rd. (P28)	U.S. Hwy. 11E.	2.9	Planned Bike Route	\$4,800
39	39	Howard Allen Rd.	Witt Rd.	Proposed Greenway 41	0.5	Planned Bike Route	\$800	

LAMTPO
Proposed Projects

	New Project Number	Old Project Number	Facility Name	Termini From	Termini To	Length in miles	Facility Type	Total Cost
PHASE 2	40	40	Progress Pkwy.	US Hwy. 25E.	Proposed Greenway 41	1.6	Planned Bike Route	\$2,400
	41	41	Proposed Greenway	Howard Allen Rd.	Howard Allen Rd.	3.7	Greenway Plan (Off-Road)	\$293,250
	42	42	Cameron Rd./Old KY Rd./Proposed Extension	U.S. Hwy. 11E.	U.S. Hwy. 11E.	14.2	Planned Bike Route	\$22,400
	43	43	Creek Rd.	U.S. Hwy. 11E.	Park Rd.	2.7	Planned Bike Route	\$4,000
	44	44	Panther /Cameron Rd.	Hiawatha Rd.	Cameron Rd.	1.2	Proposed Bike Route/Lane	\$14,600
	45	45	Kidwell Ridge Rd.	U.S. Hwy. 11E.	Joe Stephens Rd.	0.1	Proposed Bike Route/Lane	\$1,700
	46	46	Kidwell Ridge Rd.	Cameron Rd. (P42)	Lakeway Rd.	1.4	Proposed Bike Route/Lane	\$16,700
	47	47	McBride Rd.	Lakeway Rd.	W. Economy Rd.	5.5	Proposed Bike Route/Lane	\$67,300
	48	48	N. Economy Rd.	W. Economy Rd.	Walters Dr.	0.9	Planned Bike Route	\$1,600
	49	49	N. Economy Rd./Country Club Dr.	Walters Dr.	Fairmont Ave.	0.7	Planned Bike Route	\$1,200
	50	50	Fairmont Ave./7th North/Church St.	U.S. Hwy. 11E.	W. 9th North St.	1.2	Planned Bike Route	\$2,000
	51	51	High St.	W. 7th N. St.	W. 4th N. St.	0.2	Planned Bike Route	\$400
	52	52	McFarland St.	W. 7th N. St.	W. 4th N. St.	0.2	Planned Bike Route	\$400
	53	53	Proposed Greenway	W. Economy Rd.	N. Economy Rd. (P48)	0.9	Greenway Plan (Off-Road)	\$71,450
	54	54	Barker St.	U.S. Hwy. 11E.	Proposed Greenway 53	0.2	Planned Bike Route	\$400
	55	55	Pearce Dr.	Madden Dr.	Proposed Greenway 53	0.3	Planned Bike Route	\$400
	56	56	Walters Dr.	U.S. Hwy. 11E.	Lochmere Dr.	2.2	Planned Bike Route	\$3,200
	57	57	Proposed Greenway	Cherokee Dr.	Shields Ferry Rd.	1.2	Greenway Plan (Off-Road)	\$93,000
	58	58	Cherokee Dr.	Walters Dr.	Converse St.	0.5	Planned Bike Route	\$800
	59	59	E. Converse St./Davis Ave.	Cherokee Dr.	St. Hwy. 343	0.6	Planned Bike Route	\$800

LAMTPO

Proposed Projects

	New Project Number	Old Project Number	Facility Name	Terminal From	Terminal To	Length in miles	Facility Type	Total Cost
PHASE 2	60	60	Proposed Greenway	US Hwy. 25E.	Sulphur Springs	6.2	Greenway Plan (Off-Road)	\$491,500
	61	61	Proposed Greenway	Proposed Greenway 60	E. 6th N. St.	0.3	Greenway Plan (Off-Road)	\$23,150
	62	62	Proposed Greenway	Proposed Greenway 60	Proposed Greenway 60	0.4	Greenway Plan (Off-Road)	\$33,400
	63	63	State Hwy 66/Veterans Pkwy.	St. Hwy. 160	U.S. Hwy. 11E.	1.5	Proposed Bike Route/Lane	\$18,400
	64	64	Proposed Bike Route/Lane	State Hwy. 66	St. Hwy. 160	0.6	Planned Bike Route	\$7,100
	65	65	Lincoln Ave.	St. Hwy. 66	Sulphur Springs Rd.	0.6	Proposed Bike Route/Lane	\$7,100
	66	66	Sulphur Springs Rd.	W. Main St.	Lincoln Ave.	0.7	Proposed Bike Route/Lane	\$8,400
	67	67	Louise Ave.	Sulphur Springs Rd.	Montvue Ave.	0.4	Proposed Bike Route/Lane	\$5,000
	68	68	Montvue Ave.	E. Main St.	Algonquin Dr.	0.8	Proposed Bike Route/Lane	\$9,600
	69	69	Lincoln Ave./Algonquin/ Joe Hall	S. Jackson St.	US Hwy. 25E.	1.7	Proposed Bike Route/Lane	\$20,900
	70	70	Collegewood Dr.	Joe Hall Rd.	Pritchard Dr.	0.2	Proposed Bike Route/Lane	\$2,500
	71	71	Main St.	St. Hwy. 66	Jessee Dr.	3.5	Proposed Bike Route/Lane	\$42,600
	72	72	Hale Ave./Redwood St.	Morris Blvd.	Parking Lot	0.8	Planned Bike Route	\$1,200
	73	73	Proposed Bike Route/Lane	Collegewood Dr. (P70)	Hale Ave./Redwood St. (P72)	0.6	Planned Bike Route	\$800
	74	74	Proposed Rd.	Morris Blvd.	Thompson Creek Rd.	0.9	Planned Bike Route	\$1,200
	75	75	Proposed Bike Route/Lane	P76	P74	1.0	Planned Bike Route	\$1,600
	76	76	U.S. Hwy. 11E.	Ridgelawn Ave.	County Boundary	10.6	Planned Bike Route	\$16,800
	77	77	Pope Rd.	U.S. Hwy. 11E. (P76)	Proposed Greenway 78	0.4	Planned Bike Route	\$400
	78	78	Proposed Greenway	Pope Rd. (P77)	Pope Rd. (P77)	1.2	Greenway Plan (Off-Road)	\$95,000
	79	79	Jones Franklin Rd.	E. Morris Blvd. (P80)	E. Hampton Blvd.	1.0	Planned Bike Route	\$1,600

**LAMTPO
Proposed Projects**

	New Project Number	Old Project Number	Facility Name	Terminal From	Terminal To	Length in miles	Facility Type	Total Cost
PHASE 2	80	80	E. Morris Blvd.	U.S. Hwy. 11E.	Shinbone Rd. (P81)	0.1	Proposed Bike Route/Lane	\$1,700
	81	81	Shinbone Rd.	U.S. Hwy. 11E.	I-81	4.6	Planned Bike Route	\$7,200
	82	82	Proposed Greenway	U.S. Hwy. 25E.	Camilla Ave.	3.2	Greenway Plan (Off-Road)	\$250,800
	83	83	Proposed Greenway	Reeds Chapel Rd.	Liberty Hill Rd.	1.4	Greenway Plan (Off-Road)	\$107,900
	84	84	Proposed Greenway	Old Liberty Hill Rd.	Fairview Rd.	1.3	Greenway Plan (Off-Road)	\$103,250
	85	85	Buffalo Trail	Elgerlotte Ln.	Garretson St.	2.2	Planned Bike Route	\$3,200
	86	86	Proposed Bike Route/Lane	Proposed Greenway 60	Proposed Roadway	0.3	Planned Bike Route	\$400
	87	87	Simpson Rd.	U.S. Hwy. 11E.	County Boundary	1.6	Planned Bike Route	\$2,400

Utilized MUTCD Chapter 9 Traffic Control for Bicycle facilities and AASHTO Guide for the Development of Bicycle Facilities:

** Assuming that the facility will be placed on both sides of the roadway.

The exception is shared use paths.

** Utilized the following TDOT Typical Sections in preparing cost estimate for both on and off road facilities: T-M-10; T-M-11; T-M-12; T-M-13; T-M-14

Notes:

The BIKE LANE (R3-17) sign shall be used only in conjunction with marked bicycle lanes and shall be placed at periodic intervals along the bicycle lanes. The BIKE LANE sign spacing should be determined by engineering judgment based on prevailing speeds of bicycle and other traffic, block length, distances from adjacent intersections, and other considerations.

- Signs typically should be placed approximately every 0.25 mile, at every turn in route, and at all signalized intersections.

The SHARED USE PATH RESTRICTION Sign (R9-7) may be installed on facilities that are to be shared by pedestrians and bicyclists. The symbols may be switched as appropriate.

The NO MOTOR VEHICLES sign may be installed at the entrance to a shared-use path.

Bicycle Warning Signs

* Used to warn motorists to watch for bicyclists.

SHARE THE ROAD (W16-1) may be used in conjunction with the W11-1 sign.

BICYCLE ROUTE GUIDE SIGN (D11-1)- Place every 0.25 miles

To be provided at decision points along designated bike routes, including signs to inform bicyclists of bicycle route direction changes and confirmation signs for route direction, distance and designation.

COST ESTIMATE QUANTITIES:

For Planned Bike Routes: Sign Placement (D11-1) every 0.25 miles; Assuming signage in both directions (X2) @ cost for (0.080" flat sheet aluminum signage + assuming pole mounting and hardware)

Item No. 713-11.02 Perforated Knockout Square Tube Post (lb)= 20.42 lbs@ \$5.00 (2007 TDOT Average Unit Prices)= \$102

Item No. 713-1302 Flat Sheet Aluminum signage (0.080") (s.f.)=5 s.f. @ \$19.00 (2007 TDOT Average Unit Prices)=\$95

Use \$200

For Bike Lanes:

Bicycle Lane Markings: Assume 6" wide edge stripe on both sides of roadway;

Item No. 716-02.10 for 6" Plastic Pavement Marking (L.M.) @ \$4000 per L.M.

**** Typical pavement marking for Bicycle Lanes including Directional Arrow and bike symbol (Minimum 1000' intervals)**

For Shared Use Paths (Off-road)

A solid white line may be used on shared use paths to separate different types of users. The R9-7 sign may be used to supplement the solid white line.

- **Signs typically should be placed approximately every 0.25 mile, at every turn in route, and at all signalized intersections.**
- **4" solid white line – Item No. 716-02.01 @\$2500 L.M.**

10 ft asphalt width of shared use path

Use Item No. 411-01.07 Asphalt Mix, Grade E @ \$ 60.00/ton

Assume 2" asphalt @ 226#/s.y.

14 ft width of base stone

Use Item No. 301-01 Mineral Aggregate, Type A, Base D @\$20.00/ton

Assume 4" stone @ 424 #/s.y.