

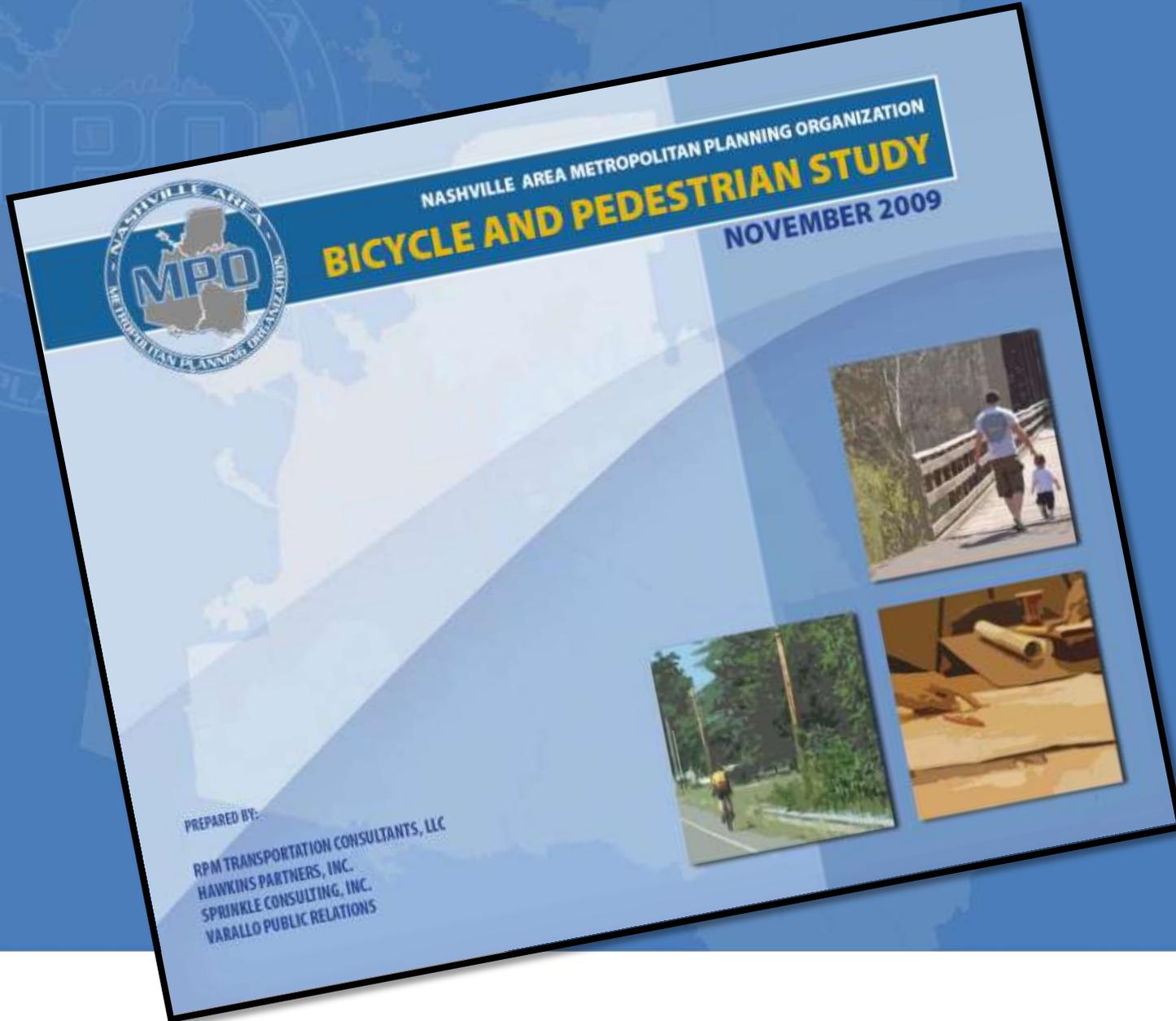
Nashville Area Metropolitan Planning Organization Regional Bicycle and Pedestrian Study

TCC Project Overview

January 2010



Welcome & Introductions



Purpose of Today's Session

- Regional Bicycle & Pedestrian Study - Brief Overview
 - Why a Regional Plan
 - Planning Process
 - Key Tasks & Findings
 - Study Recommendations
- Implementing Strategies & Next Steps - **Lunch Session**
 - Master Planning
 - Land Development Strategies
 - Accommodation Practices
 - Programs
 - Funding



Why a Regional Plan?

To establish a comprehensive vision and strategy for bikeway and pedestrian accommodations that will enable the MPO, its member jurisdictions, and the State to:

- Plan
- Prioritize
- Implement

facilities and programs that enhance mobility through connectivity and accessibility, improved safety, and quality of life.



The Plan is Intended to...

- Feed into the MPO's overall regional transportation plan and provide the basis by which future funding priorities of the MPO are established
- Provide a comprehensive inventory of existing and currently proposed on and off-road bicycle and pedestrian facilities in the greater Nashville region
- Increase the region's understanding of how improving walking and bicycling connectivity increases individual mobility, enhances transit options, and promotes active living



The Plan is Intended to...

- Serve as a framework for identifying and selecting bicycle/pedestrian projects for the region's Long Range Transportation Plan and Transportation Improvement Program
- Provide guidance for engineering, education, enforcement, encouragement, and evaluation activities to help improve the safety of walking and bicycling

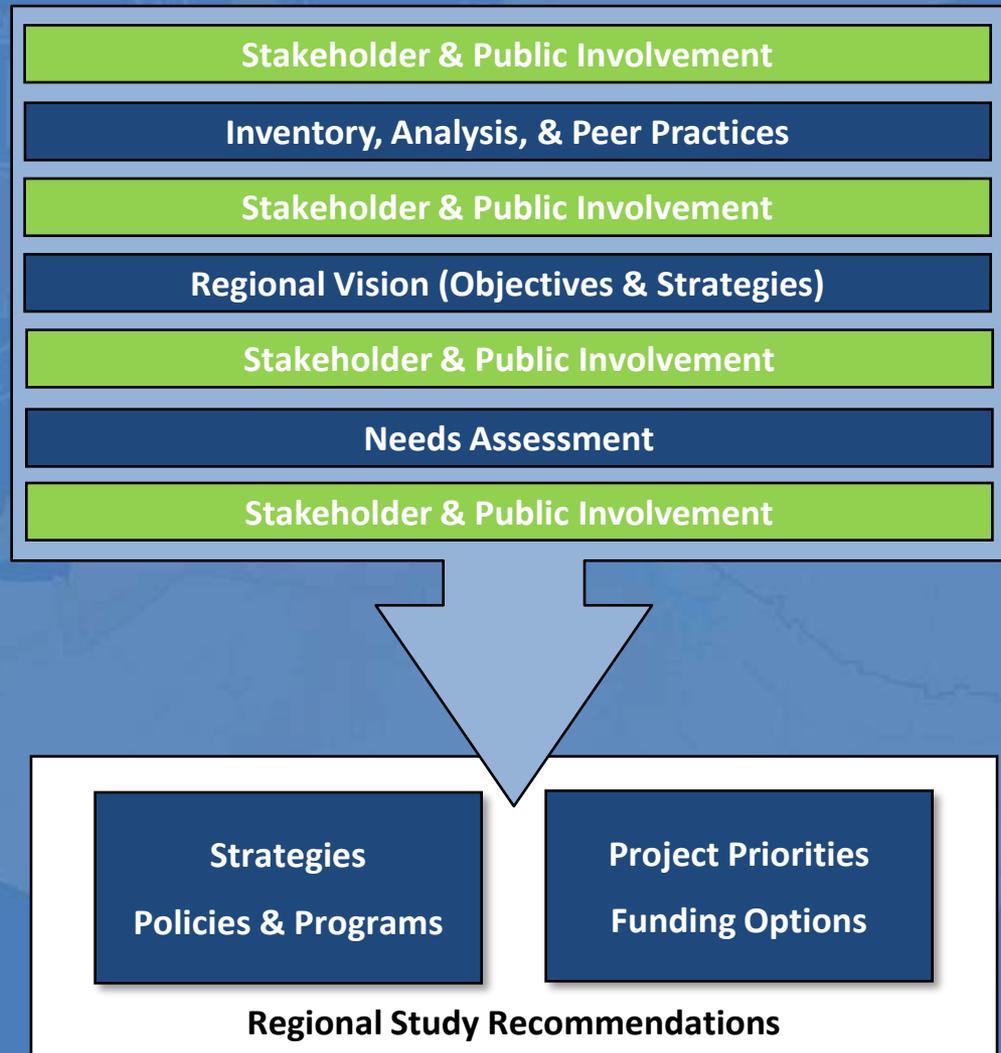


The Planning Process

- Inventory
- Needs Assessment
- Objectives & Strategies
- Count Procedures Manual
- Project Evaluation Methodology
- Implementation & Program Management Strategies
- Final Report



The Planning Process



Stakeholder & Public Outreach

- 23 Member Regional BPAC - 5 Meetings
- County Stakeholder Workshops — 50 Participants
- 2 Rounds of Public Meetings — 400 Participants
- Online Survey — 1,700 Completed
- Local Events — Numerous



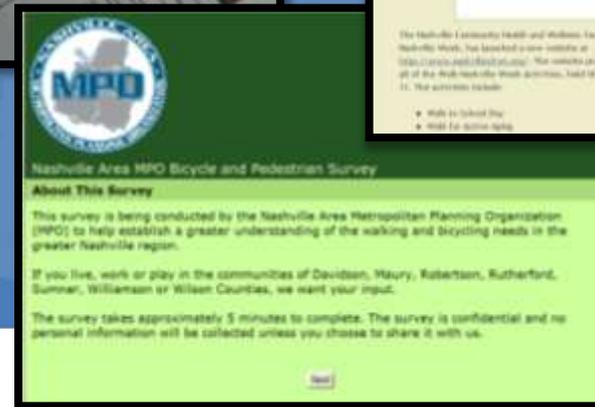
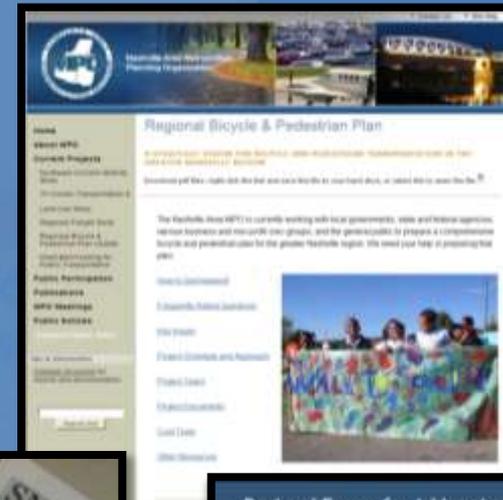
Regional BPAC Membership

- YMCA of Middle Tennessee
- Walk/Bike Nashville
- Vanderbilt University - Community Outreach Partnership Center
- Nashville Striders
- Clean Air Partnership of Middle Tennessee
- Music City Moves
- Cumberland Region Tomorrow
- Metro Transit Authority
- Murfreesboro Bicycle Club
- Harpeth Bicycle Club
- Veloteers Bicycle Club
- Major Momentum Cycling Club
- Hendersonville Greenway Committee
- Johnson Elementary School - Franklin
- Nashville Community Health & Wellness Team
- Metro Nashville Police Department
- Metro Nashville Public Schools
- City of Franklin
- Sumner County
- Metro Nashville Greenways
- The Transportation Management Association Group
- Tennessee Department of Transportation
- Tennessee Department of Environment & Conservation



Stakeholder & Public Outreach

- Website
- Local Newspaper & TV Coverage
- E-Newsletter



What We Heard

Public & Stakeholder Meetings

Obstacles & Challenges

- Accommodation Provisions
 - ❖ Facilities, Design, & Maintenance
- Education, Awareness, & Enforcement
- Vehicular Traffic & Cultural Environment
- Connectivity
 - ❖ Land Use Patterns & Crossing Features
- Funding



What We Heard

Public & Stakeholder Meetings

Potential Solutions

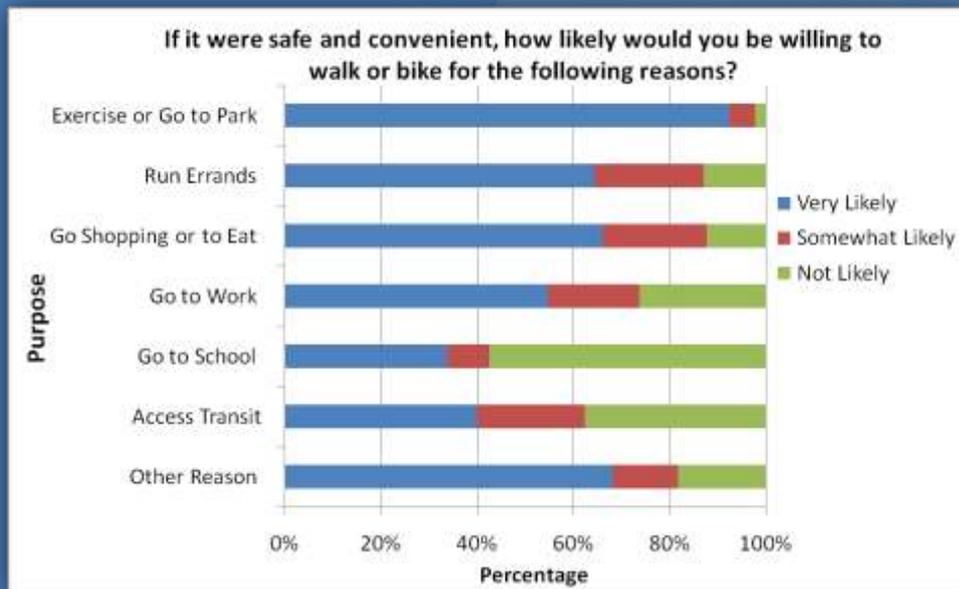
- Facilities
- Connectivity
- Awareness, Support, & Collaboration
- Policies & Programs
- Mapping & Information
- Education & Enforcement



What We Heard

Online Survey

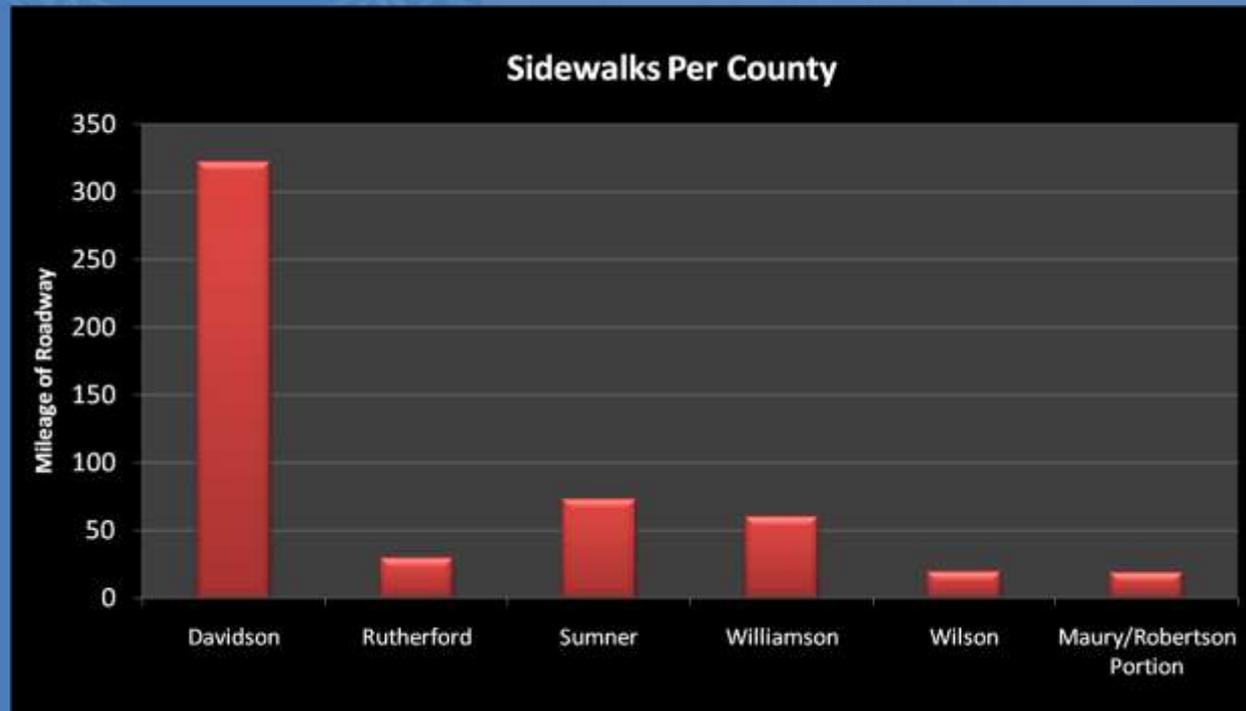
- Nearly 35% walk or bicycle once a week
- Over 25% walk once a week to run errands, shop, or eat
- Over 50% would walk or bicycle to work
- Over 65% would walk or bicycle to run errands, shop, or eat
- Nearly 40% live within 5 miles of their place of employment or school



What We Learned

Inventory

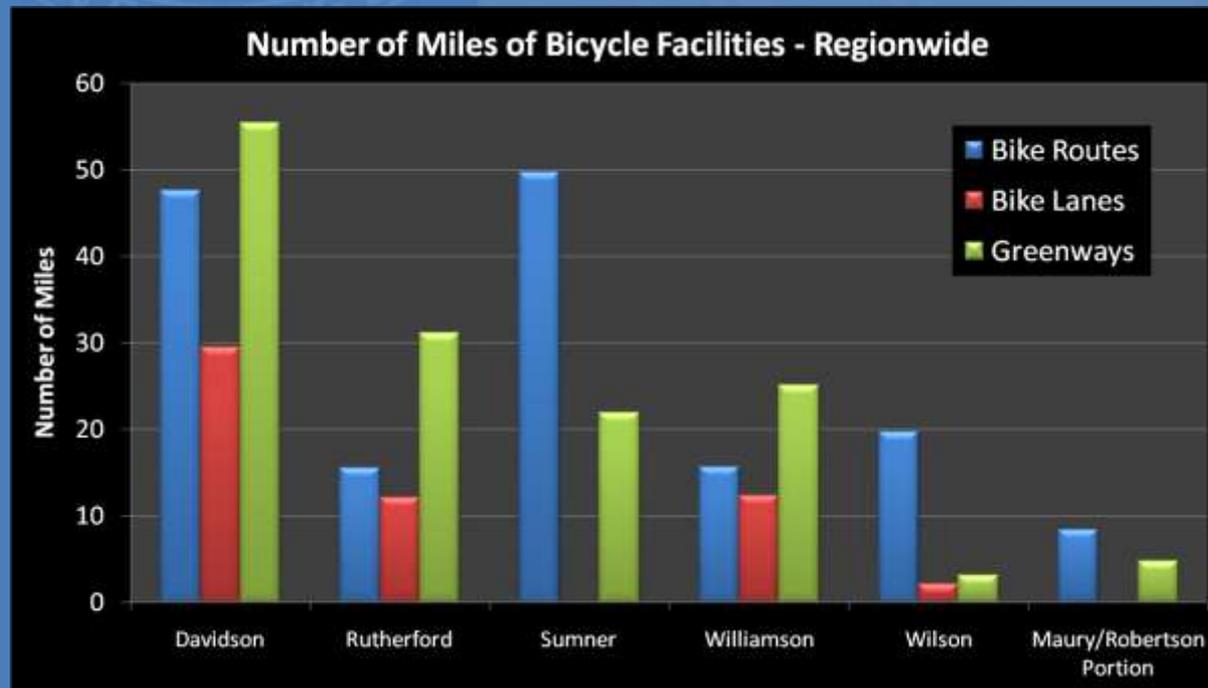
- 521 Miles of Sidewalk on Major Roadways
 - 288 Miles of Arterial Roadways
 - 134 Miles of Collector Roadways
 - 99 Miles of Other Roadways



What We Learned

Inventory

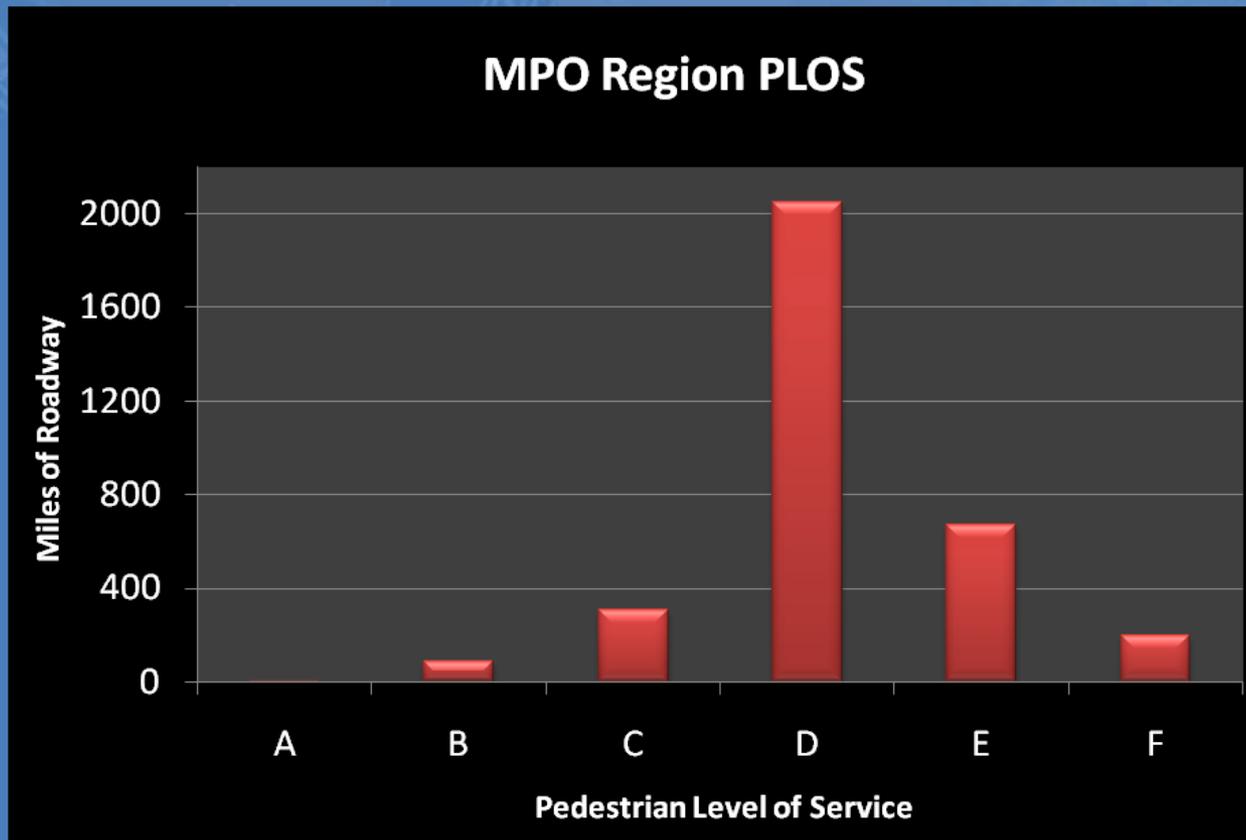
- 354 Miles of Bicycle Facilities
 - 156 Miles of Signed Bike Routes
 - 56 Miles of Bike Lanes
 - 141 Miles of Greenways and Multiuse Paths



What We Learned

Analysis: Level of Service (PLOS)

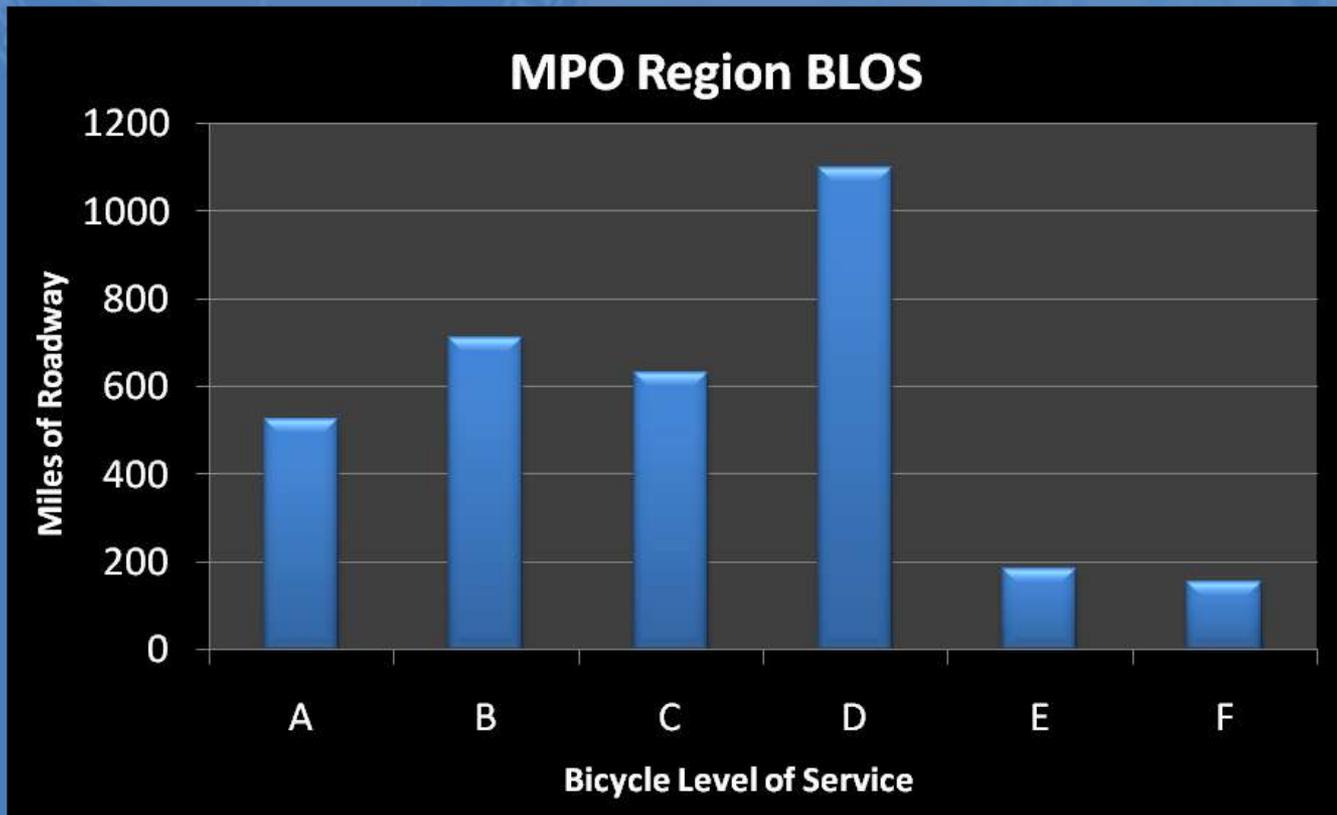
- 395 Miles of PLOS C or Better
- 88% PLOS D or Worse (2,918 miles)



What We Learned

Analysis: Level of Service (BLOS)

- 1,873 Miles of BLOS C or Better
- 43% BLOS D or Worse (1,440 miles)



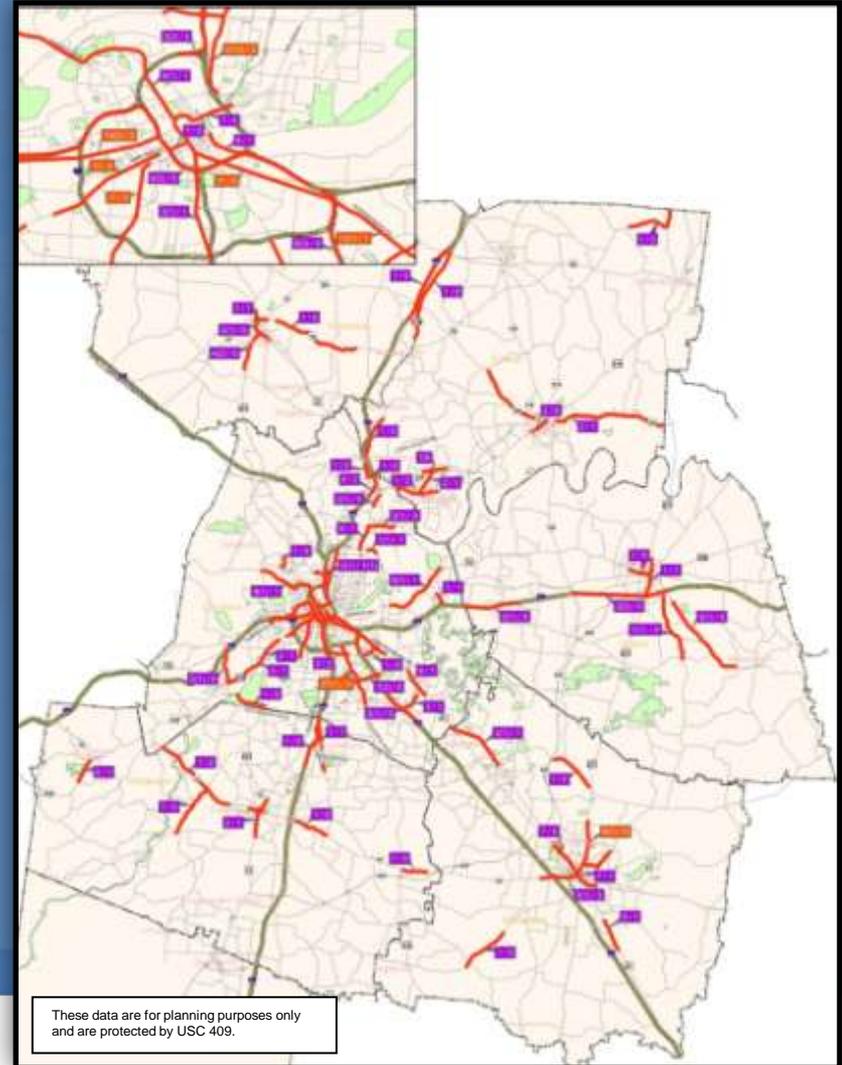
What We Learned

Analysis: Bicycle & Pedestrian Crashes

- 2,076 reported crashes within the MPO between 2003-2007
- 107 resulted in a fatality (99 pedestrian & 8 cyclist)

High Crash Corridors include:

- Nolensville Road
- Dickerson Pike
- Murfreesboro Road
- West End Ave
- Charlotte Ave



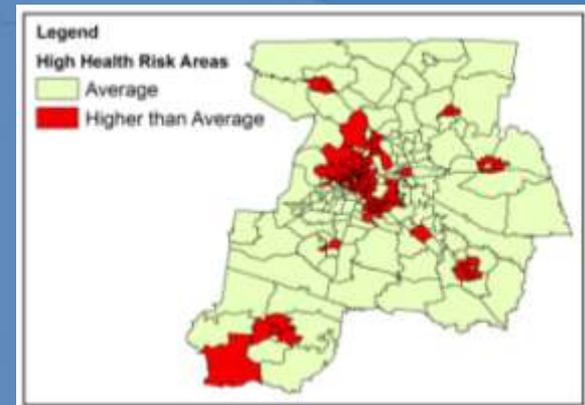
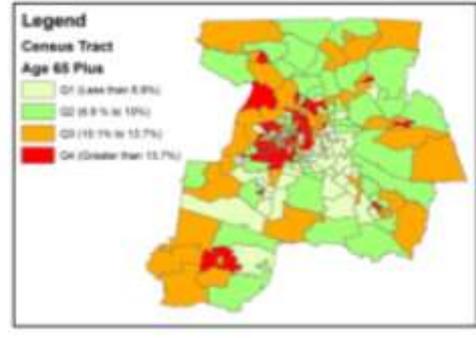
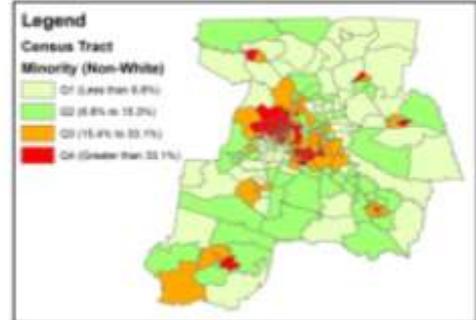
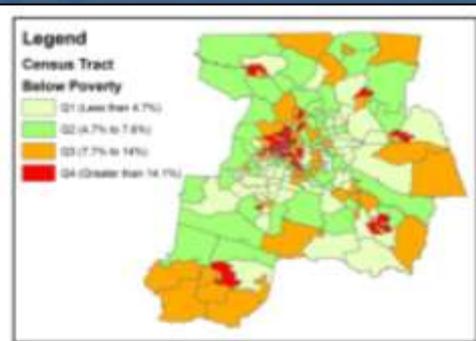
What We Learned

Analysis: Health Impacts

There is a strong link between the lack of physical activity and health (e.g. heart disease, obesity, and other chronic conditions).

Research has also shown certain population groups have a higher disparity. These groups include:

- Low Income
- Minority
- Older Adults (over 65)



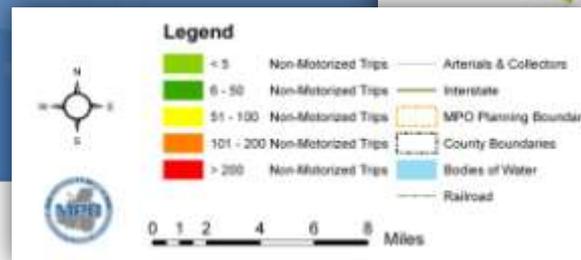
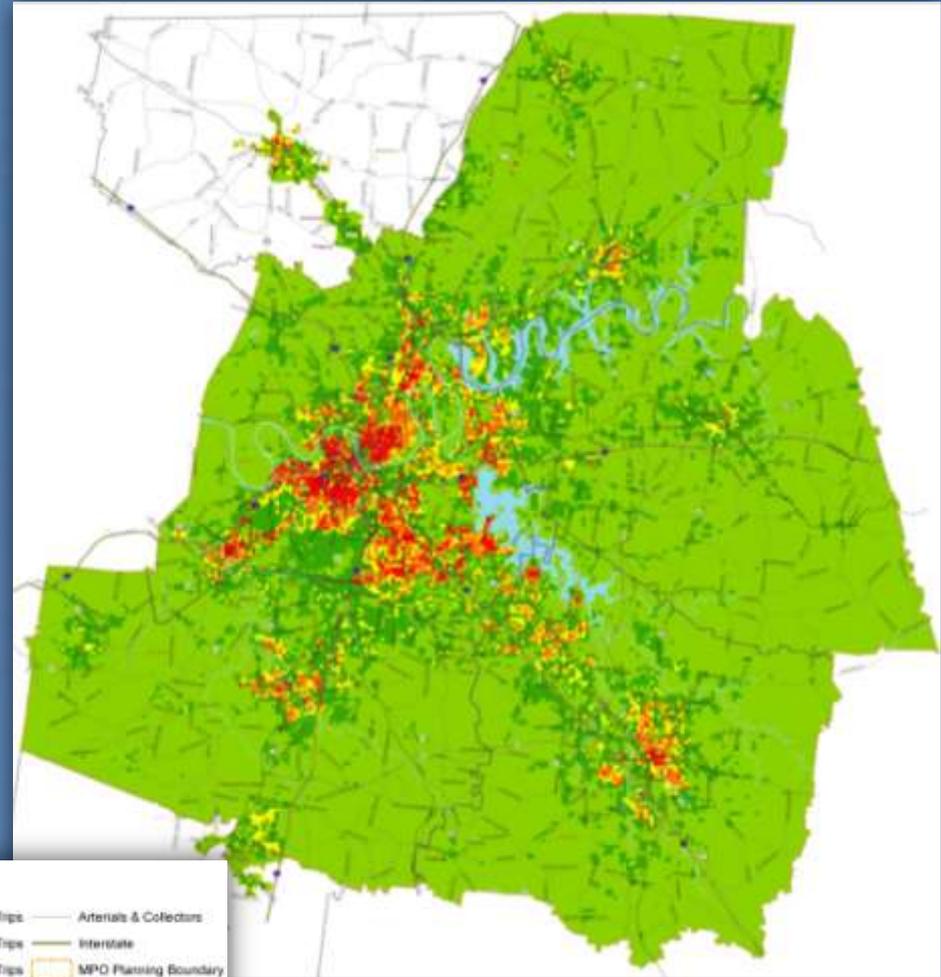
What We Learned

Analysis: Non-Motorized Demand

The proximity of land uses such as residential housing, employment, shopping, schools, transit, parks, and other activities influence walking and bicycle travel demand.

The Nashville Regional Non-Motorized Model accounts for eight trip types for both walk & bicycle travel:

- School
- Work
- Transit (to)
- Errand
- Shop
- Recreation
- Transit (from)
- Parking (CBD)



What We Learned

Regional Bicycle & Pedestrian Count Program

Results

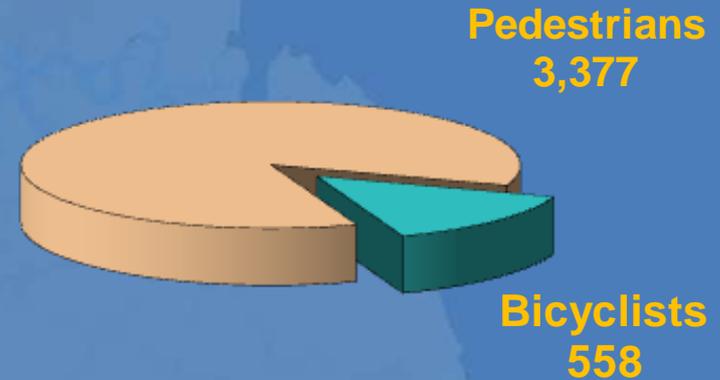
- **23 Locations Counted**
 - 11 Davidson
 - 3 Rutherford, Sumner, Williamson, Wilson
- **Location Types**
 - Intersections
 - Sidewalks/Bike Routes
 - Greenways
- **42 Volunteers**
- **2 Hours AM, 2 Hours PM**



What We Learned

Regional Bicycle & Pedestrian Count Program Results

- Nearly 4,000 people counted
- Greenways = 24%
- 16 Locations > 25 Pedestrians
- 12 Locations > 10 Bicyclists



Intersection	AM Pedestrians	AM Bicyclists	PM Pedestrians	PM Bicyclists
21 st Ave & Blakemore Ave	334	40	385	39
Trailhead behind YMCA on Concord Road	154	22	152	41
Stones River Greenway near Thompson Lane	70	15	53	2

What We Learned

Current Policies & Practices

Land Development Process

- Subdivision & Zoning Regs – All but one municipality requires sidewalks
- Minimum Sidewalk Width - 4 to 5 foot / 2 foot buffer
- “Funds in Lieu of” is a common practice

Master Plans

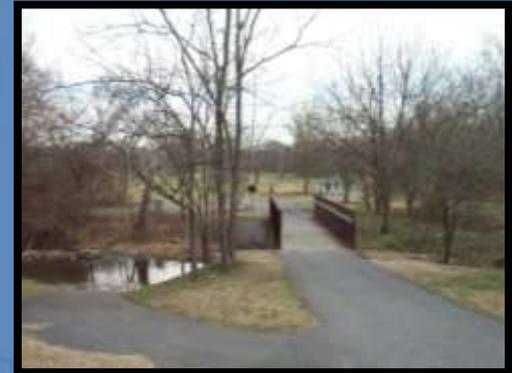
- Greenway Plans, Bicycle & Pedestrian Plans, Streetscape Plans

Accommodation Policies

- TDOT (Internal Policy)

Programs

- Safe Route to School



What We Learned

Peer Practices

- **Policies:** Accommodations
- **Programs:** Education & Awareness
- **Design:** Guidelines
- **Funding:** Dedicated Sources
- **Planning Practices:** Considerations

Peer Communities

- Charlotte, NC
- Chattanooga, TN
- Chicago, IL
- Denver, Co
- Louisville, KY
- Phoenix, AZ



Study Recommendations



Study Recommendations

Key Highlights

- ✓ Regional Sidewalk & Bikeway Recommendations
- ✓ Project Evaluation System
- ✓ Policies & Programs
- ✓ Funding for Sidewalk and Bikeway Improvements
- ✓ Design Guidelines



Sidewalk & Bikeway Recommendations

Key Highlights

- ✓ Regional Sidewalk Accommodations
- ✓ Regional Bikeway Network

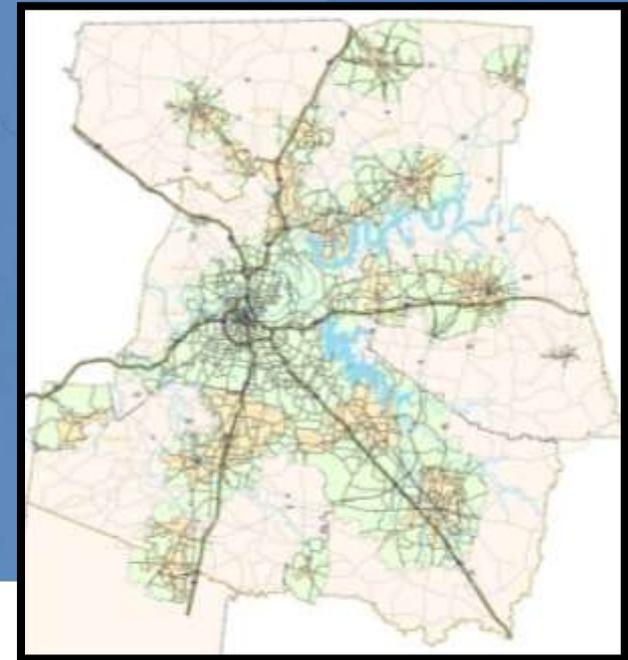


Regional Sidewalk Accommodations

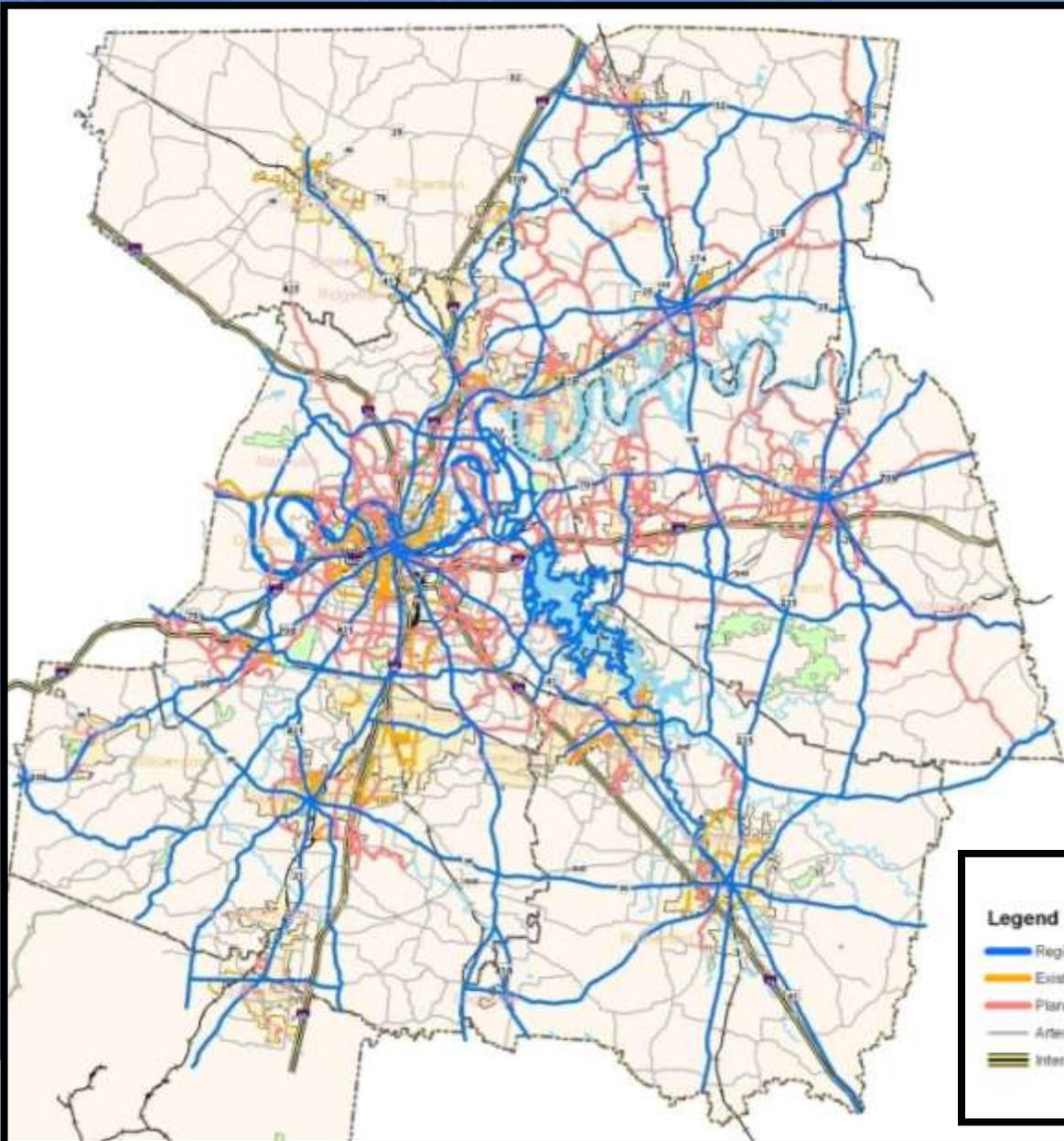
Key Highlights

- ✓ Arterial Roadways Throughout the Region
- ✓ Linked to Urban Growth Boundary of MPO Region

County	Existing Sidewalks (Miles)	New Sidewalks (Miles)	Total Sidewalk System	Percent Sidewalks Built
Davidson	167	223	390	43%
Rutherford	31	110	141	22%
Sumner/Robertson	16	162	178	9%
Williamson/Maury	30	88	118	25%
Wilson	8	79	87	9%
Total	252	662	914	28%



Regional Bikeway Network



Key Highlights

- ✓ Accommodations Along Major Commuting Corridors
- ✓ Consists Largely of On-Street Facilities
- ✓ A Total of 1,127 Miles

Legend

Regional Bicycle Network	Parks
Existing Local Bicycle Facility	County Boundaries
Planned Local Bicycle Facility	Bodies of Water
Arterials & Collectors	Railroad
Interstate	MPO Planning Boundary
	City Limits

Regional Bikeway Network

Key Highlights

- ✓ 1,127 Miles of On- and Off-Road Accommodations
- ✓ 160 Miles Currently Exist
- ✓ 284 Miles With 4 Foot of Paved Shoulder (Currently)

County	Existing Facilities		Proposed Facilities			Total Bicycle Network (Miles)
	On-Street (Signed)	Off-Street (Greenway)	On-Street > 4 Ft PS (Sign)	On-Street < 4 Ft PS (Pave & Sign)	Off-Street (Greenway)	
Davidson	15	25	62	136	174	412
Rutherford	11	5	90	56	16	178
Sumner/Robertson	58	0	62	86	0	206
Williamson/Maury	24	0	31	122	0	177
Wilson	22	0	39	93	0	154
Regional Total	130	30	284	493	190	1,127

Project Evaluation System

Key Highlights

- ✓ Creates a Process & Structure
- ✓ Data Driven
- ✓ Linked to Planning Process
- ✓ Flexible



Project Evaluation System

County	Connectivity	Safety	Access "Demand"	Address Congestion	Cost	Community Goals	Health
Davidson	52	40	34	15	6	5	15
Williamson	30	20	25	6	4	9	6
Rutherford	21	12	7	3	10	8	3
Wilson	25	6	8	0	2	2	2
Sumner	20	13	14	1	4	10	4
BPAC	17	10	16	3	5	4	9
Public Total	148	91	88	25	26	34	30
Grand Total	165	101	104	28	31	38	39

County	Connectivity	Safety	Access "Demand"	Address Congestion	Cost	Community Goals	Health
Davidson	31%	24%	20%	9%	4%	3%	9%
Williamson	30%	20%	25%	6%	4%	9%	6%
Rutherford	33%	19%	11%	5%	16%	13%	5%
Wilson	56%	13%	18%	0%	4%	4%	4%
Sumner	30%	20%	21%	2%	6%	15%	6%
BPAC	27%	16%	25%	5%	8%	6%	14%
Public	33%	21%	20%	6%	6%	8%	7%
Total	33%	20%	21%	6%	6%	8%	8%



Policies & Programs

Key Highlights

- ✓ Focused Around the Four Strategic Objectives:
 - Provide Facilities
 - Build Support
 - Create Policies & Programs
 - Increase Awareness



Policies & Programs

Key Highlights

- ✓ Regional Bikeway Network
- ✓ Regional Sidewalk Accommodations Policy
- ✓ Maintenance & Spot Improvement Program
- ✓ School Siting Policy
- ✓ Website & Maps
- ✓ Annual Regional Summit on Walking & Biking
- ✓ Annual Bicycle and Pedestrian Count Program
- ✓ Complete Streets Policy
- ✓ Outreach, Training, & Enforcement Programs



Funding

Key Highlights

- ✓ Recommended Funding Level
- ✓ Funding Toolbox



Funding

Key Highlights

- ✓ Review of Historic Funding Levels for Sidewalk & Bikeway Improvements in the MPO Area
 - \$14.37 Million Annual Average
 - 81 Percent Discretionary
 - 84 Percent Toward Greenways

Funding Program	Source	Amount	Percent
Surface Transportation Program (STP) Funds	Federal	\$ 2,242,481	3%
Congestion Mitigation & Air Quality (CMAQ) Funds	Federal	\$10,693,005	12%
Transportation Enhancement (TE) Funds	Federal	\$14,713,016	17%
High Priority Project (HPP) Funds	Federal	\$53,550,054	62%
Demonstration (DEMO) Funds	Federal	\$ 1,657,614	2%
Transportation, Community, & System Preservation (TCSP) Funds	Federal	\$ 250,000	0.3%
American Recovery & Reinvestment Act (ARRA) Funds	Federal	\$ 3,124,724	4%
	Total	\$86,230,894	100%

Funding

Key Highlights

- ✓ Recommendations Cost
- ✓ Funding Gap & Recommended Funding Level

Funding Level	Annually	25 Year Horizon	Study Recommendations	Funding Gap
Current	\$14.37 Million	\$359 Million	\$793 Million	\$433 Million
2.21 Times Current Level	\$31.70 Million	\$793 Million	\$793 Million	-

- \$149 Million – Sidewalk Recommendations
- \$644 Million – Bikeway Recommendations

Funding

Key Highlights

✓ Funding Toolbox

- 33 Different Funding Programs
- 21 Federal Programs
- 5 State & Local Sources
- 7 Private Sources



Design Manual

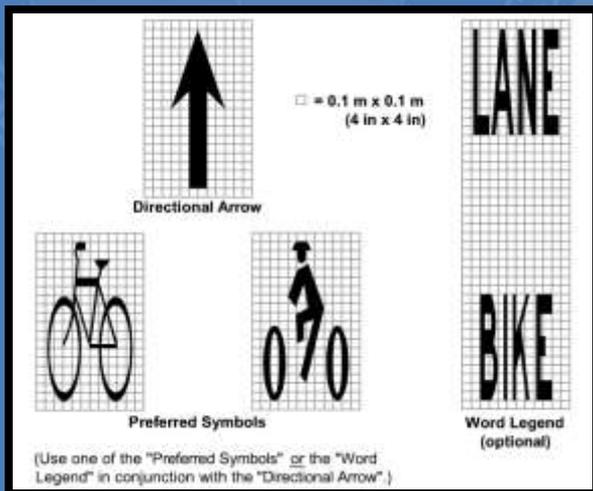
Key Highlights

- ✓ Pedestrian Design Standards
- ✓ Bicycle Design Standards
- ✓ Examples of Current Practices & Innovative Designs
- ✓ Design Solutions for Retrofitting

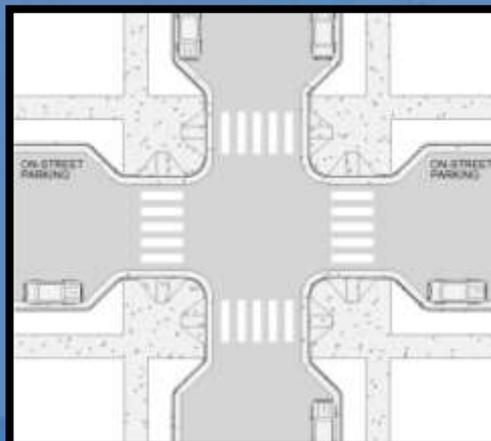
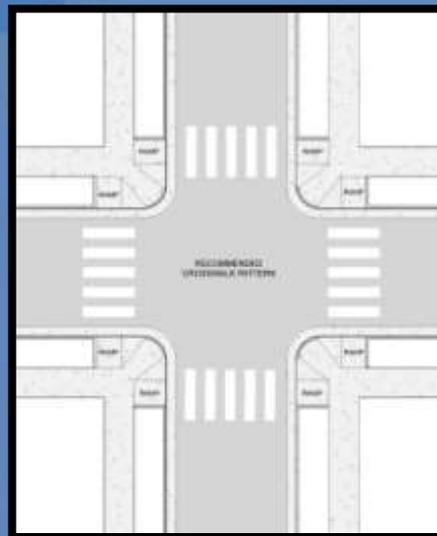


Design Manual

- Bike Lane Markings & Signs



- Sidewalk Ramps
- Crosswalks



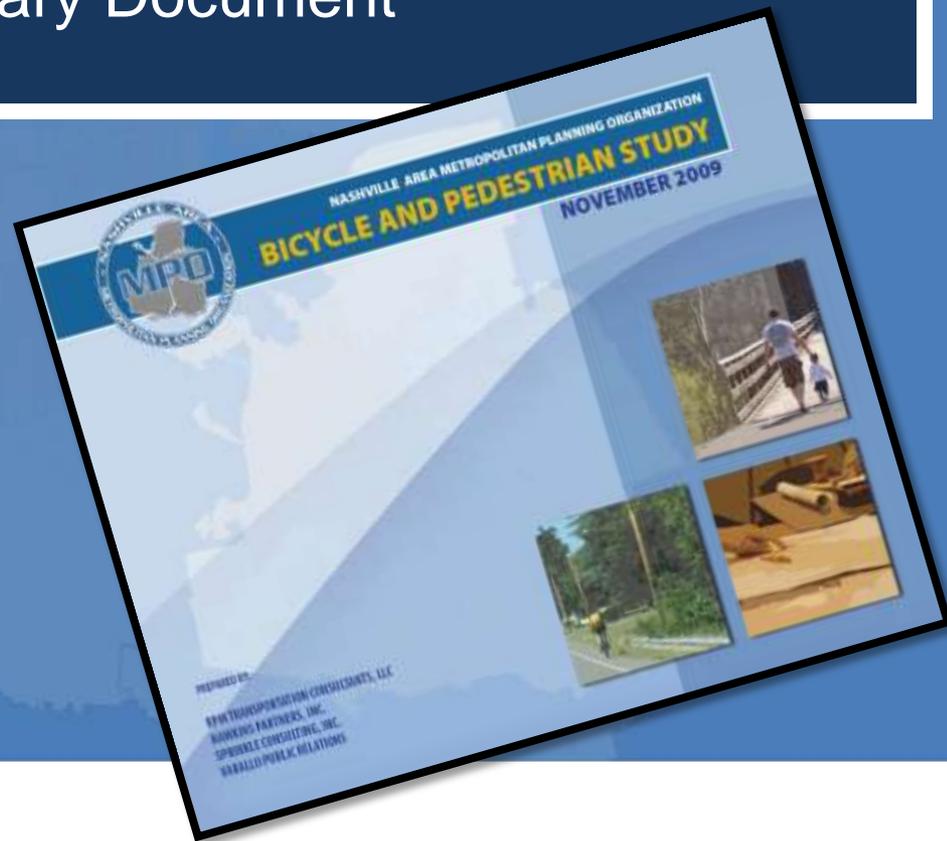
- Countdown Signals
- Animated Eye Signals



Regional Bicycle & Pedestrian Study

Pulling It All Together

- ✓ Nine Technical Memorandums
- ✓ Stand-Alone Summary Document



Implementation Strategies & Next Steps

Lunch Session



Implementation Strategies

- **Master Planning**
- **Land Development Strategies**
- **Accommodation Practices**
 - **Routine Accommodation Policies**
 - **Complete Streets**
 - **Road Diets**
 - **School Siting**
- **Programs**
- **Funding**



Implementation Strategies

Master Planning

Types

- Bicycle & Pedestrian Plans
- Greenway Plans
- Streetscape Plans

Formats

- Plan Document
- Map
- Part of Other Plans

MPO Jurisdiction	Bicycle & Pedestrian Master Plan	Greenway Master Plan
Davidson County	Plan	Plan
Williamson County	No	No
City of Brentwood	Plan	Plan
City of Franklin	Plan	Plan
City of Fairview	No	No
Town of Nolensville	No	No
City of Spring Hill*	No	No
Rutherford County	No	No
City of Murfreesboro	Plan	Map
City of Smyrna	Map	Map
City of LaVergne	Plan	Plan
Wilson County	Plan	Plan
City of Mt. Juliet	Plan	Plan
City of Lebanon	Plan	Plan
Sumner County	Plan	Plan
City of Hendersonville	Plan	Plan
City of Gallatin	Plan	Plan
City of Goodlettsville*	No	Plan
City of Portland	Map	Map
City of White House*	No	Map
City of Millersville	No	No
City of Springfield	No	No

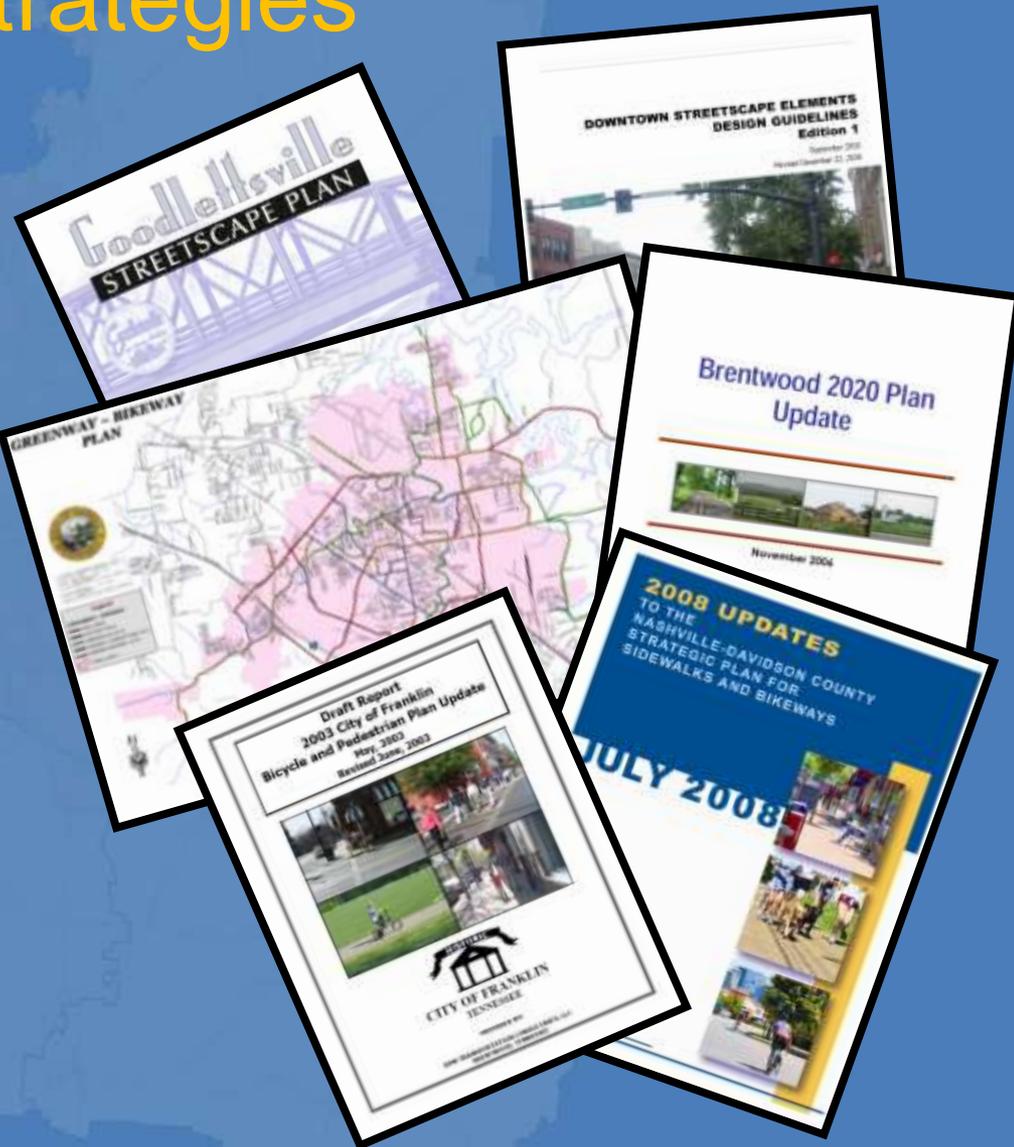
* Municipality in Multiple Counties

Implementation Strategies

Master Planning

Typical Elements

- Inventory
- Analysis
- Recommendations
- Standards
- Costs



Implementation Strategies

Land Development Strategies

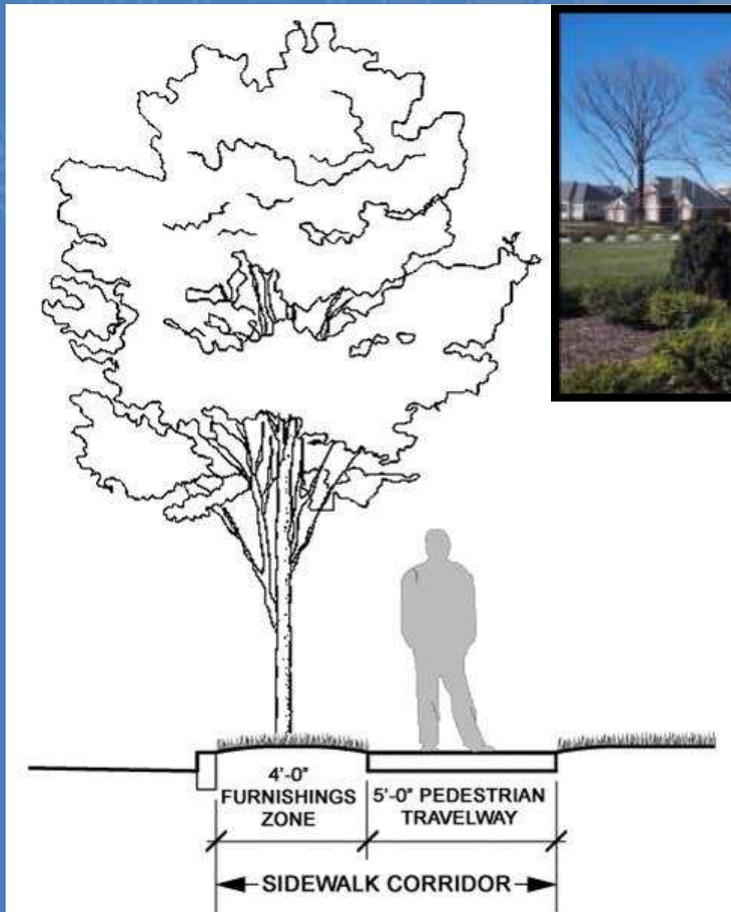
Types

- Subdivision Regulations
- Zoning Regulations
- Overlay Districts
- Comprehensive Plans
- Land Use Plans, Subarea Plans
- Review Process
- School Siting Policies
- Street Design Guidelines



Implementation Strategies

Sidewalk Requirements



Local Road

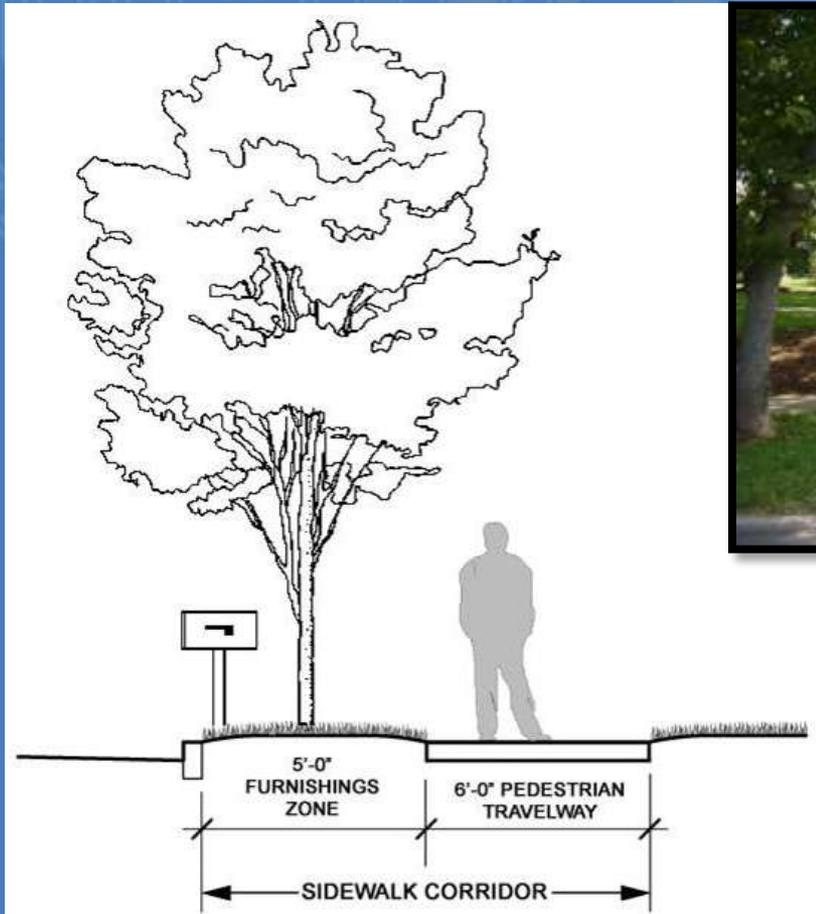


MPO Jurisdiction	Sidewalk Standard (Dimension/Buffer)
Davidson County	5' / 4'
Williamson County	-
City of Brentwood	5' to 6' / Varies 3'
City of Franklin	5' / Varies
City of Fairview	5' to 6' / 5'
Town of Nolensville	5' (Varies) / Varies
City of Spring Hill*	4' to 6' / Varies
Rutherford County	-
City of Murfreesboro	5' / Varies
City of Smyrna	5' to 6' / 2'
City of LaVergne	5' to 6' / Up to 4'
Wilson County	4' to 10'
City of Mt. Juliet	4' to 6' / 2'
City of Lebanon	4' to 5' / 6'
Sumner County	4' to 6' / 2'
City of Hendersonville	5' to 6' / 5'
City of Gallatin	5' to 6' / 5'
City of Goodlettsville*	5' / 2'
City of Portland	5' to 6' / 5'
City of White House*	5' to 6' / 2'
City of Millersville	4' to 5' / 2'
City of Springfield	4' to 5' / 2'

* Municipality in Multiple Counties

Implementation Strategies

Sidewalk Requirements

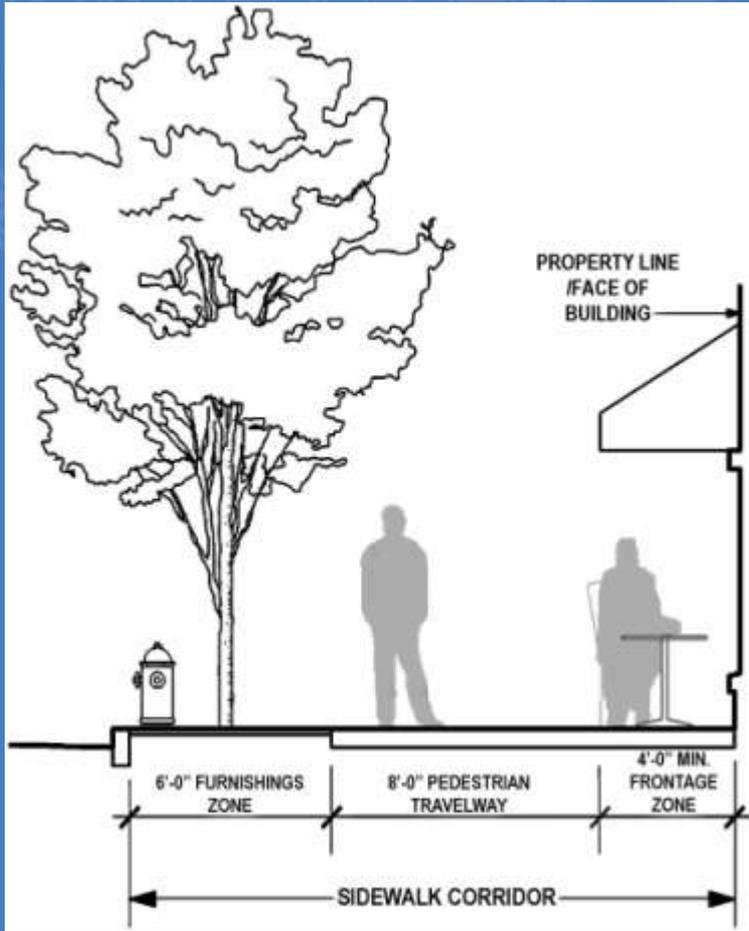


Sidewalks shall be required along both sides of all streets identified as collector or arterial streets in the Major Thoroughfare Plan – City of Murfreesboro

Collector Road

Implementation Strategies

Sidewalk Requirements



Arterial Road

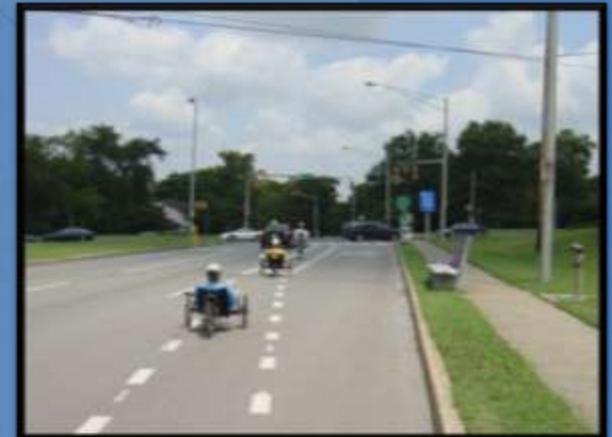


Implementation Strategies

Bicycle Requirements

- **Facilities**

Streets and highways designated as bike routes by the city shall be appropriately marked and signed by the developer of the subdivision. Design and construction of off-street bikeways shall be in accordance with the alignment and classification denoted on the bike route plan, and standards set forth in the AASHTO Guide for the Development of Bicycle Facilities – City of Brentwood



Implementation Strategies

Bicycle Requirements

- Parking

Cities with Bike Parking Provisions

- Brentwood, Mt. Juliet, Gallatin, Spring Hill, and Franklin
- Provisions are either as a parking bonus and/or associated with an overlay district or traditional neighborhood design

Developments with surface parking areas with 50 or more spaces shall provide bicycle parking facilities – City of Franklin



Implementation Strategies

Other Provisions

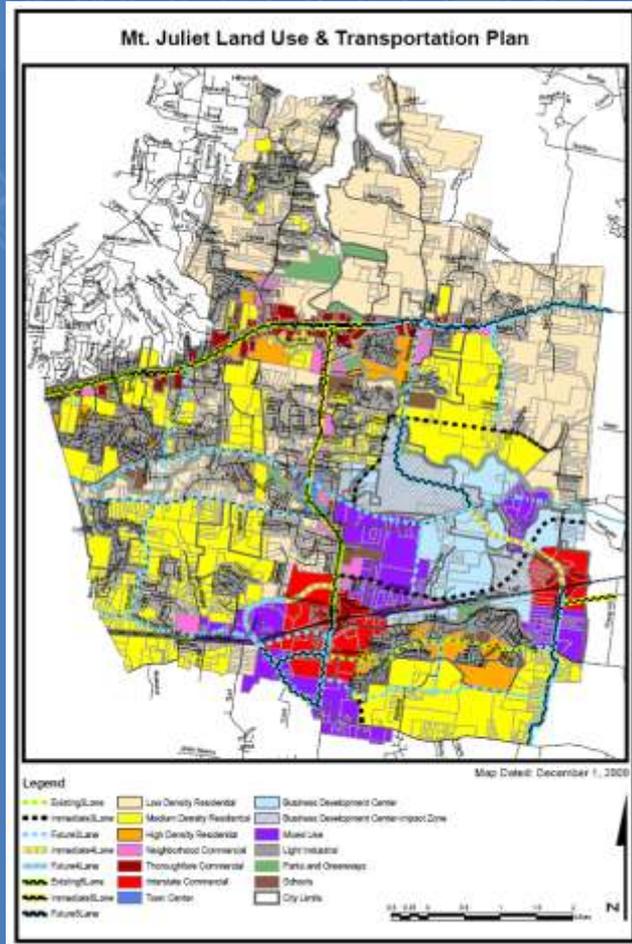
- Greenway and Open Space
- Connections
- Transit
- Other Amenities

There shall be a requirement to dedicate right-of-way for the development of greenways, bike paths, or urban trails when a development occurs along or on an area which has been indicated in the approved Greenways Plan for a future greenway, bike path, or urban trail – Town of Smyrna



Implementation Strategies

Land Use Policies



Prior to
Providence
Development



Today



Implementation Strategies

Land Use Policy & Site Design

Prior to Hill Center at
Green Hills



Today

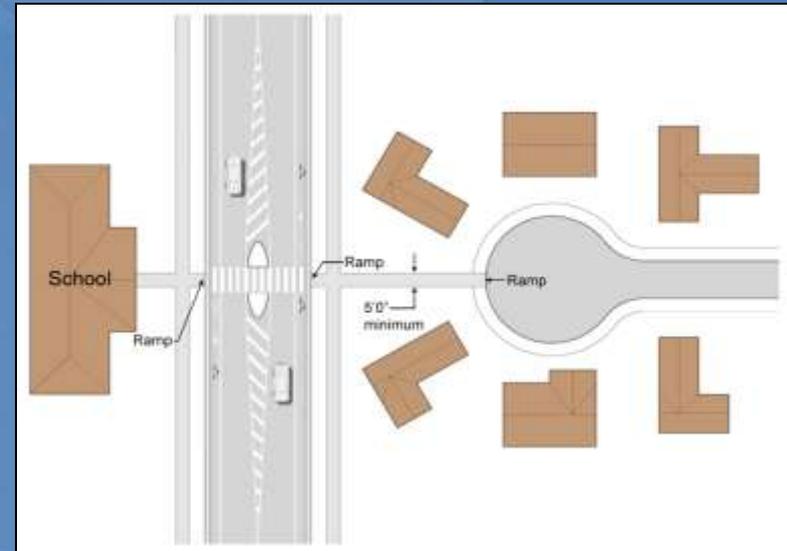


Implementation Strategies

Connections



The Planning Commission may require, in order to facilitate pedestrian access from the roads to schools, parks, playgrounds, or other nearby roads, perpetual unobstructed easements at least twenty (20) feet in width – Sumner County



Implementation Strategies

Accommodation Practices

- Routine Accommodation Policies
- Complete Streets Policies
- Road Diets
- School Siting



Implementation Strategies

Routine Accommodations Policies

National Level

Bicycle transportation facilities and pedestrian walkways shall be considered, where appropriate, in conjunction with all new construction and reconstruction of transportation facilities, except where bicycle and pedestrian use are not permitted - TEA-21 (1998)



Policy Statement on Accommodating Bicyclists and Pedestrians in Transportation Projects – USDOT (2000)

Bicycling and walking facilities will be incorporated into all transportation projects unless exceptional circumstances exist:

- Prohibited by Law
- Cost (>20%)
- Sparsity of Population/Absence of Need



Implementation Strategies

Routine Accommodations Policies

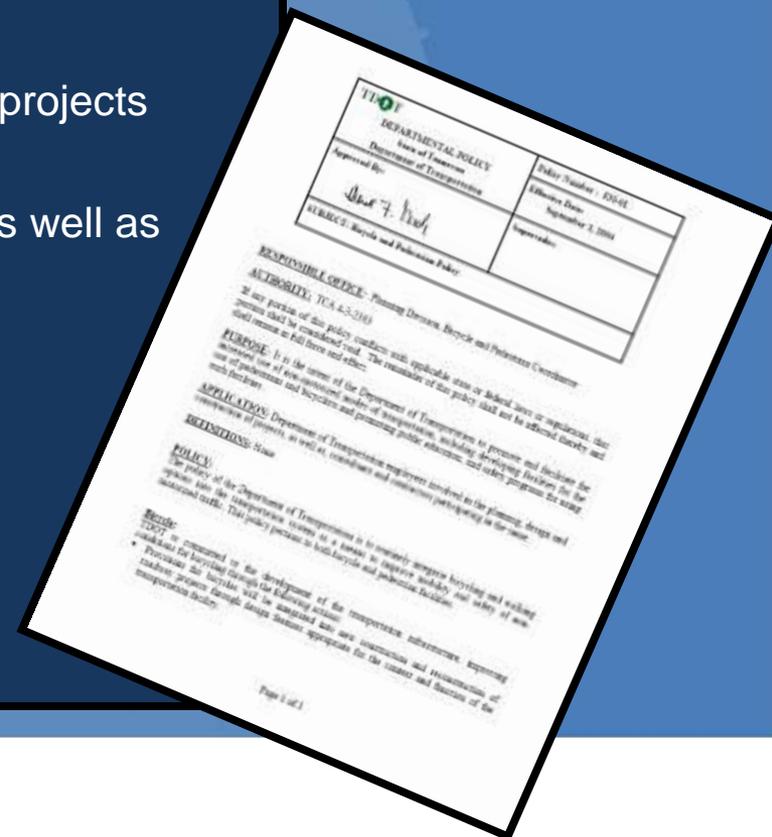
State Level

TDOT will routinely integrate bicycling and walking options into the transportation system as a means to improve mobility and safety of non-motorized traffic.

- New construction and reconstruction of roadway projects
- Facilities should anticipate likely future demand
- Address the need for cyclists to cross corridors as well as travel along them

Exceptions

- Prohibited by Law
- Cost (>20%)
- Sparsity of Population/Absence of Need
- Certain Bridge Funded Improvements
- Conflicts with Local Plans



Implementation Strategies

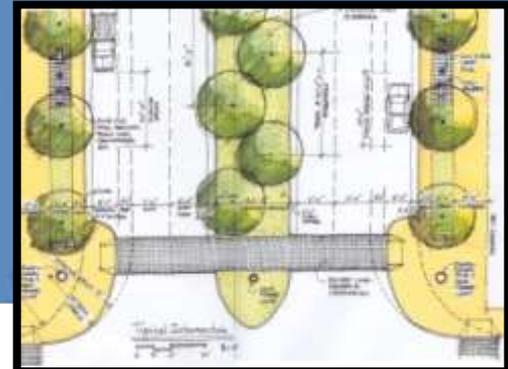
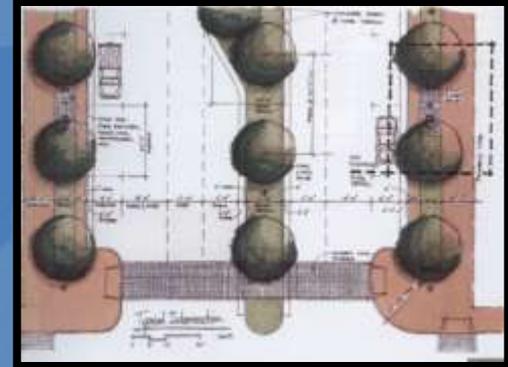
Complete Streets



Gateway Blvd

Implementation Strategies

Complete Streets - Gateway Blvd



Implementation Strategies

Complete Streets – Gateway Blvd



Implementation Strategies

Road Diet

Belmont Blvd

Prior

- 3 Lane Roadway (47-50 feet)
- 13,000 ADT

Today

- 2 Lane Roadway
- 5-foot Bike Lanes
- 8-foot On-street Parking



Implementation Strategies

Road Diet

Hillsboro Circle

Prior

- 4 Lane Roadway (44 feet)
- 13,000 ADT

Today

- 3 Lane Roadway
- 14-foot Wide Outside Lane
- Signed Bike Route



Implementation Strategies

Road Diet

Hillsboro Circle

Prior

- 4 Lane Roadway (44 feet)
- 13,000 ADT

Today

- 3 Lane Roadway
- 14-foot Wide Outside Lane
- Signed Bike Route



Implementation Strategies

School Siting

Impacts

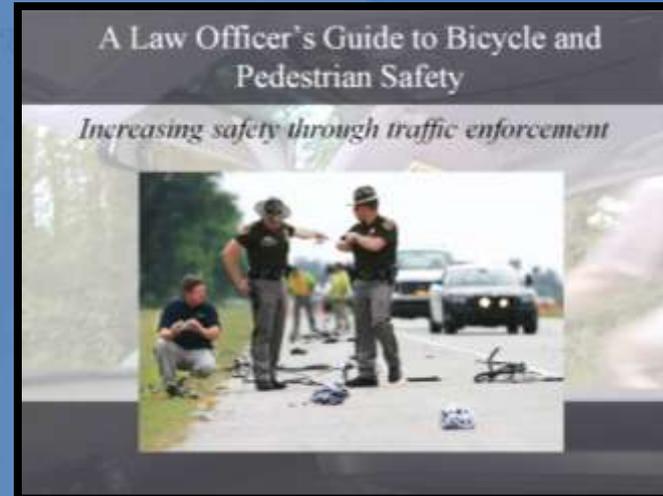
- Transportation Choices
- Transportation Costs
- Walking & Biking Opportunities
- Infrastructure & Resource Needs



Implementation Strategies

Programs

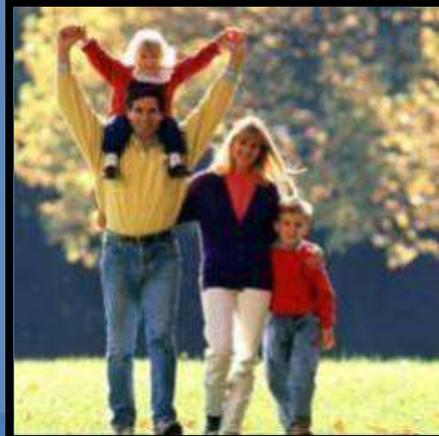
- Safe Routes to School
- Bicycle Street Smarts
- Law Enforcement Training



Implementation Strategies

Funding

- Traditional
- Non-Traditional
- TDOT





Thank You