GREENPRINT

2015/2040

CONNECTING COMMUNITIES FOR OUR FUTURE

Consortium Members

The Mid-South Regional Greenprint and Sustainability Plan was made possible through the financial support of the U.S. Department of Housing and Urban Development. The Consortium that developed the plan is comprised of representatives from each of the three states (Tennessee, Mississippi and Arkansas) and all counties within the Memphis and West Memphis Metropolitan Planning Organization regions. The following individuals and organizations were essential to the creation of this plan:

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City of Hernando, Mississippi
City of Lakeland, Tennessee
City of Marion, Arkansas
City of Memphis, Tennessee
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Clean Fuels of West Tennessee
Clean Memphis
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Community L.I.F.T.
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Crittenden Regional Hospital
Crosstown, LLC and Crosstown Arts
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Friends for Our Riverfront
Greater Memphis Greenline
GrowMemphis
Harahan Bridge Project
Healthy Lifestyle Alliance
Hyde Family Foundations
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Memphis Area Association of REALTORS
Memphis Area Transit Authority
Memphis Bioworks Foundation
Memphis Botanic Gardens
Memphis Center for Independent Living
Memphis Friendship Foundation
Memphis Regional Design Center
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Mid-South Peace and Justice Center
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Oasis of Hope
Overton Park Conservancy
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Raleigh Community Development Corporation
Ritchie Smith and Associates
Riverview Kansas Community Development Corporation
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Shelby County Historical Commission
Shelby County Schools
Shelby County, Tennessee
Shelby Farms Park Conservancy
Sierra Club
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SOLIDS, Inc.
Strawberry Plains Audubon Center
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Town of Collierville, Tennessee
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U.S. Green Building Council, Memphis
University Neighborhoods Development Corporation
University of Memphis
Urban Land Institute, Memphis
Victorian Village Community Development Corporation
Vollintine Evergreen Community Association
West Tennessee Urban Forestry Council
Wolf River Conservancy
YMCA of Memphis and the Mid-South

Bold text denotes member organization was lead recipient or subrecipient of Subplanning Award

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Foreward by Mayor Mark H. Luttrell, Jr.

I have often said one of the things about the *Sustainable Shelby Implementation Plan* that impressed me most is that 130 individuals from across Shelby County came together to develop a vision for a sustainable future. This dedication and commitment to improve communities, environmental stewardship, and civic engagement is valuable currency for moving our county forward. When the work of the Mid-South Regional Greenprint initiative began, my hope was to see this level of dedication and commitment continue and stretch across our tri-state region. It did.

Over 300 of our region's residents, representing 82 organizations, came together to form the Mid-South Regional Greenprint Consortium to develop *GREENPRINT 2015/2040*. This was no light task. Consortium members met month after month in working group meetings, consortium meetings, and executive committee meetings to build this vision for our region's future piece by piece. Representatives from the cities and counties of Tennessee, Arkansas, and Mississippi worked hand-in-hand with individuals from nonprofit organizations, businesses, educational institutions, and philanthropic organizations for over two years to create a long-term plan for connecting our region for a brighter, more sustainable future. And even more of you – over 3,000 residents from the region – shared your thoughts, priorities, and values during the public engagement process.

The result is contained in the following pages. Among the top recommendations: connecting Shelby County, Fayette County, Crittenden County, and DeSoto County with a network of nearly 500 miles of greenway trails and 200 miles of on-road pedestrian and bicycle connections. Once implemented, this network of green space will be a world class amenity for our region. But the network is not just designed and planned to bring recreational benefits to our region. The proposed network imagines so much more for the Mid-South Region:

- to establish or re-establish critical environmental connections between major open spaces like Meeman-Shelby Forest State Park, Shelby Farms Park, T.O. Fuller Park, the Mississippi River, and Arkabutla Lake
- to improve the quality of our environment, such as cleaner air and water
- to better connect neighborhoods to parks and greenways and commercial and town centers
- to enhance transportation options to help our residents better move around the region and connect to jobs
- to make a difference in improving the health of our citizens
- to set a standard for citizen participation and ownership in creating strong and safe communities
- and to create opportunities for economic growth and vitality.

All of this is contained in *GREENPRINT 2015/2040*. I am proud of the work done by the thousands of individuals from the region who participated in this process through the consortium or public outreach. Though this planning grant was awarded to Shelby County Government on behalf of the region, this plan and our region's future belongs all of us in the Mid-South.

As you read through the pages and recommendations of *GREENPRINT 2015/2040*, I hope you take inspiration to do your part to help see this plan become a reality for our region. A sustainable future for the Mid-South can be achieved by implementing this plan, but it depends on each of us.

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Executive Summary

Background

GREENPRINT 2015/2040 is the final plan of the Mid-South Regional Greenprint and Sustainability Plan initiative, a process funded by a $2,619,999 Sustainable Communities Regional Planning Grant from the United States Department of Housing and Urban Development (HUD) awarded to Shelby County Government. The 25-year plan is designed to enhance regional sustainability by establishing a unified vision for a region-wide network of green space areas, or Greenprint, which serves to address long-term housing and land use, resource conservation, environmental protection, accessibility, community health and wellness, transportation alternatives, economic development, neighborhood engagement, and social equity in the Greater Memphis Area.

The Greenprint study area includes the Memphis and West Memphis Metropolitan Planning Organizations (MPOs), covering four counties and 18 municipalities located in the states of Tennessee, Arkansas, and Mississippi. The study area boundaries include Shelby County, TN, and the cities of Arlington, Bartlett, Collierville, Germantown, Lakeland, Memphis, and Millington; northern DeSoto County, MS, including the cities of Hernando, Horn Lake, Olive Branch, Southaven, and Walls; eastern Crittenden County, AR, including the cities of West Memphis, Marion and Sunset; and western Fayette County, TN, including the cities of Piperton, Gallaway, and Braden.

The planning process for the Greenprint was managed by the Memphis & Shelby County Office of Sustainability and guided by the Mid-South Regional Greenprint Consortium ("Consortium"). The Consortium is made up of 82 organizations, including municipalities, institutions, nonprofits, businesses and residents. Over 300 individuals participated with the Consortium planning process over the course of the three-year grant period.

The Consortium was led by an Executive Committee of 25 members, representing the geographic and racial diversity of the region. There were eight working groups that supported the Executive Committee: Housing and Neighborhood Land Use, Community Health and Wellness, Alternative Transportation and Fuels, Parks and Greenways, Resource Conservation and Environmental Protection, Workforce Development and Regional Employment, Social Equity, and Data Mapping and Evaluation. The structure emphasized achieving strong representation from residents of the two Metropolitan Planning Organization (MPO) regions, especially from minority and low-income communities. Membership in the Consortium remained open to any group or individual wishing to join during the project.

The planning process for the Greenprint began with a visioning phase, laying the foundation for the regional plan. In addition to a detailed study of green space opportunities, existing plans, and regional sustainability indicators, the vision was supported by several, smaller plans and studies. These studies include the Bus Transit to Workplace Study, Health Impact Assessment, Fair Housing and Equity Assessment, and 20 subplanning demonstration projects created by Consortium stakeholders. The vision, subplanning demonstration projects, and other plans and studies supported the development of the regional Greenprint plan. Each of these documents can be found in the Resource Appendix.

Throughout the course of the planning process, equity and community engagement was a top priority. There was an emphasis on capturing as many voices as possible throughout the region. Outreach for this process included: over 20 neighborhood meetings, five public forums, booths at public events, presentations to over 40 churches and civic organizations, social media, online surveys, and the U Map It! online tool which allows citizens to map spatial recommendations. Multiple, additional meetings were held in connection with smaller studies, plans, and subplanning demonstration projects. All told, over 3,000 residents of the region engaged in the Greenprint planning process.

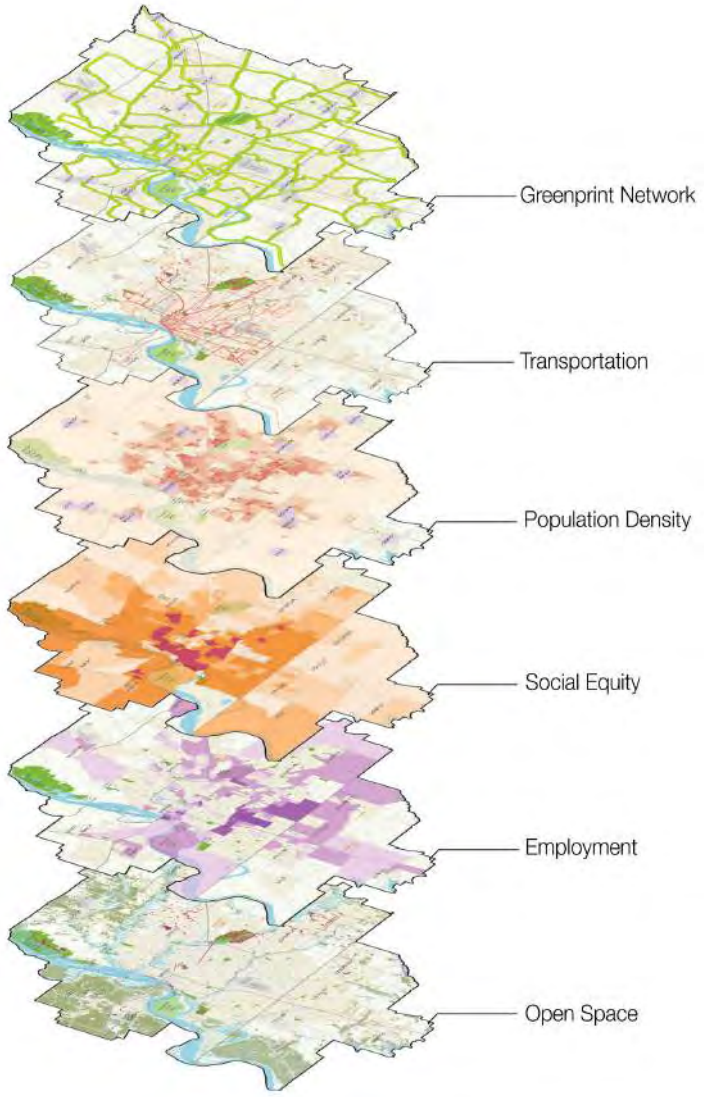
Vision

GREENPRINT 2015/2040 is a 25-year plan that envisions a region of connected communities united in creating a high quality of life, where the physical and social environments are sustainable for future generations, and where all people can access abundant economic, social and natural opportunities. By 2040, the Mid-South will be a region where:

- Everyone is included in decision making, including traditionally marginalized populations;
- Access is available to greenways, bikeways, transit, and other modes of alternative transportation throughout the region, including low-income and minority neighborhoods;
- Social and economic disparities are reduced or eliminated in disadvantaged populations, including reduction in poverty levels and a measurable increase in essential goods and services in low-income neighborhoods;
- Everyone has high access to healthcare and quality fresh foods, especially those with fewer means;
- Overall combined housing and transportation costs per household have decreased;
- More people are close to walking trails, parks and schools;
- Safe and walkable neighborhoods are created, improving public health outcomes;
- Improved quality of life enhances regional economic competitiveness, thereby attracting and retaining businesses, residents and visitors, and creating access to quality jobs; and
- Health of the region's environmental systems is improved, with cleaner water and air, reduced flooding and pollution, sustained and sustainable working lands, and better quality and quantity of natural habitats.

The Concept Map for a regional network of connected green space is the core element of the plan. Through developing a network of green space connecting three states, the Mid-South region is able to not only provide a world-class green space amenity to residents of the region, but address the vision statements that form the basis for this plan.

The Greenprint network is intended to improve walking and biking access to green space, town centers, jobs, schools, health services, and other destinations across

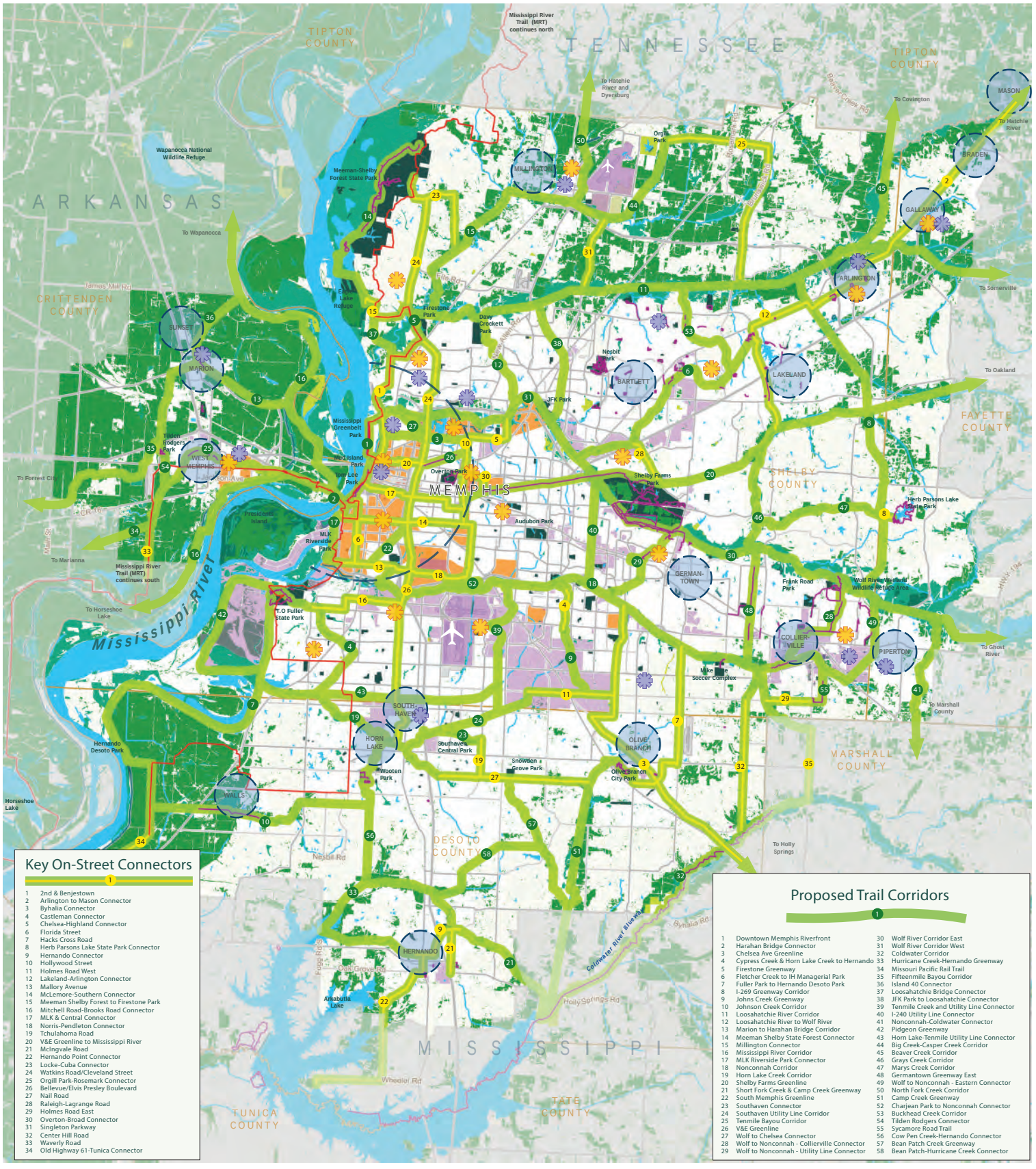


the region. The regional network includes 499 miles of greenway trails and 196 miles of on-road connectors. Of these recommendations, 51 miles of greenway trails and 41 miles of on-road connectors exist today. The Concept Map recommends adding 448 miles of new greenway trails and 155 miles of new on-road connectors by 2040. If implemented today, the proposed network of connected green infrastructure:

- Links to 95% of the large park acreage in the region;
- Connects 78% of the region's population living within one mile of a corridor;
- Connect 79% of the region's jobs within one mile of a corridor;
- Exceeds a plan goal of providing 0.5 miles of greenway trail per 1,000 residents; and

MID-SOUTH REGIONAL GREENPRINT CONCEPT MAP

Concept for a Regional Network of Connected Green Infrastructure



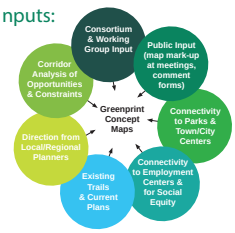
Key On-Street Connectors

1. 2nd & Benjestown
2. Arlington to Mason Connector
3. Byhalia Connector
4. Castleman Connector
5. Chelsea-Highland Connector
6. Florida Street
7. Hacks Cross Road
8. Herb Parsons Lake State Park Connector
9. Hernando Connector
10. Hollywood Street
11. Holmes Road West
12. Lakeland-Arlington Connector
13. Mallory Avenue
14. McLemore-Southern Connector
15. Meeman Shelby Forest to Firestone Park
16. Mitchell Road-Brooks Road Connector
17. MLK & Central Connector
18. Norris-Pendleton Connector
19. Tchulahoma Road
20. V&E Greenline to Mississippi River
21. McIngvale Road
22. Hernando Point Connector
23. Locke-Cuba Connector
24. Watkins Road/Cleveland Street
25. Orgill Park-Rosemark Connector
26. Bellevue/Elvis Presley Boulevard
27. Nail Road
28. Raleigh-Lagrange Road
29. Holmes Road East
30. Overton-Broad Connector
31. Singleton Parkway
32. Center Hill Road
33. Waverly Road
34. Old Highway 61-Tunica Connector

Proposed Trail Corridors

1. Downtown Memphis Riverfront
2. Harahan Bridge Connector
3. Chelsea Ave Greenline
4. Cypress Creek & Horn Lake Creek to Hernando
5. Firestone Greenway
6. Fletcher Creek to IH Managerial Park
7. Fuller Park to Hernando Desoto Park
8. I-269 Greenway Corridor
9. Johns Creek Greenway
10. Johnson Creek Corridor
11. Loosahatchie River Corridor
12. Loosahatchie River to Wolf River
13. Marion to Harahan Bridge Corridor
14. Meeman Shelby State Forest Connector
15. Millington Connector
16. Mississippi River Corridor
17. MLK Riverside Park Connector
18. Nonconnah Corridor
19. Horn Lake Creek Corridor
20. Shelby Farms Greenline
21. Short Fork Creek & Camp Creek Greenway
22. South Memphis Greenline
23. Southaven Connector
24. Southaven Utility Line Corridor
25. Tenmile Bayou Corridor
26. V&E Greenline
27. Wolf to Chelsea Connector
28. Wolf to Nonconnah - Collierville Connector
29. Wolf to Nonconnah - Utility Line Connector
30. Wolf River Corridor East
31. Wolf River Corridor West
32. Coldwater Corridor
33. Hurricane Creek-Hernando Greenway
34. Missouri Pacific Rail Trail
35. Fifteenmile Bayou Corridor
36. Island 40 Connector
37. Loosahatchie Bridge Connector
38. JFK Park to Loosahatchie Connector
39. Tennile Creek and Utility Line Connector
40. I-240 Utility Line Connector
41. Nonconnah-Coldwater Connector
42. Pidgeon Greenway
43. Horn Lake-Tenmile Utility Line Connector
44. Big Creek-Casper Creek Corridor
45. Beaver Creek Corridor
46. Grays Creek Corridor
47. Marys Creek Corridor
48. Germantown Greenway East
49. Wolf to Nonconnah - Eastern Connector
50. North Fork Creek Corridor
51. Camp Creek Greenway
52. Charjean Park to Nonconnah Connector
53. Buckhead Creek Corridor
54. Tilden Rodgers Connector
55. Sycamore Road Trail
56. Cow Pen Creek-Hernando Connector
57. Bean Patch Creek Greenway
58. Bean Patch-Hurricane Creek Connector

Key Inputs:



Long-Term Proposed (25-Year) Regional Trail System. Refer to local trail plans for other proposed trails.

Proposed Key On-Street Connections. These bicycle and pedestrian-friendly streets will connect the Regional Trail System where off-road routes are not possible.

The **Mississippi River Trail (MRT)** is mainly an on-street designated route.

City Centers and Town Centers. Showing a 1-mile radius (20-minute walk) from center.

The larger ring shows a 5-mile (30-minute bike ride) from **Downtown Memphis**.

Employment Centers

Social Equity Areas

Employment Centers and High Priority Areas for Equity. Traditionally underserved areas and major employment centers are highlighted as priorities for connecting future green infrastructure.

Commercial Revitalization Focus Areas

Housing Focus Areas

Other Greenprint Focus Areas. These areas were identified by citizen-led Greenprint working groups as areas of focus for revitalization and housing.

- Parks
- Wildlife Recreation Areas
- Farmland
- Conservation Areas
- Wetlands
- Water/Rivers and Streams

Open Space Resources. These resources form the basis for hubs, sites, and many of the links within the network. They are important for protecting the region's water, air, and soil and providing opportunities for recreation, physical fitness, health, and food production.

- Improves access to alternative transportation for all, including households in poverty and with limited access to jobs.

The network allows for the various parts of the region to be connected through a variety of pathways and provides for safe, enjoyable alternative transportation routes. It enables residents to come in closer proximity to our region's most vital natural resources, including streams, key conservation and wildlife lands, and major regional parks. Finally, it creates needed connections between cities and communities and areas of high opportunity, such as employment centers, so implementation of the plan can lift all residents of the region. By tying together these areas, the resulting green infrastructure will allow for much greater access to all parts of the region and achieve the goals expressed in the Vision and Strategic Directions of this plan.

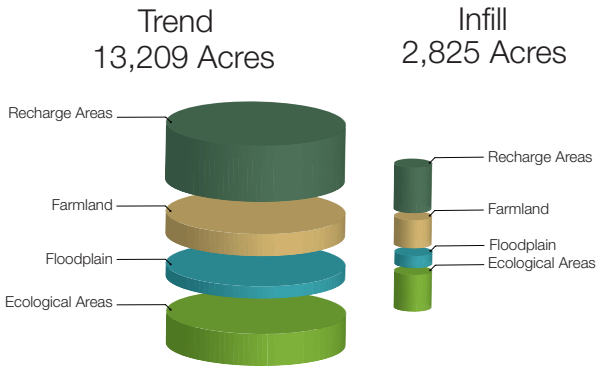
Impact of Growth

The future growth of the region can have a significant impact on Greenprint access and recommended investments. If the region grows over the next 25 years in a manner consistent with trends of the recent past, the impact of investing in Greenprint infrastructure is diminished as compared to a pattern of infill development, or developing in previously developed areas. A pattern of infill development not only brings more households and jobs closer to Greenprint corridors, but stabilizes population in urbanized areas of the region (including suburbs), and stems the consumption of farmland and urbanization of rural communities of the region.

As illustrated in the graphic to the right, examining the way the region grows can have a significant impact on natural resources, as well. By shifting future development patterns toward a pattern of infill development, loss of farmland, floodplain, aquifer recharge, and other critical ecological areas is reduced significantly. Not only does a more dense development pattern reduce environmental impacts, but it also reduces transportation costs, improves health, and reduces public costs associated with infrastructure.

While this plan does not prescribe land use recommendations, the plan seeks to encourage a greater sense of mindfulness of the way the region grows and the impact on green space and environment, in addition to transportation, health, and economy.

Important Resource Areas Lost to Development



Strategic Directions

In order to ensure the Greenprint network has a comprehensive impact on the region, a set of eight Strategic Directions was developed by the Consortium. These Strategic Directions contain objectives and recommended actions for how the region achieves the vision articulated in this plan and ensures the Greenprint brings significant value beyond recreation. Each Strategic Direction of the plan also describes the proposed outcomes for the region once associated actions are implemented. The eight Strategic Directions and their associated objectives are:

An Interconnected Network of Parks, Greenways, and Open Spaces

- Expand and improve a network of green space hubs linked by greenways and trails
- Improve the access and use of existing parks and green space for the benefit of people and wildlife
- Develop a regional identity and central entity to coordinate development of the green space network

Equitable Participation and Community Ownership

- Engage and include a diverse group of individuals, groups, and communities from across the region through implementation
- Build a culture of effective citizen planning by increasing capacity of groups and leaders, especially in underserved communities
- Ensure equity in implementation priority, site selection, and resource allocation

Enhanced Access through Transportation Choices

- Connect communities through a multimodal transportation network including green infrastructure

- Increase transportation choices and modal connections for all users
- Enhance regional transit services and transportation demand management
- Improve transportation system impact on the built environment, natural environment, and regional quality of life

Healthy and Safe Communities

- Promote a comprehensive concept of community health, wellness, and healthy lifestyles
- Improve access to healthy foods
- Promote safe, healthy, and walkable communities

Improved Neighborhoods and Fair Housing Choices

- Increase affordable, location-efficient, and fair housing choices
- Ensure neighborhood access to green spaces and walkability
- Improve existing neighborhood green assets and increase their use and benefit to the community
- Spur the (re)development of neighborhoods that are clean, attractive, and convenient to a wide range of community facilities

Sustainable Resources and a Quality Environment

- Conserve and protect natural resources including air, water, and land
- Promote sustainable watershed management policies and practices
- Create productive green assets from underutilized lands and brownfields
- Promote and prioritize investments that protect biodiversity and wildlife habitat

A Productive Workforce and Economy

- Enhance access and connectivity to employment, education, and training centers
- Empower individuals to improve economic outcomes at home
- Promote and support neighborhood-level economic development
- Increase and enhance regional employment and economic development opportunities
- Expand green technology workforce development

Effective Long-term Regional Planning

- Continue regional collaboration of planning and policy-making and coordination of assets and resources
- Establish and maintain a shared data resources system to support decision making

Implementation

A major first step in implementation is for local governments and partner organizations of the Mid-South region to adopt, publicize, and champion the regional plan in their own communities. Through adoption of the plan, local municipal and county governments will be better able to shape green space, transportation, and development decisions to fit with the goals of this plan. Additionally, having an adopted plan is extremely helpful in securing funding from federal, state and private sources.

Adopting this plan does not commit local governments to dedicate or allocate funds. However, by adopting the Greenprint plan, municipalities and counties have a guiding document for green space connectivity across regional boundaries and creating sustainable communities, especially as it relates to providing access to green spaces, equitable participation in planning and implementation processes, promoting community health and wellness, creating accessible, affordable housing for all, and conserving and protecting natural resources and the environment. Adoption of this plan communicates to residents, potential residents, businesses, and organizations its recognition of the value of the plan's implementation to their community.

The vision and goals of this plan are ambitious; fulfilling them successfully will require a creative approach. No single sector in the Mid-South region can be expected to implement this plan alone. The Consortium provided an initial forum for collaboration among representatives of the region. This level of regional interest and coordination provided great value to the region, and great effort should be made to preserve and expand upon it as the plan transitions to implementation.

At the outset of implementation, the Memphis & Shelby County Office of Sustainability will continue to serve as the central entity to ensure implementation of the plan, but will transition this role to another entity when appropriate. The office will also continue to coordinate the Consortium into implementation. Public, private, and nonprofit support will be critical to implementation. Local governments, state government agencies, regional entities such as MPOs, private sector and business leaders, and regional leaders all play a critical role in ensuring the plan becomes a reality over the next 25 years.

The development of network links will vary from community to community and project to project. The diagram below illustrates the typical development process that should be considered during the implementation process. While costs vary widely by project, an estimate of $777,000 per mile for multi-use trail construction and $133,000 per mile for bicycle lane is suggested as a baseline for consideration. Design and administration costs are calculated separately. Acquisition costs are also not included, as these can vary considerably by project. Considering the mileage recommended, a rough cost estimate for completing the Greenprint network is approximately $450 million over the next 25 years.

In order to implement the Greenprint, community leaders must consider what revenues are available or could be available to fund the acquisition and development of parks and greenways. The ability to access substantial public and private investments will foster program development and aid in realizing a long-term vision. This should include federal, state, and local funding options, as well as private funding.

As the region begins to implement the plan, it will be important to see results early. The plan includes 31 short-term targets for action representing achievements expected after the first five years of plan implementation. Each target corresponds to a vision statement of the regional plan in addition to actions of the Strategic Directions. The Memphis & Shelby County Office of Sustainability will monitor short-term targets for action to track progress, in addition to other sustainability indicators. While GREENPRINT 2015/2040 is a 25-year plan, the work starts today.

Typical Trail Development Process

INTRODUCTION

Project Background

In November 2011, Shelby County Government was awarded a $2,619,999 Sustainable Communities Regional Planning Grant from the United States Department of Housing and Urban Development (HUD) to prepare the Mid-South Regional Greenprint and Sustainability Plan. The 25-year plan is designed to enhance regional sustainability by establishing a unified vision for a region-wide network of green space areas, or Greenprint, which serves to address long-term housing and land use, resource conservation, environmental protection, accessibility, community health and wellness, transportation alternatives, economic development, neighborhood engagement, and social equity in the Greater Memphis Area.

The Greenprint study area includes the Memphis and West Memphis Metropolitan Planning Organizations (MPOs), covering four counties and 18 municipalities located in the states of Tennessee, Arkansas, and Mississippi. The study area boundaries include Shelby County, TN, and the cities of Arlington, Bartlett, Collierville, Germantown, Lakeland, Memphis, and Millington; northern DeSoto County, MS, including the cities of Hernando, Horn Lake, Olive Branch, Southaven, and Walls; eastern Crittenden County, AR, including the cities of West Memphis, Marion and Sunset; and western Fayette County, TN, including the cities of Piperton, Gallaway, and Braden.

The idea for the Greenprint Plan was borne from the work of the Mid-South Greenways Steering Committee, a voluntary ad hoc group of parks, greenways, and open space stakeholders from throughout the region. The group has 34 member organizations and serves as a convener for green infrastructure planning and development.

green•print *n* **1:** A planning document containing text and maps that guides communities to grow in a way that balances the need for natural resource conservation with the needs for economic development and physical expansion.

The group boasts a strong history of collaboration and communication across jurisdictional boundaries.

At the 2009 Urban Land Institute-Memphis forum "Exploring the Transformative Roles of Greenways," Mid-South regional greenways, parks, and open space stakeholders acknowledged greenways are more than just recreational trails. They are engines of change that boast an array of enticing economic benefits, support environmental revitalization, promote healthy behaviors, and connect our multi-state communities. This consensus provided the spark needed to bring the Steering Committee together that same year and prompted a commitment to meet regularly in pursuit of a common mission: to unite stakeholder voices and strengthen efforts to advance an integrated network of greenways in the Mid-South.

In August 2011, the Memphis and Shelby County Office of Sustainability began meeting with stakeholders throughout the region to explore opportunities that would be eligible for funding through the HUD Regional Planning Grant. The concept of connecting the region through green infrastructure quickly emerged as a top idea, validating and confirming the work of the Mid-South Greenways Steering Committee.

The grant application for the Greenprint was submitted by Shelby County Government in September 2011 with letters of support from over 22 regional stakeholders, including municipalities, nonprofits, and foundations. Notification of the grant award was received in late November 2011 and the planning process began in the summer of 2012.

The planning process was driven by a consortium of governments and organizations from public, private, nonprofit, philanthropic, and community sectors. Over three years, the consortium membership rapidly grew from 22 stakeholder entities to 82, represented by over 300 individuals from the tri-state region, engaged in one of eight working groups. In addition, over 3,000 regional residents were engaged through a public participation phase including public meetings, outreach to community groups, and online engagement.

Tom Lee Park

Livability Principles

The Sustainable Communities Regional Planning Grant program is a collaborative effort between three federal agencies (HUD, Department of Transportation, and Environmental Protection Agency) to improve alignment of federal investments with regional planning priorities. This partnership outlined six livability principles to provide a framework for regional planning and other partnership investments. The Mid-South Regional Greenprint and Sustainability Plan addresses the six livability principles by:

1. **Providing more transportation choices** through increased greenway, bike and pedestrian routes and greater connectivity within and between communities and across modes of transportation.

2. **Promoting equitable, affordable housing** by improving environmental conditions and amenities for neighborhoods adjoining greenways and open spaces, and planning land use and zoning changes to promote affordable housing to create a stronger link between housing, transportation, and opportunity areas.

3. **Enhancing economic competitiveness** by improving quality of life in the Mid-South region thereby attracting and retaining businesses and residents, and connecting residents with access to quality jobs.

4. **Supporting existing communities** through providing new or improved greenway and open space amenities and access to economic or employment opportunities connected to greenways and open spaces.

5. **Coordinating policies and leveraging investment** related to greenways and open spaces across the region, including working with other federal grant partners towards bicycle and pedestrian connectivity across jurisdictions, enhanced access to regional employment, increased access to fresh foods regionally, and building capacity for community-based planning.

6. **Valuing communities and neighborhoods** by enhancing and providing access to greenway and open space amenities and employment opportunities, improving residential property values, and enhancing the unique attributes of urban, suburban, and rural areas.

Process and Community Engagement

Process

The planning process for the Greenprint was managed by the Memphis & Shelby County Office of Sustainability and guided by the Mid-South Regional Greenprint Consortium ("Consortium"). The Consortium is made up of 82 organizations (municipalities, institutions, nonprofits, businesses and residents) and over 300 individuals that participated in the planning process over the course of the three-year period.

The Consortium was led by an Executive Committee of 25 members, representing the geographic and racial diversity of the region. **There were eight working groups that supported the Executive Committee: Housing and Neighborhood Land Use, Community Health and Wellness, Alternative Transportation and Fuels, Parks and Greenways, Resource Conservation and Environmental Protection, Workforce Development and Regional Employment, Social Equity, and Data Mapping and Evaluation.** The structure emphasized achieving strong representation from residents of the two Metropolitan Planning Organization (MPO) regions, especially from minority and low-income communities. Membership in the Consortium remained open to any group or individual wishing to join during the project.

The planning process for the Greenprint began with a visioning phase, laying the foundation for the regional plan. In addition to a detailed study of green space opportunities, existing plans, and regional sustainability indicators, the vision was supported by several, smaller plans and studies, including: the Bus Transit to Workplace Study; Health Impact Assessment; Fair Housing and Equity Assessment; and 20 subplans created by Consortium stakeholders. Each was conducted by professional consultants and coordinated to align with the ideas of the full Consortium.

The findings from each element of the process have been integrated into this final plan. Stand-alone versions of these documents can be found in the *Resource Appendix* or online.

During the visioning phase, the Consortium held monthly Working Group meetings and bi-monthly meetings of the full Consortium in order to develop and shape the Vision Plan. The Vision Plan contained two primary elements: the Concept Map for a regional network of green infrastructure and eight Strategic Directions with associated objectives and actions. Strategic Directions were created and drafted by the Consortium working groups. LRK, Inc. served as the lead firm for the consultant team responsible for completing the Vision Plan. The primary elements of the Vision Plan form the foundation of this regional plan.

Following the development of the vision, Consortium members were encouraged to submit proposals for localized or topic-specific planning projects designed to advance concepts of the regional Vision Plan. The purpose of this phase was to begin to move projects and ideas that support the Greenprint closer to implementation, while demonstrating the potential impact of the regional plan at a local level. There were 44 proposals submitted and 20 demonstration projects were selected for funding after a competitive review process. The 20 subplans were completed by October 2014.

Community Engagement

Throughout the course of the planning process, equity and community engagement was a top priority. There was an emphasis on capturing as many voices as possible throughout the region. Outreach for this process included: over 20 neighborhood meetings; five public forums; booths at public events; presentations to over 40 churches and civic organizations; social media; online surveys; and the U Map It! online tool which allows citizens to map spatial recommendations. Multiple, additional meetings were held in connection with smaller studies, plans, and subplans. All told, over 3,000 residents of the region engaged in the Greenprint planning process.

The primary responsibility for outreach and engagement was a shared by the Office of Sustainability, the consultant team lead by LRK, Inc., and a team led by Memphis Area

Association of Governments (MAAG). The feedback from the public played a significant role in shaping initial priorities of the plan, strategic recommendations of this plan, green infrastructure connections illustrated on the Concept Map, areas of emphasis within Strategic Directions, and targets for short-term implementation.

Input received from the public strongly indicated interest for the Greenprint. The first survey found 86% of respondents considered creating and protecting green spaces and improving access to green space very important goals for the region.

During the visioning phase, four public forums and 14 neighborhood meetings were held. Key public input themes from these meetings included:

- Increase and improve walking and biking facilities;
- Importance of green space to provide community gathering places;
- Develop connections across communities and cities;
- Create better access to parks from surrounding neighborhoods;
- Create better access to major waterways throughout the region, including boat access;
- Improve safety in existing and new parks, greenways, and open spaces;
- Identification of opportunities to coordinate with on-going efforts related to Greenprint such as Complete Streets;
- Ensure broad awareness and inclusion of stakeholder diversity;
- Concerns about long-term funding and maintenance;
- Preserve functional green spaces such as farms and gardens;
- Convert vacant land into productive community assets; and
- Increase transportation options.

In addition to public forums and neighborhood meetings, MAAG conducted a best practices and values input exercise during 20 meetings of churches and civic organizations in the region. Participants, through a dot-voting exercise, selected safe streets for biking and walking as a top priority, followed by neighborhood beautification, waste reduction, and a connected system of greenway trails and bicycle lanes. Maintenance of parks and trails and creation of new parks and trails also ranked at the top.

After the vision was developed, MAAG conducted a second round of 20 meetings with churches and civic organizations, complemented by nine neighborhood meetings conducted by the Office of Sustainability. During this post-vision phase, meeting participants helped refine the priorities of Strategic Directions by selecting the most important proposed outcomes to be acheived in the short-term. These results helped influence the targets for action in the Implementation section of this plan. The priority outcomes selected were:

- Attract and retain more businesses and jobs;
- Better public transportation;
- Reduced blight and housing vacancy;
- More neighborhood amenities and centers;
- Better maintenance of parks and trails;
- Focus investments on existing communities;
- Better storm water management; and
- Better access to recreation and activities.

Public meeting participant

Regional Profile

Population

The Greenprint study area is based on the urbanized greater Memphis area. The region is defined in many ways by waterways and transportation infrastructure. The historic center of the City of Memphis is located on the bluffs on the east side of the Mississippi River. The location provides a strategic combination of elevation and proximity to the river.

The City of Memphis grew rapidly in the first half of the 20th Century and had a population of some 400,000 in 1950. A period of intense population growth followed, such that by 1970, there were some 625,000 people living in the city. Since the 1970s, however, growth in the city itself has been much more moderate; in 2010, the population was only marginally larger with 650,000.

While population growth in Memphis slowed, the urbanized area continued to add people, especially in the suburban communities in Shelby County, Tennessee and DeSoto County, Mississippi. Between 1990 and 2000, the region added nearly 200,000 people, growing by 20% over the ten year period. The region grew by another 9% between 2000 and 2010. As of the 2010 Census, the four counties containing the Mid-South Regional Greenprint study area had a combined population of 1,178,211 in 432,438 households.

The vast majority of this growth occurred in DeSoto County, which added just over 90,000 people between 1990 and 2010 and suburban Shelby County, which added more than 70,000 people over the same 20-year period. This demonstrates a clear trend of decentralization – the region overall is growing, but with population moving to DeSoto County in northern Mississippi and the suburban communities outside of the Memphis city limits. Population of DeSoto County grew 50% from 2000 to 2010 to reach 161,252 residents. Population in Crittenden County, Arkansas was flat between 2000 and 2010, remaining just above 50,000 residents, while Fayette County, Tennessee grew by over 33% to a population of 38,413.

In 2010, African Americans made up the largest share of the region with 47% of the population, followed by Whites with 44%. These figures represent a change from 2000, when Whites made up the largest share of the region (51%) and Blacks the second largest share (44%). Other minority groups also saw substantial growth rates between 2000-2010. Most notably, the Hispanic population added 35,152 persons, an increase of 131%, to make up 5% of the region's population by 2010. Overall, population trends indicate a move toward greater diversity; however, much of the region still exhibits patterns of segregation.

In addition, it is estimated 10.4% of the Mid-South population is over the age of 65, as compared to 13% nationwide. An estimated 12.6% of the regional population has a disability, roughly equal to the percentage nationwide.

Coldwater River

Income

As compared with the rest of the United States, individuals living in the Memphis urbanized area have considerably less income. Since 1990, DeSoto and Fayette Counties sufficiently increased per capita income to be more in line with the national average. In 1990, for example, per capita income in Fayette County was 33% below the

national average; by 2010 it was 1% higher. Likewise, per capita incomes in DeSoto County were 13% below in the national average in 1990 and in 2010 had narrowed to 8%. Per capita income in Shelby County has remained about 7% below the national average, while income in Crittenden County is 30% below.

Like many regions, the Mid-South is recovering from the impact of the past decade's economic recession. During the recession, some residents of the region faced job losses, pay cuts, or foreclosures, and saw resulting reductions to their household income. Income plays the most important role in helping individuals and families determine how much money they need to budget for mandatory expenditures, like mortgage, rent, or utility payments in comparison to discretionary income they may have available for living expenses or savings and investments. Household income is a strong indicator of an individual or family's standard of living.

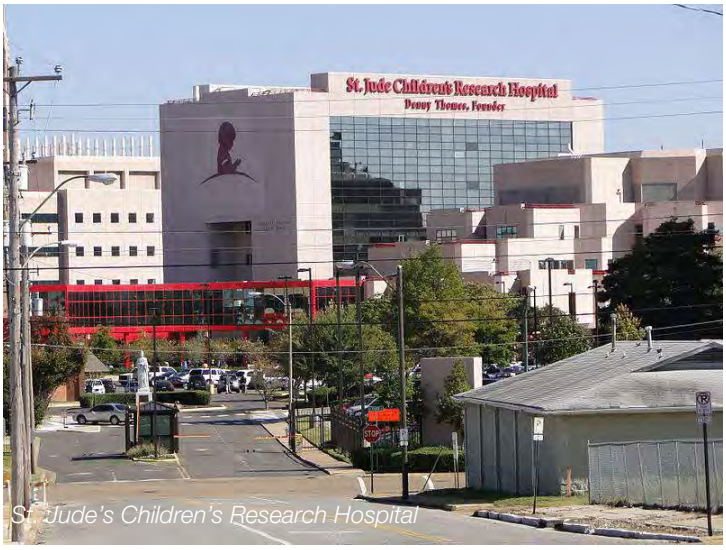
Throughout the region, median household income is estimated at $48,282, which is a 20% increase since 2000. Highest median incomes are in DeSoto and Fayette Counties at $58,851 and $56,297, respectively. Fayette saw the largest increase over the period, growing by 40%. Median incomes in Shelby and Crittenden Counties fall below the national median of $53,046, while medians in DeSoto and Fayette Counties are above the national mark.

Transportation

The movement of housing and jobs away from a central core to outlying and suburban communities requires a parallel investment in a wide variety of infrastructure in services such as sewer, water, and schools but also transportation. For people to live or work in outlying areas, they need a way to get to and from these locations. Generally speaking, nearly all resources invested in the transportation network in the Mid-South have been made to facilitate the movement of goods or travel by automobile. Thus, as the region developed new roadways, or widened existing ones, investments were nearly solely focused on building and expanding capacity for automobiles. As a result, some of the region's primary commercial corridors were developed without any, or only minimal pedestrian infrastructure. In 2010, over 93% of commuters in the Mid-South travel by personal automobile to access work. The remaining 7% used public transit, walked, or biked.

Employment

The Memphis urbanized area has a diverse and dynamic economy developed from a strategic location along the Mississippi River. Historically the Mississippi River was an essential arterial for moving people and goods; it is still a major transportation facility and the Memphis region continues to be a major inland hub and distribution center. More recently, the region has built on its historic role as a logistics and distribution hub to become an intermodal hub with river, rail, road and air access. FedEx's headquarters and its use of the Memphis International Airport (MEM) as its primary hub has made MEM the busiest cargo airport in the U.S.



St. Jude's Children's Research Hospital

The Mid-South also has an emerging healthcare and medical services industry. There are currently over 19 hospitals including St. Jude Children's Research Hospital, which is renowned nationally for research and treatment of pediatric cancer and other catastrophic childhood diseases.

Tourism is a key part of the local economy in Shelby County but also an important regional sector. Graceland, Sun Studios, the National Civil Rights Museum, and Beale Street are major tourist destinations in the city of Memphis. In northern Mississippi, the Tunica Resorts, located 30 miles south of the city of Memphis is the third largest gaming area in the United States, after Las Vegas and Atlantic City. Tunica Resorts attracts over 12 million visitors annually.

The largest employment sector in the Memphis area is healthcare and social assistance, which employs some 75,800 people in the region. This sector has an average

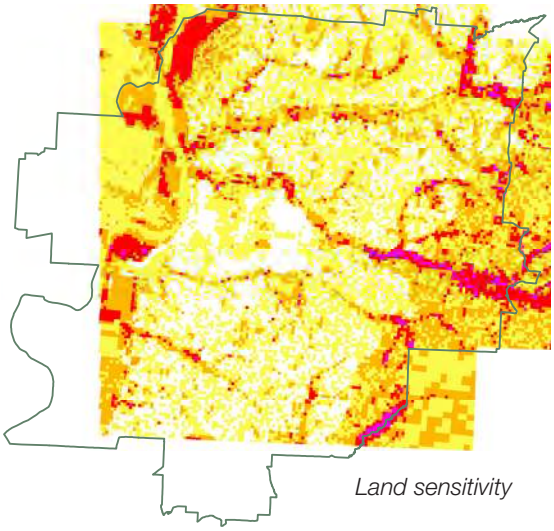
annual wage of approximately $43,000, which is considerably higher than the average per capita income. The next two largest sectors, retail and accommodation and food services, have high employment (58,900 in retail and 55,700 in accommodation and food services) but offer considerably lower average wages of approximately $24,600 and $16,300, respectively. The highest wage sectors, management of companies and enterprises and finance and insurance, have relatively fewer jobs, with 29,300 and 20,900 employees respectively.

The unemployment rate in the four-county area was 8.6% as of December 2013, the latest month for which data is available at the time of this writing, with an estimated 45,909 persons looking for work. The regional unemployment rate doubled from 5.0% in 2006 to 10.1% in 2009 and has edged downward since. County unemployment rates follow similar trends, with the lowest unemployment rate in DeSoto County and the highest in Crittenden County. While DeSoto County's December 2013 rate of 4.5% was below the national rate of 6.5%, the remaining counties and the region were above the national mark.

Parks and Open Space

Due to generally flat topography, the major natural features of the region are rivers. The Mississippi River, the primary river of the largest drainage system in North America and the world's fourth longest river, flows through the western third of the study area. Other notable rivers include the Wolf River, Loosahatchie River, Nonconnah Creek, and Coldwater River.

The Mid-South region currently has 25 acres of park land per 1,000 residents, higher than many comparable regions. The region also currently has 164 miles of trails, or 0.15 miles per 1,000 residents. While current amount of green space is noteworthy, only 38% of the region's population lives within ½ mile of a park or green space. Much of the region's park space is found in large, regional parks such as Meeman-Shelby Forest State Park, Shelby Farms Park, Nesbit Park, and T.O. Fuller State Park. These spaces provide regional green space destinations in the Mid-South and critical ecological hubs. However, this abundance of large park space means fewer smaller community or pocket park spaces are available throughout the region. This need for smaller community or pocket parks should not detract from the need to continue to protect large, critical ecological areas. The land sensitivity map below demonstrates lands most important for protection based on presense of streams and floodplain, aquifer recharge areas, forest land, and steep slopes. Those lands in red and purple are classified as most sensitive for protection.



Land sensitivity

Health

The Greenprint region as a whole is comparable to the nation in percent of population with poor or fair health at 16%. Only Crittenden County shows a percentage higher at 22%. However, there are critical health issues and disparities present in the region. Heart disease is a leading cause of death in the U.S., and is particularly high in the Mid-South. Heart disease mortality rate in the region is measured at 182 persons per 100,000, well above the national rate of 135. Heart disease mortality rates are particularly acute for African Americans in the region, with a rate of 211. Rates of death due to stroke are also high for the region.

Close to 34% of the region's adult population is classified as obese and 37% overweight, above national rates of 27% and 36%, respectively. These rates have implications for other chronic diseases such as diabetes. Close to 12% of the region's population has been diagnosed with diabetes.

Many chronic diseases can be partially attributed to environmental and social factors such as physical activity and access to fresh foods. Over 29% of the region's population reports no leisure time physical activity, above the national average of 24%. Over one-third of the regional population lives in areas with low food access, well above the national average of 24%.


VISION

The Mid-South Region in 2040

The Mid-South Regional Greenprint and Sustainability Plan is a 25-year plan that envisions *a region of connected communities that are united in creating a high quality of life; a region where the physical and social environments are sustainable for future generations; and where all people can access abundant economic, social and natural opportunities*.

Overton Park

Everyone is included in decision-making, including traditionally marginalized populations

Access is available to greenways, bikeways, transit, and other modes of alternative transportation throughout the region, including low-income and minority neighborhoods

Social and economic disparities are reduced or eliminated in disadvantaged populations, including reduction in poverty levels and a measurable increase in essential goods and services in low-income neighborhoods

Everyone has high **access to healthcare and quality fresh foods**, especially those with fewer means

Overall combined **housing and transportation costs** per household **have decreased**

More people are **close to walking trails, parks and schools**

Safe and walkable neighborhoods are created, improving public health outcomes

Improved quality of life enhances regional economic competitiveness, thereby attracting and retaining businesses, residents and visitors, and creating **access to quality jobs**

Health of the region's environmental systems is improved, with cleaner water and air, reduced flooding and pollution, sustained and sustainable working lands, and better quality and quantity of natural habitats

Concept Map Overview

The Concept Map for a regional network of connected green infrastructure represents the core element of the Mid-South Greenprint and Sustainability Plan. Through developing a network of green space connecting three states, the Mid-South region is able to not only provide a world-class green space amenity to residents of the region, but address the vision statements that form the basis for this plan.

The Concept Map is the product of input from public meetings, surveys, stakeholder meetings, Consortium and working group input, field observation of potential greenway corridors, a level of service analysis, a desire to connect across neighborhoods and town centers, and a regional goal to connect to major parks and conservation areas.

The result is a concept for a regional interconnected network of parks and trails to be developed by 2040. The full regional network includes 499 miles of greenway trails and 196 miles of on-road connectors. Of these recommendations, 51 miles of greenway trails and 41 miles of on-road connectors exist today. **The Concept Map recommends adding 448 miles of new greenway trails and 155 miles of new on-road connectors by 2040.**

This network allows for the various parts of the region to be connected through a variety of pathways and provides for safe, enjoyable alternative transportation routes. It enables residents to come in closer proximity to our region's most vital natural resources, including streams, key conservation and wildlife lands, and major regional parks. Finally, it creates needed connections between cities and communities and areas of high opportunity, such as employment centers, so implementation of the plan can lift all residents of the region.

By tying together these areas, the resulting green infrastructure will allow for much greater access to all parts of the region and achieve the goals expressed in the Vision and Strategic Directions of this plan.

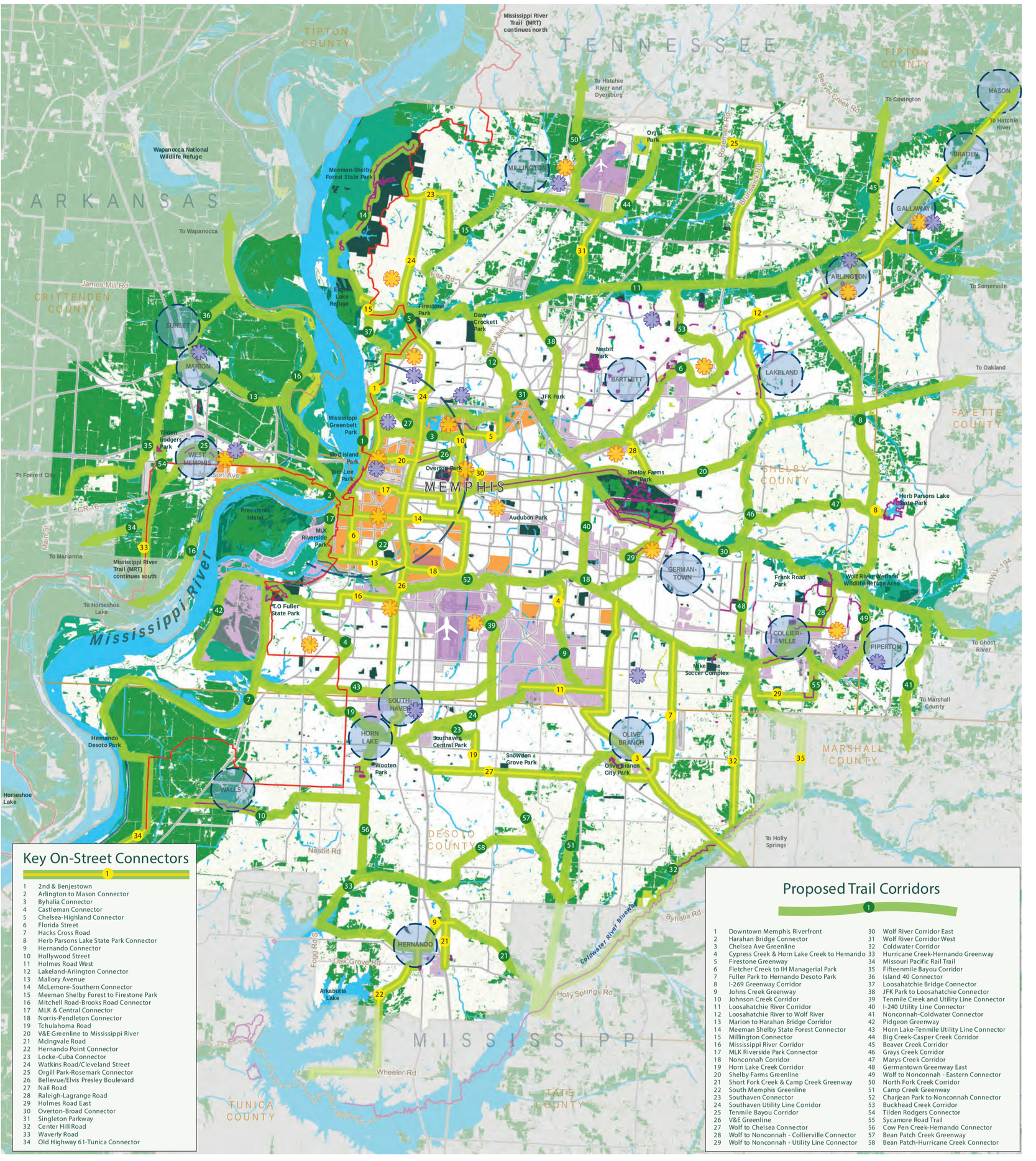
Concept Map Inputs

The Concept Map provides a long-term vision of priority investments in green infrastructure and connectivity in the region. The proposed trail corridors represent the potential skeleton for regional green connectivity to jobs, neighborhoods, parks, centers of commerce, and natural areas. Like the road system, this network of regional green corridors will be connected by many smaller, localized connections. The map is aspirational and provides guidance for regional investments over the next decades.

The Concept Map is meant to demonstrate recommendations for regional interconnectivity, and does not devalue projects proposed at the community or neighborhood scale. Rather, regional partners are encouraged to consider the regional framework when planning and implementing smaller projects not included on the Concept Map, especially projects that provide connections to and enhance the regional framework.

MID-SOUTH REGIONAL GREENPRINT CONCEPT MAP

Concept for a Regional Network of Connected Green Infrastructure



Key On-Street Connectors

1

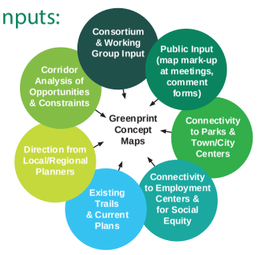
1 2nd & Benjestown
2 Arlington to Mason Connector
3 Byhalia Connector
4 Castleman Connector
5 Chelsea-Highland Connector
6 Florida Street
7 Hacks Cross Road
8 Herb Parsons Lake State Park Connector
9 Hernando Connector
10 Hollywood Street
11 Holmes Road West
12 Lakeland-Arlington Connector
13 Mallory Avenue
14 McLemore-Southern Connector
15 Meeman Shelby Forest to Firestone Park
16 Mitchell Road-Brooks Road Connector
17 MLK & Central Connector
18 Norris-Pendleton Connector
19 Tchulahoma Road
20 V&E Greenline to Mississippi River
21 McIngvale Road
22 Hernando Point Connector
23 Locke-Cuba Connector
24 Watkins Road/Cleveland Street
25 Orgill Park-Rosemark Connector
26 Bellevue/Elvis Presley Boulevard
27 Nail Road
28 Raleigh-Lagrange Road
29 Holmes Road East
30 Overton-Broad Connector
31 Singleton Parkway
32 Center Hill Road
33 Waverly Road
34 Old Highway 61-Tunica Connector

Proposed Trail Corridors

1

1 Downtown Memphis Riverfront
2 Harahan Bridge Connector
3 Chelsea Ave Greenline
4 Cypress Creek & Horn Lake Creek to Hernando
5 Firestone Greenway
6 Fletcher Creek to IH Managerial Park
7 Fuller Park to Hernando Desoto Park
8 I-269 Greenway Corridor
9 Johns Creek Greenway
10 Johnson Creek Corridor
11 Loosahatchie River Corridor
12 Loosahatchie River to Wolf River
13 Marion to Harahan Bridge Corridor
14 Meeman Shelby State Forest Connector
15 Millington Connector
16 Mississippi River Corridor
17 MLK Riverside Park Connector
18 Nonconnah Corridor
19 Horn Lake Creek Corridor
20 Shelby Farms Greenline
21 Short Fork Creek & Camp Creek Greenway
22 South Memphis Greenline
23 Southaven Connector
24 Southaven Utility Line Corridor
25 Tenmile Bayou Corridor
26 V&E Greenline
27 Wolf to Chelsea Connector
28 Wolf to Nonconnah - Collierville Connector
29 Wolf to Nonconnah - Utility Line Connector
30 Wolf River Corridor East
31 Wolf River Corridor West
32 Coldwater Corridor
33 Hurricane Creek-Hernando Greenway
34 Missouri Pacific Rail Trail
35 Fifteenmile Bayou Corridor
36 Island 40 Connector
37 Loosahatchie Bridge Connector
38 JFK Park to Loosahatchie Connector
39 Tenmile Creek and Utility Line Connector
40 I-240 Utility Line Connector
41 Nonconnah-Coldwater Connector
42 Pidgeon Greenway
43 Horn Lake-Tenmile Utility Line Connector
44 Big Creek-Casper Creek Corridor
45 Beaver Creek Corridor
46 Grays Creek Corridor
47 Marys Creek Corridor
48 Germantown Greenway East
49 Wolf to Nonconnah - Eastern Connector
50 North Fork Creek Corridor
51 Camp Creek Greenway
52 Charjean Park to Nonconnah Connector
53 Buckhead Creek Corridor
54 Tilden Rodgers Connector
55 Sycamore Road Trail
56 Cow Pen Creek-Hernando Connector
57 Bean Patch Creek Greenway
58 Bean Patch-Hurricane Creek Connector

Key Inputs:



Long-Term Proposed (25-Year) Regional Trail System. Refer to local trail plans for other proposed trails.

Proposed Key On-Street Connections. These bicycle and pedestrian-friendly streets will connect the Regional Trail System where off-road routes are not possible.

The **Mississippi River Trail (MRT)** is mainly an on-street designated route.

City Centers and Town Centers. Showing a 1-mile radius (20-minute walk) from center.

The larger ring shows a 5-mile (30-minute bike ride) from **Downtown Memphis**.

Employment Centers

Social Equity Areas

Employment Centers and High Priority Areas for Equity. Traditionally underserved areas and major employment centers are highlighted as priorities for connecting future green infrastructure.

Commercial Revitalization Focus Areas

Housing Focus Areas

Other Greenprint Focus Areas. These areas were identified by citizen-led Greenprint working groups as areas of focus for revitalization and housing.

Parks
Wildlife Recreation Areas
Farmland
Conservation Areas
Wetlands
Water/Rivers and Streams

Open Space Resources. These resources form the basis for hubs, sites, and many of the links within the network. They are important for protecting the region's water, air, and soil and providing opportunities for recreation, physical fitness, health, and food production.

Concept Map Key Inputs

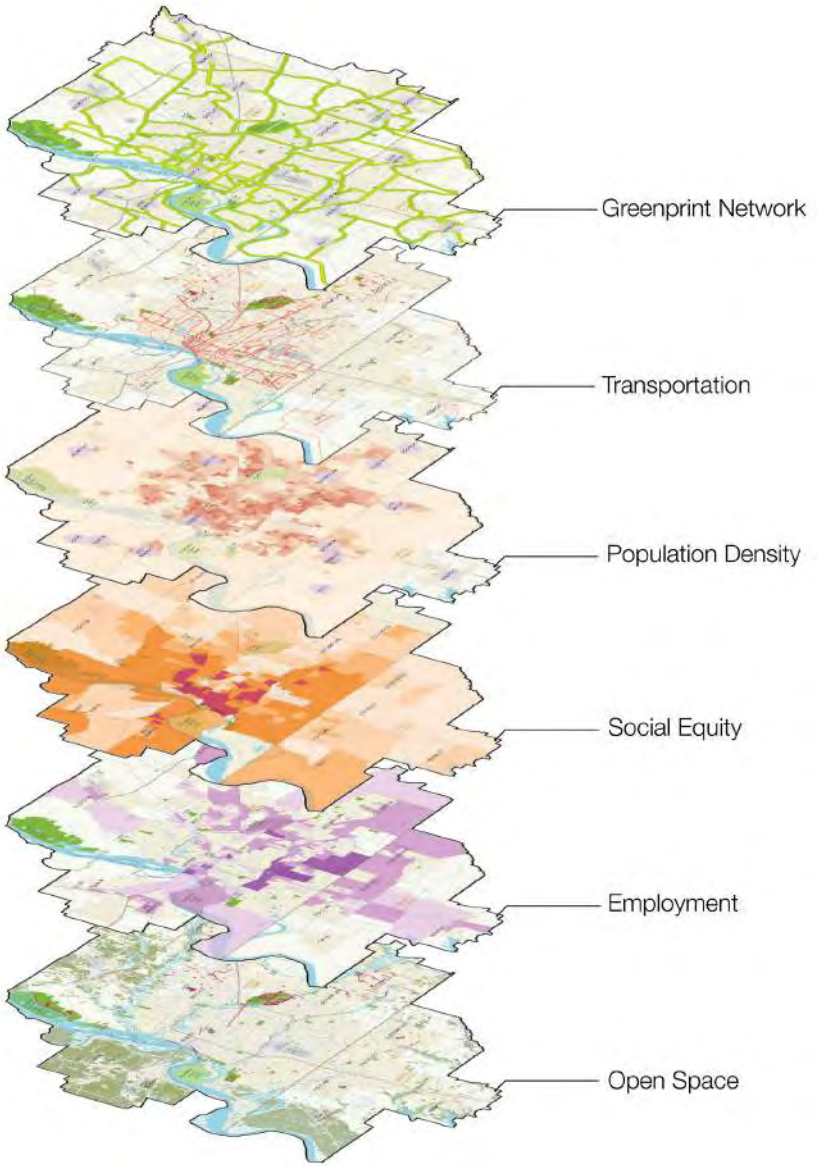
The maps on the following pages demonstrate the layers considered in the development of the Concept Map for a regional network of connected green infrastructure. The core and framework of the entire green infrastructure network is the Mississippi River and its tributaries, including the Loosahatchie River, Wolf River, Nonconnah Creek, Horn Lake Creek, and many others. Parks, conservation areas, farmland, blueways, greenway trails, bicycle and pedestrian streets, and more are all part of this network, serving as much more than just recreational opportunities. These "green infrastructure" components conserve open space close to where people live and work, soften the patterns of urban growth, mitigate water and air pollution, protect wildlife habitat, provide viable means for active transportation, promote economic growth and improve the quality of everyday life.

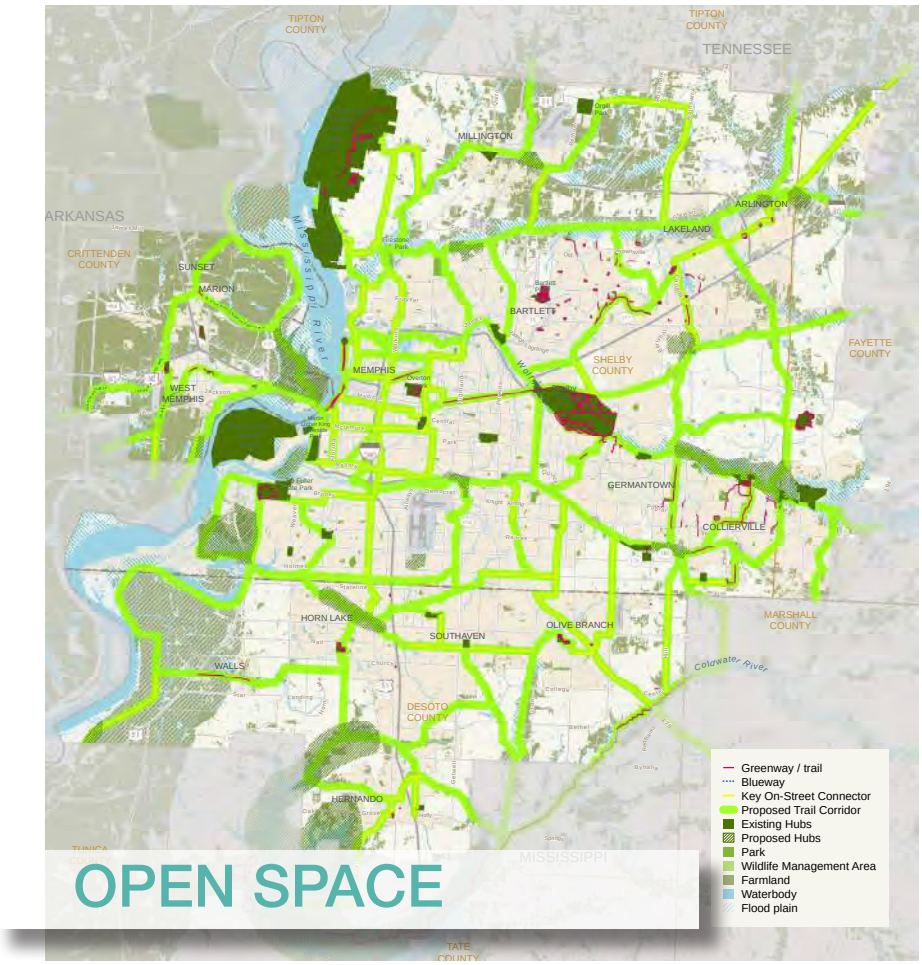
Recommendations reflected on the Concept Map were developed through consideration for how a regional green space network would connect open space resources, from parks, streams, employment, population, and transportation. The maps represent the work of the consortium to develop a strategic framework for regional sustainability to ensure the Greenprint concept provides transportation options, health and environmental benefits, and community and economic development, in addition to a recreational amenity. Connections to employment centers and traditionally underserved areas are also identified on the map in order to maximize the social and economic benefits of the proposed network.

Open Space

The central framework for the Greenprint is a network of green space. The development of the Concept Map network considered existing parks, wildlife areas, farmland and other working lands, conservation areas, wetlands, water, and floodplains. The map also considered existing greenways, trails, and blueways throughout the region.

These areas are important for recreation, physical fitness and health, and environmental protection. Wildlife areas and forests are important destinations along the network for humans and animals and protection of farmland helps ensure local food production. Parks are major destinations within communities across the region, and serve as the primary green space hubs used to form





the Greenprint network. New hubs based on the land sensitivity analysis are recommended for protection as part of the network. **The proposed network of connected green infrastructure links to 95% of the large park acreage in the region.**

Prior to the development of the Concept Map, a field analysis of potential future greenway corridors was conducted to determine opportunities and constraints related to greenway development. Many corridors follow naturally-occurring pathways in the region, such as stream corridors and connections between watersheds. One critical challenge to developing the Concept Map was not only to connect east-west along major tributaries, but also north-south between stream corridors.

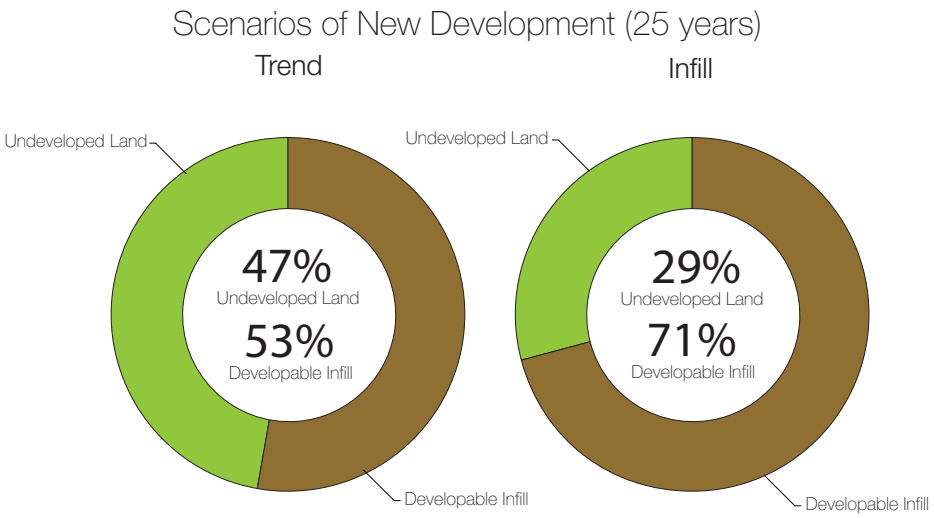
A healthy and functioning water system is the lifeblood of our region. The Mississippi River and its tributaries are the basis for a rich, natural environment. This system includes the waterways themselves as well as the associated forests, wetlands, bottomlands, floodplain, lakes and ponds and the groundwater system including the water table, aquifer layers, and aquifer recharge areas. This system continues to support the natural environment and population within the region. In order to continue to function, the water system needs to be kept free of contaminants, free of encroachment and, to the fullest extent practical, minimally fragmented by roads, utilities, bridges and other obstructions.

Population

The Greenprint network is intended to improve walking and biking access to green space, town centers, jobs, schools, health services, and other destinations across the region. **If implemented today, the region would exceed a goal of providing 0.5 miles of greenway trail per 1,000 residents and 78% of the region's population would live within one mile of a Greenprint corridor.**

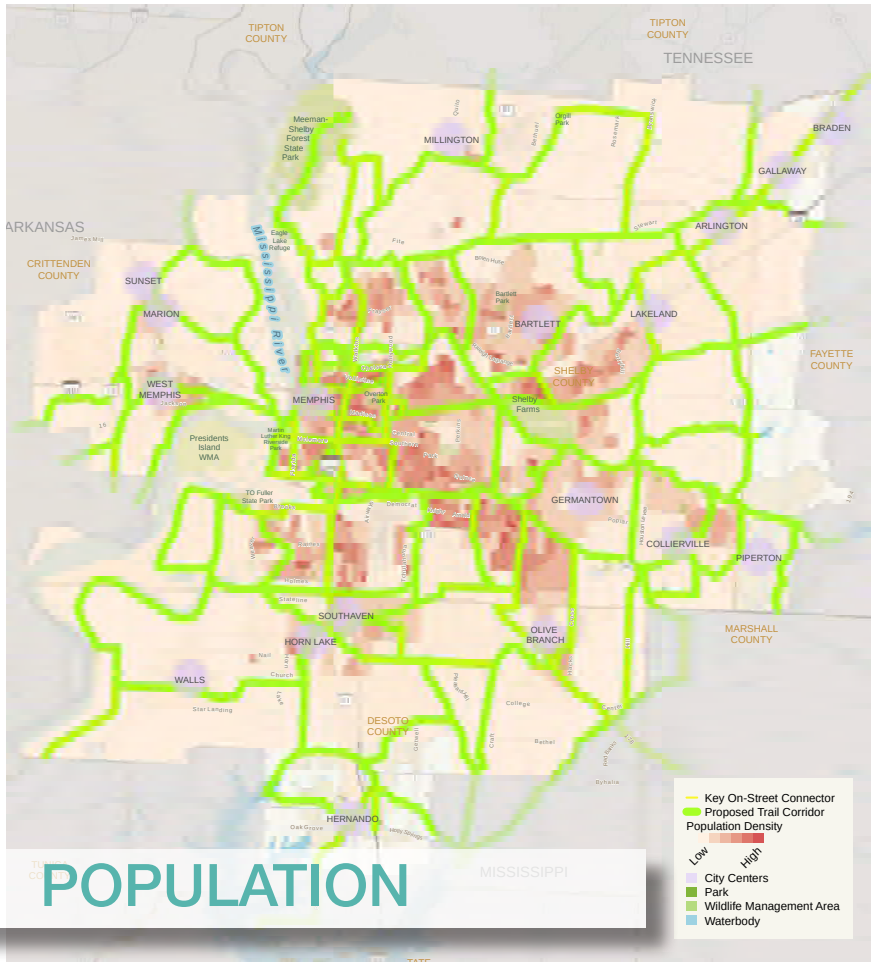
The Concept Map was developed with both connectivity and density in mind. Trail corridors are drawn to create a looping pattern, both small loops and larger loops, in order to encircle communities, population, town centers, and employment centers. This looping pattern allows for greater connectivity from and across all communities in the region. The size of loops is drawn to follow patterns of density. Generally, tighter loops are drawn within the urban core of the region and loops widen in less densely populated suburban and rural areas of the region.

The future growth of the region has an impact on Greenprint access and investments. If the region grows over the next 25 years in a manner consistent with trends of the recent past ("Trend Scenario," illustrated on the following page), the impact of investing in the Greenprint is diminished as compared to a pattern of infill development ("Infill Scenario") which considers a shift of roughly 20% in development of undevelopable land to developable infill, or previously developed land. The infill scenario not only brings more households and jobs closer to Greenprint corridors, but stabilizes population in urbanized areas of the region (including



some suburbs), and stems the consumption of farmland and urbanization of rural communities of the region.

As the region grows, the Concept Map envisions development of housing and commercial areas to focus around existing communities, with attention to existing town centers. Town and city centers are where many of day-to-day destinations and services are located, making them important for connectivity. Areas of focus for housing and commercial revitalization included on the Concept Map were identified by local land use plans, Consortium input, and input from local planners.



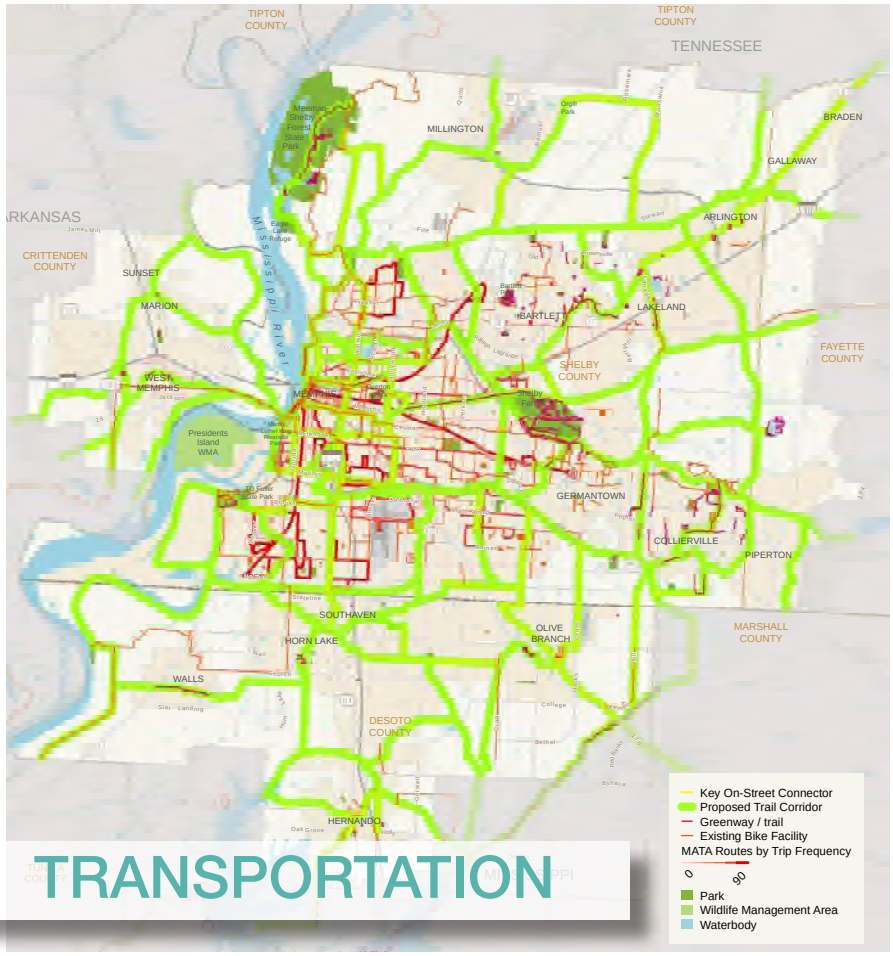
POPULATION

Transportation

A primary goal of the Greenprint network is to serve as a transportation network for residents of the region. As such, connecting greenway trails to other modes of transportation such as bicycle lanes and fixed bus routes is necessary. In comparing bicycle infrastructure and transit in the region, areas of correspondence in the urban core are evident, while most areas of the region have no formal connections between these two modes. This is primarily due to the fact that transit service, provided by Memphis Area Transit Authority (MATA) is not extended beyond the city of Memphis, with few exceptions in West Memphis, Bartlett, and Germantown.

Service by transit and other alternative modes of transportation are key to accessing employment, services, healthy food, activities, and green space, particularly for the estimated 30% or more of the population that does not drive due to age, physical ability, or household income. Today, the transit network is based on a radial

pattern of routes converging into downtown Memphis. While downtown Memphis is a critical hub for population, employment, and commerce, the spread of population and employment density extends throughout the region, suggesting the need for greater connectivity to population and employment across all modes of transportation.



TRANSPORTATION

In developing the Greenprint network with respect to public transportation and bicycle facilities, attention was placed on both creating points of intersection between transit, bicycle lanes, and greenways, as well as relying on transit and bicycle facilities to connect inside loops of the network. In this way, the looping pattern of greenways complements the radial transit network to serve a broader area of population and employment.

The Concept Map contains 196 miles of Key On-Street Connectors, bicycle-friendly streets connecting the regional system where off-road routes are not possible. Today, the region has approximately 250 miles of on-road bicycle facilities. Of these, 41 existing miles align directly with Key On-Street Connectors recommended on the Concept Map. One such connector, connecting Meeman-Shelby Forest to DeSoto County along U.S. Highway 51, also is one of the highest frequency transit routes in the network. This north-south transit corridor connects to two high frequency transit routes along Jackson Avenue and Poplar Avenue running east-west. These two routes serve to provide critical greenway-transit connections along key points in the network, but also bisect loops of the Greenprint network, among other key connections. Further, as the regional bicycle network continues to develop, these routes also connect within loops.

Employment

Employment density in the Mid-South is spread similar to population density. In addition to downtown Memphis and the Medical District, major employment areas exist south into Southaven and Olive Branch, Mississippi, north to Millington, and east to Collierville. The largest employment center in the region is the Airport area, with close to 100,000 jobs.

Commuting to work in the Mid-South region is predominantly by driving alone. The physical development patterns and locations of home and work in the region have resulted in a lower percentage of alternative transportation than the national average. Connecting the Greenprint to employment areas is critical for beginning to increase the share of individuals commuting to work by bicycle, transit, or a combination of the two.

Several major employment areas in the region are well connected to the Greenprint network through greenways proposed for major tributaries. For example, the Wolf River connects downtown Memphis through the Shelby Oaks and Poplar/I-240 employment center east to Collierville. Nonconnah Creek connects major employment centers west of the Airport along Brooks Road, east through the Airport to Collierville, with adjoining north-south routes extending across the Tennessee-Mississippi state lines into Southaven and Olive Branch employment areas. Many of the connections extending across the

EMPLOYMENT

Households in poverty and with limited access to jobs have health, social, and economic disparities that can be improved by better access to employment areas, services, and quality of life amenities such as green infrastructure and safe green spaces for physical activity. The areas of greatest need based on the social equity index are generally within the core of Memphis and in West Memphis.

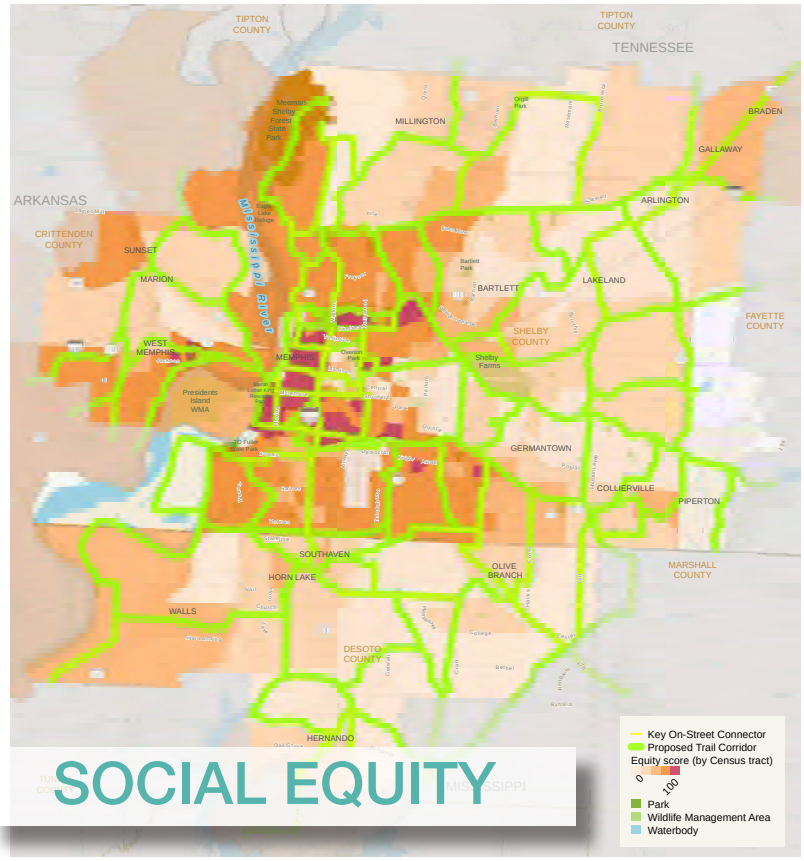
Priority social equity areas are generally located in higher-density urban environments, meaning there is often less space available for traditional greenway trails. However, Key On-Street Connectors are strategically drawn to connect to greenway trails, such as the Chelsea Greenline and South Memphis Greenway, which could serve to influence redevelopment. In addition, these connections are drawn to link up to more regional connections, such as the Wolf River Greenway and Nonconnah Corridor, which connects these areas to high opportunity areas such as major employment centers.

Tennessee-Mississippi state line are critical for individuals who depend on transit, but cannot access service in DeSoto County.

If implemented today, 79% of the region's jobs would be within one mile of a Greenprint corridor. Connecting this network to existing and planned alternative transportation could provide a significant benefit for access to employment.

Social Equity

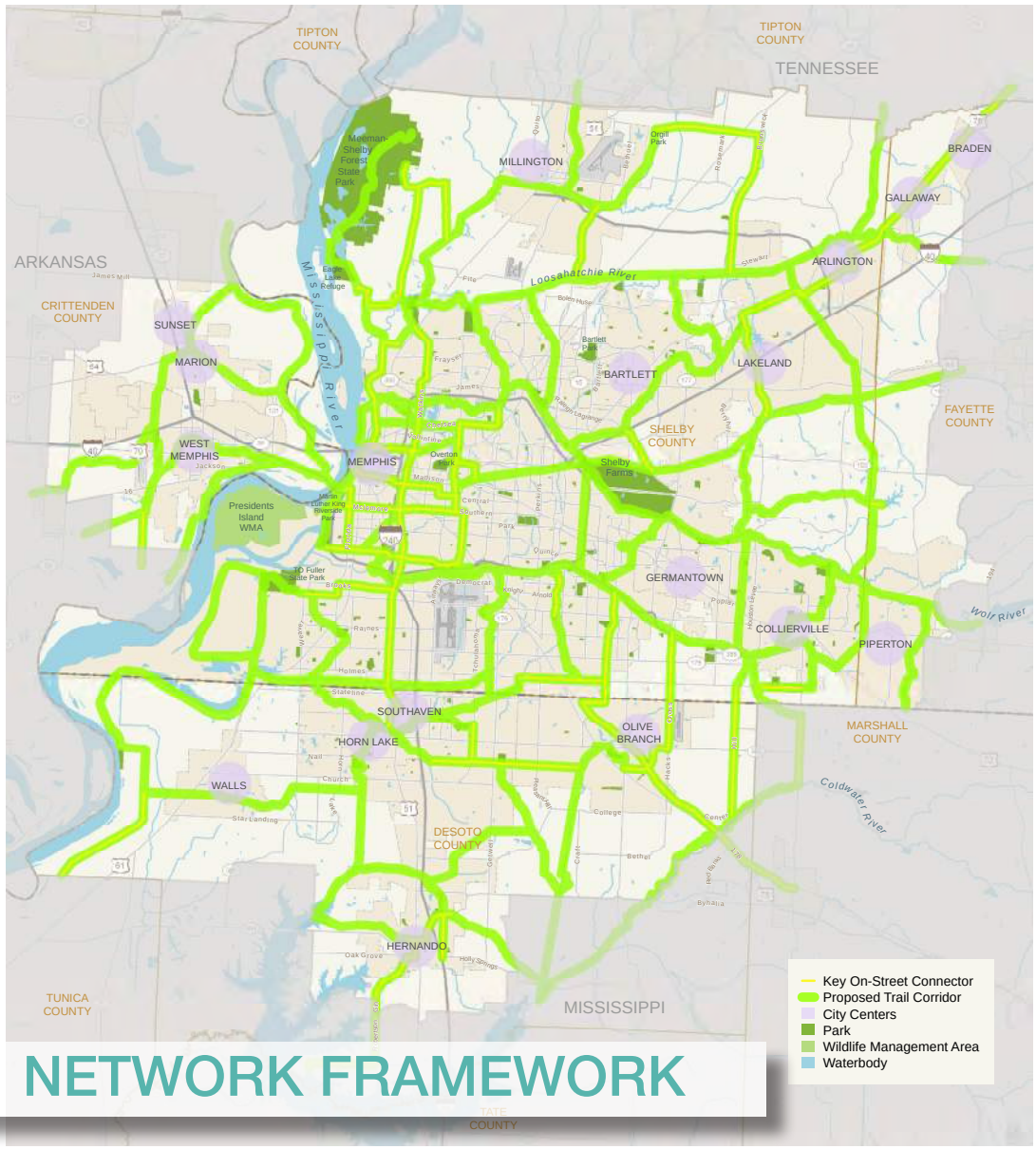
A final consideration in the development of the Greenprint network is areas of priority for social equity. These traditionally underserved areas were highlighted during the development of the Concept Map in order to maximize the social and economic benefits of the proposed network in areas of greatest need. Priority social equity areas were derived by analyzing rates of poverty, households without vehicles, non-white populations, and Limited English Proficiency (LEP) populations. Greater percentages of these rates correspond to higher equity scores.



SOCIAL EQUITY

Foundational Trails

The framework for connected green space below articulates the vision of the region for how open space and development is linked by greenways, trails, and on-road paths. Though the creation of this network will happen one piece at a time over the next 25 years, it is critical to understand how individual links contribute to the whole network. It is important the region continue to work together during the implementation phase toward accomplishing the comprehensive vision of the framework for connected green space. As cities, towns, counties, and organizations build out pieces of the network, it is important to recognize each investment in green space contributes to the overall system. If portions of the network are not accomplished, the overall value

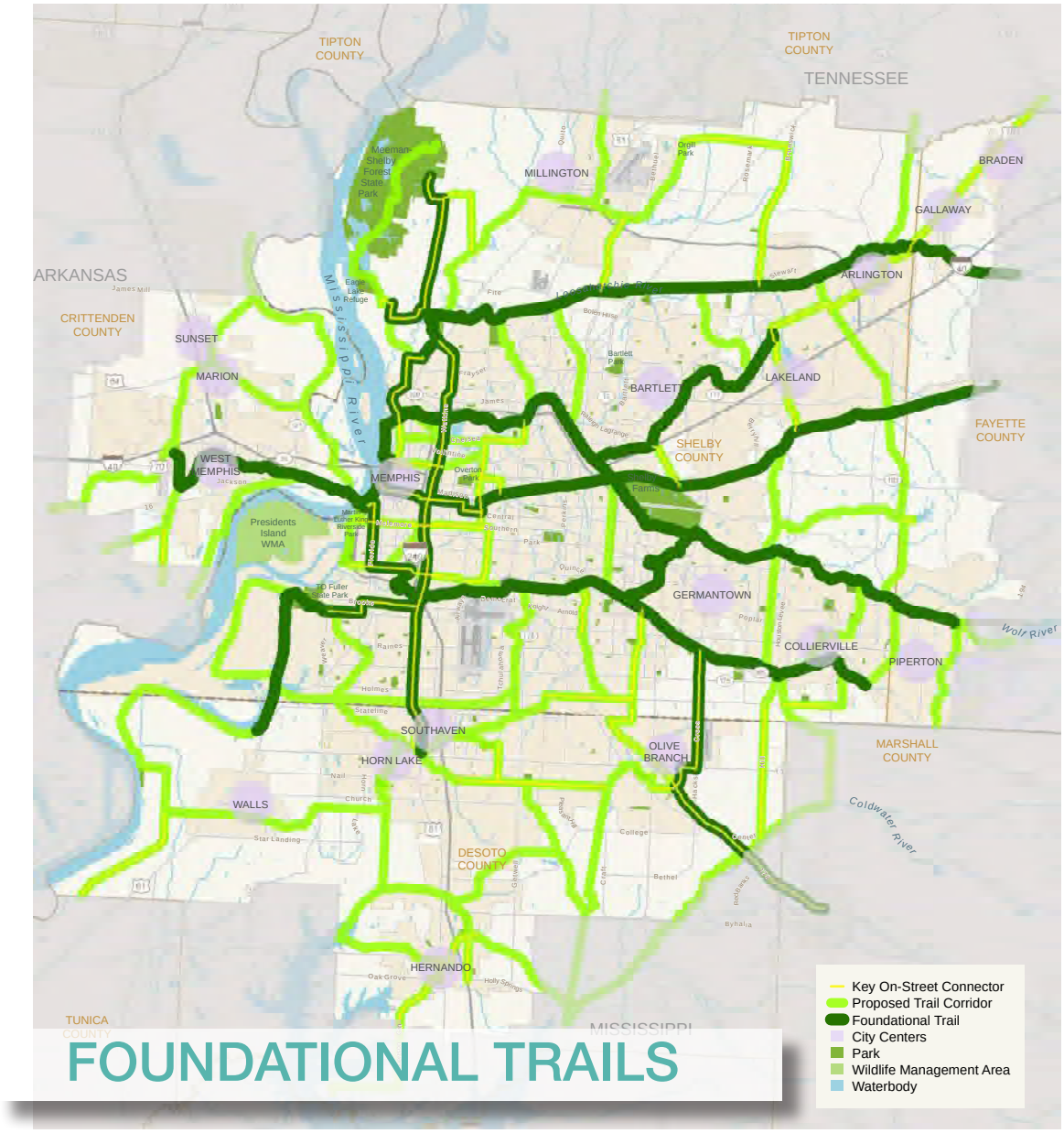


NETWORK FRAMEWORK

of the green space system is diminished. Although all links within the network are valuable, some links, shown below as foundational trails, can provide greater function for regional connectivity.

The Concept Map is formed of several foundational trails, or links providing a backbone to the network. These foundational trails extend across city, county, and state jurisdictions and provide a framework from which other trails and resulting loops with develop. Foundational trails shown in dark green in the map below include both off-street and on-street connections, link the most populous and highest-density areas of the region, and connect to the largest green space hubs of the region: the Mississippi River, Meeman-Shelby Forest State Park, and Shelby Farms Park. Three of the foundational trails run alongside main tributaries to the Mississippi River in the region: the Nonconnah Creek, Wolf River, and Loosahatchie River.

By achieving the implementation of foundational trails, the smaller connections that radiate from foundational trails become more feasible, valuable, and provide greater connectivity within the system and to key destinations linked by the green space network.



FOUNDATIONAL TRAILS

STRATEGIC DIRECTIONS

Strategic Directions

Each Strategic Direction is based upon the vision goals for the Mid-South region, why action is needed, proposed outcomes of achieving goals, and the objectives and actions required.

A Regional Interconnected Network of Parks, Greenways, and Open Spaces

Equitable Participation and Community Ownership

Enhanced Access through Transportation Choices

Healthy and Safe Communities

Improved Neighborhoods and Fair Housing Choices

Sustainable Resources and a Quality Environment

A Productive Workforce and Economy

Effective Long-term Regional Planning

The process of achieving the goals for the Mid-South region is one of many steps along a well-defined path. The eight Strategic Directions represent the destination the region hopes to reach. Objectives are the path to create substantive and measurable change. Actions are the major steps along the path, including major accomplishments and advancements in policy.

As the plan is implemented, the efforts of many individuals, organizations and agencies around a host of activities will result in coordinated action steps taken by various groups, which in turn advance the plan's objectives and Strategic Directions. These activities may include changes in policy, establishment of procedures, or events and efforts that result in coordinated movement forward.

A Regional Interconnected Network of Parks, Greenways, and Open Spaces

Objective 1 Expand and improve a network of green space hubs linked by greenways and trails

Objective 2 Improve the access and use of existing parks and green space for the benefit of people and wildlife

Objective 3 Develop a regional identity and central entity to coordinate development of the green space network

A Regional Interconnected Network of Parks, Greenways, and Open Spaces

Regional Context

The Mid-South is rich in natural assets such as prime farmland, wetlands, forests, wildlife habitat, rivers, and streams. The region is bisected by the Mississippi River and connected by its tributaries. The Mississippi Flyway is a central corridor for bird migration, and the watersheds of the Mississippi's tributaries and adjoining wetlands contribute to the recharge of one of the most pristine aquifers in the nation, the Memphis Sands Aquifer. These natural features enable life for humans and wildlife in the region, and contribute to quality of life, tourism, and recreation.

The natural environment should be an equal priority to the built environment and balanced appropriately when planning for the growth and prosperity of the region. It is important to recognize the value of the region's natural assets, understand how they interact with the built environment, and connect across communities and the region.

V&E Greenline

Both large, regional green assets and small, local green assets are not yet connected by a network of parks, greenways, and open spaces. There are efforts to improve individual network components, but many other key connectivity projects have not been addressed. Though there are currently 164 miles of greenway trails in the region, the green infrastructure network has major gaps in access and usage. Furthermore, policies regarding green space across the region at all levels are inconsistent.

A well-connected natural system that connects across watersheds is able to better perform ecological functions. But a well-performing natural system requires forethought and coordination between municipalities and developments. In addition to environmental, recreational, and ecological benefits, connecting our natural system across the region can unlock economic, social, and health benefits as well.

Proposed Outcomes

By addressing objectives associated with **A Regional Interconnected Network of Parks, Greenways, and Open Spaces**, the following outcomes are expected:

- Improved access to public and open spaces in all communities
- Readily accessible neighborhood, community, and regional parks, open spaces, and trails
- An increase in neighborhood parks, particularly in areas not served today
- An increase of 448 miles of new greenway trails to create a regional network of 499 miles
- Access to an interconnected network of local, community, and regional trails
- A strongly linked network of open space hubs serving humans and wildlife along and between streams and other corridors
- Improved water quality in the region's rivers, lakes, creeks, and ponds
- Preserved rural agricultural and working lands, including eco- and agri-tourism
- Improved conservation and restoration of sensitive lands including the flood-prone, habitat for wildlife, viewsheds, and wetlands

Based on greatest needs identified for A Regional Interconnected Network of Parks, Greenways, and Open Spaces, the following objectives focus on expanding and improving the green space network and the parks and trails within it. Actions consider creation of new green space amenities, but also focus on maintenance and safety in existing green spaces in order to improve their use and benefit to communities.

Objective 1 Expand and improve a network of green space hubs linked by greenways and trails

Actions

- 1.1.1 Protect and create green space hubs to anchor the regional green infrastructure network
- 1.1.2 Protect existing and create new links and loops between hubs
- 1.1.3 Develop loops or circuits that connect strategic greenways and the major watersheds
- 1.1.4 Protect existing and create new sites to ensure residents are within close proximity to parks or trails
- 1.1.5 Adopt regionally-accepted criteria for prioritization of enhancing hubs and links as part of an interconnected network of green spaces
- 1.1.6 Promote environmental benefits of green infrastructure when advocating for new facilities
- 1.1.7 Incorporate a diverse range of active and passive recreation amenities into green spaces in an environmentally sensitive way
- 1.1.8 Preserve and integrate agricultural and rural scenic character and history into the system of parks, green spaces, and trails
- 1.1.9 Connect greenways and trails to cultural resources and historic sites, settlements, and communities

Generally, an interconnected network of parks, greenways, and open spaces follows a design of hubs and sites connected by links and loops throughout the region. The Greenprint plan process followed this model from the initial plan development phase, placing greater value on hubs, links, and sites that offer public access for people, in addition to wildlife habitat.

Hubs are large areas that anchor a green infrastructure network, such as large, regional parks and wildlife management areas. Examples include Meeman-Shelby Forest State Park, Shelby Farms Park, and Arkabutla Lake. The main attributes of any hub are its size and the specific environmental and ecological advantages offered due to its large size.

Links within the green infrastructure network are the connections between hubs. Links are linear natural corridors such as stream corridors, ridgelines, or abandoned rail lines. These corridors are considered an effective means of linking isolated islands of publicly accessible green space and critical wildlife habitat that have been fragmented by development, agriculture, or some other impediment.

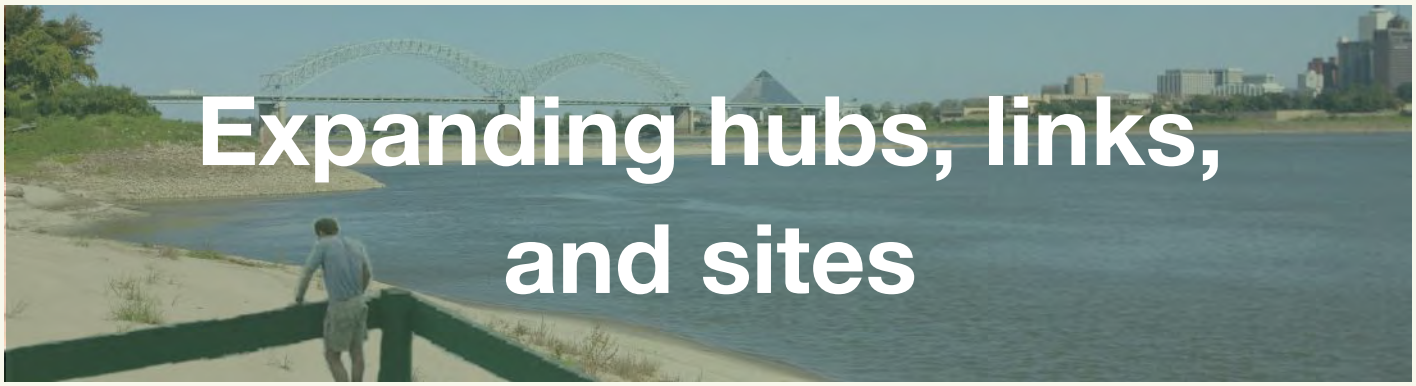
Greenways such as the Shelby Farms Greenline and Wolf River Greenway are examples of links. The term “greenway” is often used to describe a linear open space corridor. Greenways may either be publicly owned and developed as parkland or privately owned natural resource corridors. Links may also be included as part of facilitating transportation between hubs. On-street facilities such as bike lanes, cycle tracks, and parallel running trails may be considered links.

Sites are smaller than hubs and are not necessarily attached to interconnected green space systems. But like the other components of the network, sites contribute important environmental and social values, such as spaces for physical activity and recreation, farmland for agricultural production, or places for cultural or ecological tourism. Connecting a diverse range of sites across urban, suburban, and rural communities to the Greenprint network generates a broader range of benefits to the region.

Many of the hubs and sites identified in the Greenprint network exist today, yet many of the proposed links are not yet established. The Concept Map proposes to link these hubs and sites with a network of 499 miles of greenways and 196 miles of key on-street connectors. In addressing this ambitious task, criteria on the following page is suggested for prioritizing development of new links.

Suggested criteria for prioritizing development of links

Criteria	Description
Public Support	The proposed trails shown in the Concept Map were developed primarily from a combination of stakeholder input, public input, and existing plans. Trails that are already supported by existing plans (that had their own public input process prior to the Vision Plan) should take priority.
Functional Segment	Each priority trail project should have an "anchor" or destination landscape on each end, such as a park, neighborhood, school, shopping area, or an existing trail. Projects should be implemented over time with a relatively even distribution throughout the region.
Social Equity and Employment Connections	The Concept Map identifies geographic areas in the Mid-South region that should be considered priorities for connectivity in terms of both social equity and centers of employment. To meet these fundamental aspects, the priority trails should serve and connect to these areas to the greatest extent possible, while also balancing these other criteria.
Available Land or Right-of-Way	Proposed trails where a substantial portion of the route is along an existing public right-of-way, an existing public easement, or publicly owned land should be considered as strong candidates for priority projects.
Ease of Development	The majority of the proposed trail projects will require further study for feasibility to better understand obstacles to future development. Still, even without such studies at this stage, any known major obstacles that would likely prohibit the near-term development of a trail should be taken into consideration when determining priorities.
Available Funding	A lack of an identified funding source should not prevent a project from being considered as a priority. However, if a project already has funding in place, or a likely source has been identified, that project should be considered as a strong candidate for priority development.
Overall Connectivity	As a whole, the priority projects should provide a logical, connected foundation from which the larger comprehensive trail network may expand over time. For example, priority east-west connections should be balanced with priority north-south connections, and they should connect to one another to the extent possible.
Environmental Benefits	Proposed trails along riparian corridors could be designed to promote conservation for wildlife and water quality, while also bringing attention to opportunities for improving environmental conditions along such corridors. Proposed routes that encompass regionally significant riparian areas should be given priority for this purpose.
Accessible and Safe for Non-Motorized Travel	Proposed trails and on-road improvements that provide safer alternatives to existing conditions for bicyclists and pedestrians should be considered as priorities. An analysis of motor vehicle crashes involving bicyclists and pedestrians in relation to proposed corridors should be used to help inform future decision-making that uses safety as criteria for trail prioritization. The trail provides for multiple uses, with extra credit given when a portion of the trail meets ADA requirements.



Expanding hubs, links, and sites

Introduction

Five demonstration subplanning efforts addressed expanding the green infrastructure network locally and regionally by focusing on hubs, sites, or links in the network. The West Memphis Eco-Park plan contributes a critical hub on the Arkansas side of the Mississippi River, across from the Harahan Bridge connection between Tennessee and Arkansas; the Friendship Park in eastern Shelby County will become a new site with both cultural and recreational significance; the Loosahatchie greenway plan in Arlington provides a framework for providing a link along one of the main tributaries to the Mississippi River and foundational trails in the network; the Millington greenways plan and DeSoto County Natural Resources Plan provide key examples of how connections made at the local level can contribute to the regional plan.

Demonstration Projects

The West Memphis Eco-Park includes an interpretive trail system at the terminus of the Harahan Bridge in Arkansas utilizing floodplain land on the western side of the Mississippi River. Since the Harahan Bridge corridor will become the main pedestrian connector between Memphis and West Memphis, the plan will help the City of West Memphis become positioned to build on the opportunities created by the connection across the river. The plan includes an educational center, outdoor spaces, and refuge for wildlife.

Friendship Park is an eight-acre, cultural site in eastern Shelby County located between Heartsong Church and Memphis Islamic Center. The goal of the project is to nurture mutual understanding and respect between people of all races, cultures, and faith. Once completed, the park will be open to all, include recreational and educational amenities, and serve as a gesture of goodwill between Christian and Islamic communities of the Mid-South.

The Town of Arlington developed a master plan for the section of the proposed Loosahatchie Greenway connecting through the town limits. The plan seeks to connect parks, schools, vacant land, and historic and cultural centers of the community, including Depot Square. Connections seek to promote a number of goals, including economic benefit, water quality, educational opportunities, and inclusivity, among others. The first phase of the plan is development of two primary trailheads, followed by the river connection, a river nature park, and a central trailhead and lateral trails.

Millington received a subplanning award to develop a citywide greenways plan. The Millington Greenway Master Plan is a long range plan for connecting 20 miles of greenway throughout the City of Millington, including connections reflected on the Greenprint Concept Map. The plan links Millington's park system by trails and bike lanes, and seeks to conserve open spaces, provide alternative transportation, and promote healthier lifestyles.

The DeSoto County Natural Resources Plan sets priorities for acquisition of open space and park land in DeSoto County, Mississippi. Because of increase demand to acquire remaining open space and limited financial resources, DeSoto County needed an objective process to evaluate and prioritize potential open space additions based on benefit to the overall greenways and parks system. In addition to the development of a ranking worksheet, the project includes a natural resources management component for existing properties. The county's first identified priority for greenways development is the Horn Lake Creek Greenway.

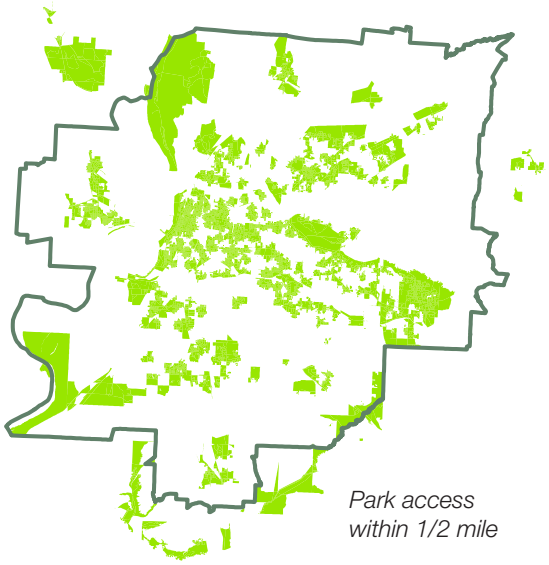
Objective 2 Improve the access and use of existing parks and green space for the benefit of people and wildlife

Actions

- 1.2.1 Create an inventory of access points and assess the equitable distribution and quality of these access points
- 1.2.2 Create way-finding signage, web and mobile applications, and published materials to inform individuals on navigating greenways, trails, and bicycle routes between neighborhoods, parks, and activity centers
- 1.2.3 Prepare, update, and share plans for park improvements, maintenance, safety, and facility assets management
- 1.2.4 Create, fund, and execute a pilot project to address maintenance and safety issues in one or more underused parks
- 1.2.5 Plan and execute regular organized activities at pilot project sites to induce greater use, demonstrate improvements, and catalyze additional improvements
- 1.2.6 Institutionalize continued activities by securing necessary commitments, resources, and organizational capacity
- 1.2.7 Identify and convert underutilized parks into wildlife and habitat restoration areas and corridors
- 1.2.8 Incorporate standards compliant with the Americans with Disabilities Act (ADA) into planning for parks, greenways, and other public open spaces

The Mid-South currently has 25 acres of park space per 1,000 residents, higher than many comparable regions. The region should promote this abundance of park space, but recognize parks are not equitably distributed, residents have different recreational interests, and not all parks are well-used. The map to the right illustrates the gaps in park space currently present in the region. Areas in green demonstrate access within ½ mile, or a 10-minute walk, to a park or green space.

Addressing maintenance and programming in existing parks emerged as a priority region-wide. Parks provide a range of benefits from physical activity to community gathering places. These spaces have a direct impact on health, safety, and quality of life. However, many of the region's parks are underused due to perceptions of safety, lack of programming for individuals of all ages, or lack of maintenance. Addressing these issues can potentially improve use of underused parks.



Park access within 1/2 mile

Cities and counties in the region should collaborate to share best practices for planning and improving parks. Park plans should not only address improvements and facilities, but maintenance, safety, and design. Park plans should integrate more native landscaping, wildflowers, and trees to reduce maintenance needs, while creating wildlife habitat and park amenities.

Communities, through a variety of partnership models, can take a pilot approach to address maintenance, safety, and use of parks that can be replicated. Residents can help by raising small amounts of money needed to introduce improvements or organize activities that attract use. Government can encourage sustained use by investing in activities and improvements that increase park use and improve safety.

Improving access to existing parks and green space

Introduction

Creating safe and available access points to existing assets is often as important as establishing new spaces. In community outreach for the Greenprint, the need for improved access to existing green spaces by pedestrians, bicyclists, and persons with disabilities and the desire to access streams for boating was often expressed by residents across the region. Four of the subplanning demonstration projects were created to address improved access in some of the region's most critical natural spaces: Overton Park, the Wolf River, Shelby Farms Park and Greenline, and the V&E Greenline.

Demonstration Projects

Overton Park Conservancy developed a plan to improve bike and pedestrian access into and around Overton Park as a project of the Greenprint. Overton Park is a hub of bicycling, pedestrian, and recreation activity in Memphis, but access is hindered because it is surrounded by busy streets. Improving access is critical for the park to serve its highest function as both a recreation destination and as a hub with connections to other popular destinations such as Shelby Farms Greenline, Shelby Farms Park, Broad Avenue Arts District, Crosstown, Cooper Young, and Overton Square. The project developed designs, site plans, and estimates to improve the Cooper Street entrance, Tucker Street entrance, and North Parkway entrance, and develop improvements for pedestrians and persons with disabilities within the park. The project also includes a design plan for a perimeter trail around the park, which connects to four sheltered transit stops on Poplar Avenue.

The Wolf River Boat Launch Access Study inventoried existing boat launch sites, identified locations for new sites, and assessed conditions of sites along the Wolf River through Shelby County and Fayette County. The study also considered opportunities to connect boat launch sites with greenways, cultural resources, and neighborhoods. Launch points were recommended in four locations along the Wolf River: McLean Blvd., Summer Avenue, Walnut Grove Road, and Germantown Road. Designs were developed for the launch at Summer, as well as for McLean in tandem with design for Phase 5B of the Wolf River Greenway.

Shelby Farms Park Conservancy has worked to design three pedestrian and bicycle access points along the current and future Shelby Farms Greenline to create a more permeable edge to Shelby Farms Park and Greenline, increasing access to surrounding communities. The project seeks to strengthen relationships with the surrounding neighborhood and improve safe access and linkages from neighborhoods to the greenline and park. The target locations focus on Perkins Road, Appling Road, and GameDay Baseball. The Perkins Road access point, which will connect more than 1,000 households to the park and greenline, was identified in the study as the first priority to enhance access.

Vollintine Evergreen Community Association (VECA) has conducted a study to improve drainage issues, curb cuts, sidewalk improvements, crosswalk striping, and wheelchair ramps along the V&E Greenline at several street intersections. Pedestrian and bicycle entrances to the V&E Greenline are difficult to navigate because only one street crossing has been constructed. Crossing locations at Stonewall, Avalon, Tutwiler, Belvedere, Evergreen, Auburndale, McLean, University/Jackson, and Springdale were studied in order to develop technical drawings for improvement of access points to the greenline.

Objective 3 Develop a regional identity and central entity to coordinate development of the green space network

Actions

- 1.3.1 Create or identify a management entity to develop, manage, and seek funding for the green space network
- 1.3.2 Create a regional identity for the green space network based on the importance of the Mississippi River and its tributaries
- 1.3.3 Establish dedicated public and private funding for implementation, maintenance, marketing and education of the regional green space network
- 1.3.4 Align municipal and county policies regarding recreational use, trail construction, open space conservation, stream buffers, and floodplain protection
- 1.3.5 Coordinate operations and maintenance planning of facilities that cross jurisdictions or could be co-managed

The foundation for the Mid-South Regional Greenprint Consortium was the Mid-South Greenways Steering Committee, an ad hoc group of parks and greenways stakeholders formed to share best practices and develop a shared vision for connecting green space across the tri-state region. Several of the groups that make up the steering committee and Consortium are responsible for implementation of greenways development. However, all focus on a limited geographic scope within the region.

In order to successfully transition from planning to implementation of the Greenprint, a central coordinating entity is needed to ensure the implementation of the green space network over the next 25 years.

The primary responsibility of this entity would be to facilitate the development of the green space network, either through direct implementation or assistance to other implementing organizations. This includes development, management, policy, and fundraising. The central entity would be charged with working across public, private, and nonprofit sectors to ensure implementation.

The development process for trails will vary from community to community and from project to project, especially depending on the work already completed to-date for each segment of trail. Costs can vary widely based on project specifications, but it is estimated trail construction in the Mid-South will average $777,000 per trail mile. This cost does not include design, site acquisition, or maintenance. The benefits associated with development of greenway trails can far outweigh the costs, including gains in property values, public revenues, jobs, new businesses, and new development.

Detailed guidance on implementation costs, guidance for trail network operations and maintenance, site acquisition, and funding can be found in the *Resource Appendix*.

Shelby Farms Greenline

Equitable Participation and Community Ownership

Objective 1 Engage and include a diverse group of individuals, groups, and communities from across the region through implementation

Objective 2 Build a culture of effective citizen planning by increasing capacity of groups and leaders, especially in underserved communities

Objective 3 Ensure equity in implementation priority, site selection, and resource allocation

Equitable Participation and Community Ownership

Regional Context

Just as communities around the country are joining together to address economic, housing, transportation, and quality of life issues on a regional level, incorporating equity into such planning is taking on greater urgency. At the federal level, initiatives such as the Partnership for Sustainable Communities are strongly encouraging local governments move from good intentions to action. The Greenprint has sought to incorporate unprecedented levels of community engagement in the planning process through a variety of outreach tools. Organizations are also advocating for system changes to increase public participation and influence in decision making.

Achieving equity means communities most affected by future decisions are invited to participate in the planning process as a full partner in decision making. It is especially important to engage and involve community members that historically have not been adequately represented in planning, such as representatives of low-income, minority, disability, limited English proficiency, and rural communities. All affected community members should have equal access to participate in planning, regardless of their race, age, income, ability, digital access, or other difference. The chart below illustrates a continuum of progress in public involvement, beginning the process of informing the public to decision making by the public.

From Engagement to Institutionalizing Equity: A Continuum

Government Informs the Community	Government Consults with the Public	Government and Public Engage in a Dialogue	Government and Public Work Together	Community Decides with Support from Government

A number of factors have elevated the need for increased participation and ownership of planning efforts. These factors include: the region's high concentrations of disadvantaged populations in impoverished areas, high numbers of social and economic disparities, environmental injustices, and low participation in planning initiatives historically due to disenfranchisement.

Objectives associated with **Equitable Participation and Community Ownership** recognize a process of achieving equity in planning involves public awareness and input of initiatives, building community capacity to advocate for positions and participate in decision making, and ensuring equity in plan implementation so benefits accrue to all communities, not just a few.

Proposed Outcomes

The achievement of the objectives outlined in this section is expected to result in the following outcomes:

- Reduced social and economic disparities for underserved populations
- Equal opportunity for public participation in planning decisions
- Increased public participation and decision making from traditionally underrepresented populations
- Increased access to information, opportunities for engagement, and capacity for community planning
- Equal access to public investments across all communities
- Greater community ownership by residents, enabling planning to respond to regional and community needs
- Improvement in social, economic, and environmental conditions in economically and socially depressed areas.

Social equity is not accomplished through community engagement and community partnerships alone, although those can be important tools. True social equity requires full participation in decision making. In addition, achieving social equity often requires capacity building for community members so their participation is meaningful and relevant, and they are an equal partner in decision making with other stakeholders and planning professionals. Education and capacity building can also benefit government planners and administrators to provide them with tools to help grow their relationships with the public.

Objective 1 Engage and include a diverse group of individuals, groups, and communities from across the region through implementation

Actions

2.1.1 Create an outreach and advocacy toolkit to inform individuals of the value of the Greenprint plan

2.1.2 Engage new and existing communities, issue-based groups, and regional recreation groups in education and implementation efforts

2.1.3 Provide education, information, capacity, and outreach resources in a variety of formats accessible to all

2.1.4 Collect information assessing skills, business interests, and community interests from residents of traditionally underserved communities to influence planning and economic development

2.1.5 Include traditionally underrepresented people (urban, suburban, and rural) in future planning and community engagement activities

Community meeting in Frayser

Public engagement for the Greenprint plan took many forms. An online strategy was developed using surveys and a map-based, idea sourcing tool called U Map It. Five region-wide meetings were held to generate public input early in the visioning phase and then prior to the development of the final plan draft. Over the course of a year in between, over 20 community meetings and over 40 appearances on community organization agendas were conducted.

The public outreach process generated a significant amount of input for the Greenprint, but it also demonstrated some practices work better than others in engaging a large and diverse number of participants from communities across the region.

The community engagement practice of the Greenprint that yielded the greatest amount of participation was appearing on community association agendas, prepared with a 10- to 30-minute presentation and feedback exercise. This strategy was successful in generating input from various communities across the region. In addition, two open house sessions at North End Terminal and American Way Transit Center were successful in getting information to large numbers of individuals who were not aware of the Greenprint. The success of going to where people are should not be a surprise, and should be a guide for future planning efforts. However, due to time afforded these practices are only successful in capturing a limited amount of input.

This strategy can be valuable in the process of continuing awareness for the Greenprint and other planning initiatives. Continuing the process of grassroots outreach and awareness for the Greenprint can serve to influence demand for plan implementation by the public. Supporters of the Greenprint should be empowered by an outreach and advocacy toolkit in order to help community supporters continue to engage individuals on the effort.

Objective 2 Build a culture of effective citizen planning by increasing capacity of groups and leaders, especially in underserved communities

Actions

- 2.2.1 Institutionalize social equity into the planning process, participation, and potential impacts
- 2.2.2 Assess existing resources that can be utilized for training, organizational development, and engagement programs
- 2.2.3 Engage youth in activities to help them become participants in public planning and community initiatives
- 2.2.4 Develop a fair housing coalition of organizations to collaboratively address fair housing advocacy, education, training, investigation, and enforcement
- 2.2.5 Form a regional equity council to assess ongoing outreach and inform and involve individuals of implementation
- 2.2.6 Form local councils to bridge between the people and the regional council to communicate opportunities, concerns, and decisions related to implementation
- 2.2.7 Establish a strong working relationship between government and regional equity council to build understanding, trust, and common action
- 2.2.8 Assess available communication channels such as faith-based organizations, community groups, community centers, and libraries for disseminating information to individuals regarding planning initiatives

Public participation in many planning initiatives in the region has been low, especially among disadvantaged populations who often have much at stake regarding land use, transportation, and neighborhoods. At the same time, residents are engaging with each other through less formal channels to undertake projects to improve their communities, from planning to fundraising to implementation. From painting a mural in the Klondike Smokey City neighborhood in Memphis to the redevelopment of an old fire station to a community center in Northaven, members of the public clearly want to play a role in influencing their neighborhoods.

If government and residents come together in a spirit of partnership, with the goal of shared decision-making, plans that truly respond to community needs can emerge. In order to enable this partnership, greater resources should be made available to the public. As part of the capacity building program for the Greenprint, two educational guides were developed: *Planning and Your Community*, intended to guide community residents through the planning and public participation process, and *A Student's Introduction to City Planning in the Mid-South*, intended to educate high school students on the fundamentals of city planning. These guides can be found in the *Resource Appendix*.

In addition, putting data and maps into the hands of residents can help facilitate a stronger partnership between government and the public. The Greenprint web mapping tool and data geoportal are a beginning point in the Mid-South. A peer example is the Metro Atlanta Equity Atlas (MAEA), a comprehensive mapping project using GIS, data, and narrative to tell the story of spatial justice in Metro Atlanta. The MAEA provides regional stakeholders with an up-to-date, accessible, data-rich resource capable of informing the larger debate on how to create a more fair and equitable region. The MAEA consists of eight chapters covering indicators that comprise a sustainable region: population and demographics, housing, jobs and economic development, education, health, transportation, environment, and public safety.

A data tool, called the Livability Dashboard, is under development in the Mid-South and will expand the data tools from the Greenprint into a tool similar to the MAEA. The purpose of the Livability Dashboard is to provide a data tool of community indicators to facilitate community visioning, assist decision making, and connect neighborhoods to community resources such as nonprofits.

Objective 3 Ensure equity in implementation priority, site selection, and resource allocation

Actions

- 2.3.1 Identify and prioritize investments in green and social infrastructure where there are critical gaps
- 2.3.2 Ensure the needs of each community are accurately represented throughout the planning and implementation process
- 2.3.3 Ensure implementation does not displace people, community assets, or community problems
- 2.3.4 Identify and reduce language, education, transportation, time, and technological barriers
- 2.3.5 Provide information in English and Spanish while maintaining sensitivity to other native languages in specific communities
- 2.3.6 Develop metrics and monitor progress of equitable investment and geographic impact for new and improved green spaces

The process of plan implementation should ensure equity in how benefits are experienced by the region, just as planning seeks equitable participation. By incorporating social equity as one of the primary layers of the Concept Map, the plan has a greater opportunity to ensure implementation will achieve the greatest level of geographic and demographic equity at full completion. However, resource allocation over the course of the next 25 years should seek to equally distribute benefits of the Greenprint in each phase of implementation.

Assembling a regional equity council recommended in Objective 2.2 can help to ensure implementation funds are allocated equitably, so all communities benefit from the Greenprint. But the council and decision makers should also be sensitive to ensure implementation does not displace people, community assets, or community problems as a result. Understanding impacts on housing, health, environment, and redevelopment on the front end can help decision-makers make public investments that are more likely to result in greater opportunity and housing choice for the region's residents or positive health outcomes for residents.


Tom Lee Park

Building off of implementation of the Greenprint, the region should consider integration of equity factors in other public investment decisions such as transportation, libraries, parks, community centers, and schools over time. For example, equity factors might include race, income, disability status, and limited English proficiency, population density, age and condition of existing infrastructure, economic impact, and consistency with Greenprint priorities.

Factors should also consider the possibility of negative impact of public investment decisions, so traditionally underrepresented communities are not harmed by investment, such as a road project that reduces walkability or community cohesion. Use of these factors should result in new and desirable investment focused in underserved areas. Entities such as Metropolitan Planning Organizations are encouraged to adopt and use these factors if they are not in conflict with rating and selection criteria required by outside funding agencies and programs.

Enhanced Access Through Transportation Options

Objective 1 Connect communities through a multimodal transportation network including green infrastructure

Objective 2 Increase transportation choices and modal connections for all users

Objective 3 Enhance regional transit services and transportation demand management

Objective 4 Improve transportation system impact on the built environment, natural environment, and regional quality of life

Enhanced Access through Transportation Choices

Regional Context

Throughout the Mid-South region, transportation investments have historically focused on automobile and freight movement. The region experiences an overwhelming reliance on private vehicle ownerships and there are limited transportation options aside from a personal vehicle. As a result, the region experiences traffic congestion, poor air quality, and high accident rates across all modes of transportation.

The reliance on automobile movement has had an impact on the development of the region. Much of the region has developed in low-density development patterns served by high-speed, high-volume roadways that negatively impact communities. Among many negative impacts, development patterns have led to an environment of low access to jobs for lower income residents, limited transit service in many areas of the region, and high transportation cost burden.

As the region developed new roadways over time, or invested in existing ones, efforts were almost solely focused on building and expanding roads, rather than creating space for additional modes of transportation. As a result, some of the region's primary commercial corridors, including Germantown, Goodman, and Stage Roads, as well as the eastern end of Poplar Corridor were developed without any, or only minimal pedestrian or bicycle infrastructure.

Pedestrian infrastructure and transit service are closely related. Nearly every transit rider must walk to or from transit for at least one part of their trip. Another factor that makes transit successful is density – large numbers of people and jobs concentrated around corridors mean there is a large market for people to walk to and from the bus route.

Though a low percentage of trips are made by walking, biking, and transit as compared to other regions, recent investments in bicycle and pedestrian infrastructure are increasing the viability of transportation alternatives. Simultaneously, cuts to transit funding are requiring Memphis Area Transit Authority (MATA) to focus on key corridors, leaving other alternatives and transportation demand management strategies to serve the rest of the region.

Proposed Outcomes

Addressing the objectives associated with **Enhanced Access through Transportation Choices** is expected to lead to:

- Better multimodal options including: walking, bicycling, public transit, car sharing, ride sharing, energy efficient vehicles, and private automobile ownership
- Safer and more continuous and accommodating pedestrian routes, including accessible sidewalks, multi-purpose paths, and nature trails
- A more robust network of transportation connections that link communities and local and regional destinations
- Reduced overall transportation costs for households
- Continued improvement of on-street facilities to support all users (motorists, pedestrians, bicyclists, public transit riders, etc.)
- An improved public transit system that serves more riders and connects to other modes of transportation
- Adaptive reuse of excess transportation corridors, such as abandoned railroads or highway corridors

Based on regional context and greatest needs identified for Enhanced Access through Transportation Choices, the following objectives and actions focus on improving public transit, creating greater transportation choices, and expanding options for walking and biking. Actions focus on creating a multimodal transportation system that explores options suitable for lower levels of population and employment density and relies on connections between public transportation and bicycle and pedestrian infrastructure.

Objective 1 Connect communities through a multimodal transportation network including green infrastructure

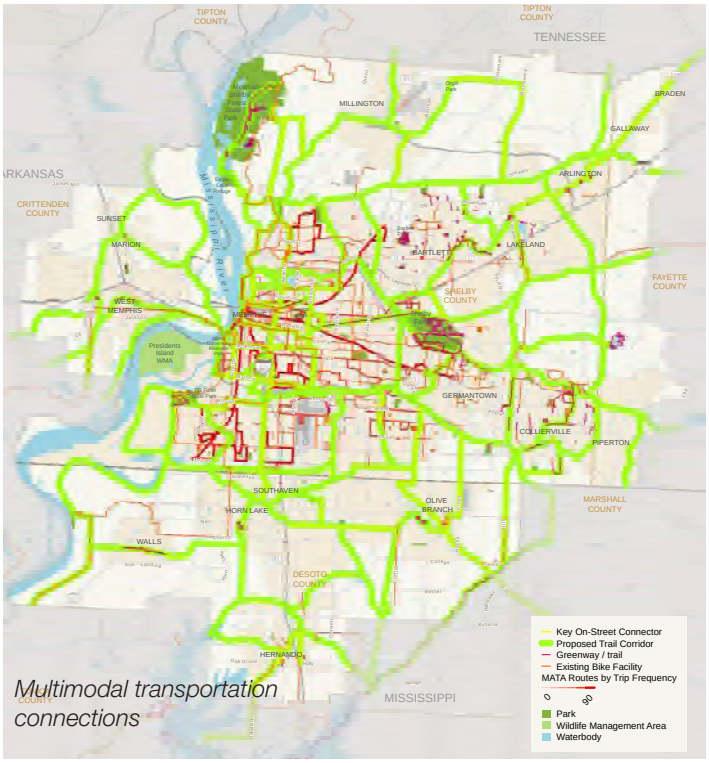
Actions

- 3.1.1 Prioritize transportation investments that connect multiple neighborhoods, municipalities, and activity centers
- 3.1.2 Prioritize transportation investments that connect neighborhoods to green infrastructure
- 3.1.3 Identify and improve potential points of access to activity and employment centers for bicycle, pedestrian, and transit connections
- 3.1.4 Identify railroad corridors and utility easements and utilize them to complete connections
- 3.1.5 Retrofit auto-centric corridors to be more bicycle and pedestrian friendly

The concept for a network of green space was developed to ensure connections between home, work, school, and goods and services by treating greenways as one component of a multimodal transportation network. Prior to the development of the Greenprint, the Memphis Urban Area Metropolitan Planning Organization (MPO) developed a Regional Bicycle and Pedestrian Plan, laying the framework for expansion of bicycle facilities across the region. Similarly, Memphis Area Transit Authority (MATA) completed the Short-Range Transit Plan, which guided realignment of bus routes to create a more efficient public transportation system. The proposed network of connected green infrastructure adds another layer to the multimodal system.

Considering population and employment density and common low-density development patterns in employment and education centers throughout the region, an effective multimodal solution for the region will greatly depend on the interconnectivity between bus, bicycle, pedestrian, and green infrastructure. The map to the right illustrates the connections between the concept map, existing bicycle facilities, and public transportation routes, weighted by trip frequency and how these services impact population and connection to employment centers. Implementation of both the Greenprint and the Regional Bicycle and Pedestrian Plan can help to extend these connections across neighborhoods, cities, and states, creating greater multimodal transportation options for residents.

If implemented today, 78% of the population and 79% of jobs are within one mile of a Greenprint corridor. Ensuring connectivity depends on reliable bicycle and pedestrian infrastructure, particularly to make “last mile” connections in many areas of the region. A better connected environment for bicyclists and pedestrians gives people more transportation choices, improves health and safety, and improves overall quality of life. In many places in the Mid-South, basic pedestrian infrastructure is lacking, yet pedestrian activity occurs. However, investing a minimal cost required to make improvements to pedestrian infrastructure can reduce parking and traffic by 5 to 15%.



Multimodal transportation connections

Objective 2 Increase transportation choices and modal connections for all users

Actions

- 3.2.1 Identify and communicate to individuals where multimodal connections exist
- 3.2.2 Develop policies which encourage higher-density commercial and residential development at intersections of alternative transportation modes
- 3.2.3 Coordinate and expand safety, encouragement, and enforcement programs to promote active transportation
- 3.2.4 Increase and promote the use of bicycles for commuting and non-recreational transportation
- 3.2.5 Analyze and communicate information on the comfort and skill levels of bicycle facilities
- 3.2.6 Ensure investments and decision-making foster a holistic transportation network for all users, regardless of age, ability, or mode of transportation
- 3.2.7 Establish goals and metrics to track progress of usage and mode share by transit, walking, and bicycling

Increasing communication of connections between transit, bicycle facilities, and greenways can be enhanced by updating transit maps to include bicycle and greenway connections as well as creating online and mobile applications that allow individuals to map their commute using multiple modes of transportation. Inclusion of customizable information related to comfort and skill levels of bicycle facilities could aid individuals of all ages and abilities in planning and navigating safer trips.

Further, employers in the Mid-South can encourage greater bicycle commuting by offering commuter bicycle benefits or on-site bicycle facilities to employees. A commuter bicycle benefit is an incentive to encourage employees to bike to work. The federal government has a tax provision that allows any employer to provide a reimbursement of up to $20 per month for expenses incurred by the employee in conjunction with their commute to work by bike. The reimbursement is a fringe benefit paid by the employer and is tax-deductible to the employer.

Similarly, employers can support bicycle commuting by providing on-site bicycle amenities for use by employees and visitors, such as bicycle parking, signage, shower and changing facilities, and repair facilities. Bicycle facilities are included as part of new constructions, but can also easily be retrofitted into existing buildings and employer campuses. On-site bicycle parking facilities can reduce parking and traffic demand by up to 15% for minimal one-time capital investment.

Bicycle Parking

Communities can promote greater use of transit and active transportation in a number of ways, as well:

- Ensuring compliance with the Americans with Disabilities Act (ADA) and other design standard guidelines for infrastructure investments;
- Training and enforcement of ordinances related to bicycle, pedestrian and motor vehicles;
- Improved enforcement of High Occupancy Vehicle (HOV) interstate lanes;
- Providing information and incentives for ridesharing and carpooling; and
- Implementing bike share programs.

Introduction

What began as a study of improving bus connections to employment areas quickly grew into a larger effort addressing how accessible the Mid-South's growing employment areas are to the region's population. The *Bus Transit to Workplace Study* includes an analysis of how employment is distributed regionally and how well employment areas are served by transportation infrastructure, including bus routes, bike lanes, and walking paths. The study examines large employers at a site level, and analyzes data on where employees live, how they travel to work and how easily their buildings are to reach by walking, biking, or riding the bus.

Employment is continuing to decentralize throughout the Mid-South and the ability to access employment is increasingly challenging. Where jobs are locating, most other transportation modes are simply not viable. The study includes targeted interviews with large employers and a widely distributed commuter survey to help understand the difficulties in coordinating transportation improvement efforts in the future.

Transportation Demand Management

Given the geographic distribution and type of jobs in the Mid-South region, and the location of residential areas, access to work solutions should move beyond public transit alone. A series of strategies meant to reduce strain on transportation networks and travelers are recommended in the Transportation Demand Management (TDM) Toolkit. The toolkit showcases best practices and demonstrates how to implement TDM strategies in the region.

TDM strategies are based on the premise that current travel patterns are designed to favor driving alone. Many employers around the region have located in areas where they are assured access to parking lots and are able to provide "free" parking to employees. As a rule of thumb, however, a surface parking space costs about $3,000 to build, plus annual maintenance, tax and opportunity costs. A space in a covered parking structure costs a minimum of $20,000 per space to build and another $150 per year to maintain.

Many employees do not always have access to a private vehicle. People who cannot or do not drive often pay high costs to get to work in terms of time-consuming transit trips, high transit fares, or long or uncomfortable bike or walk trips. TDM strategies work to level this playing field by creating options that make it less expensive for people to ride the bus, safer for people to walk or ride their bikes, and easier to create carpools.

Case Studies

To address specific applications of TDM, the *Bus Transit to Workplace Study* took a case study approach to look at current utilization of multimodal transportation networks at different clusters of job sites in the region. Case studies include Southaven, MS, the Aerotropolis of Memphis, Memphis's Medical District, Collierville, TN and the industrial center of President's Island. The case studies look at challenges of access given current infrastructure and how TDM could be applied.

For more information, please find the *Bus Transit to Workplace Study* in the *Resource Appendix*.

Objective 3 Enhance regional transit services and transportation demand management

Actions

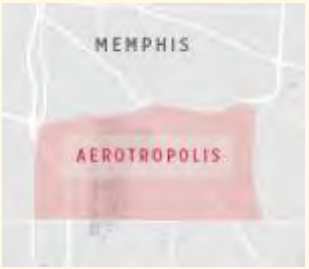
- 3.3.1 Identify and adjust service or provide transportation alternatives to and from employment centers not well-served by public transit
- 3.3.2 Implement transportation demand management (TDM) strategies, particularly in major employment centers, to shift trips from single-occupancy vehicles
- 3.3.3 Expand and enhance transit, rideshare, and vanpool programs through branding, outreach, improved infrastructure, and incentives
- 3.3.4 Secure a dedicated funding source for effective and convenient transit service
- 3.3.5 Create a regional transit authority to provide transit service to the larger region
- 3.3.6 Establish goals and metrics to track progress of bus ridership, vanpool and carpool usage, and usage of bicycle and pedestrian facilities

During the public outreach phase for this plan, one of the primary priorities articulated was the need for better public transportation throughout the region. Low-density development patterns and lack of dedicated funding for transit are significant challenges to improving public transportation in the Mid-South. The limited number of bus routes and infrequent service along some lines continue to pose equity issues for people who rely on transit as their only means of transportation to reach services and employment.

Services provided by Memphis Area Transit Authority (MATA) should be adjusted to improve access to major employment centers. Along strategic corridors, more rapid transit options such as Bus Rapid Transit (BRT) should be implemented. This includes exploring dedicated facilities for rapid transit, such as bus-only lanes and use of highway shoulders for transit vehicles, as well as better separation, signage, and enforcement of HOV lanes. In areas where public transit may be less effective, innovative ideas for transportation demand management (TDM) solutions such as rideshare, vanpools, and transportation management associations should be implemented. More information about TDM can be found in the Bus Transit to Workplace Study profile on the previous page.

Expansion of the current public transportation network will require increased funding. Regional partners should work to secure a dedicated funding source for MATA to provide for more effective and convenient transit service. Because transit issues affect the entire region, consideration should be given to creating a multi-jurisdictional regional transportation authority to serve more residents, communities, and employment areas of the region.

Improving transportation to employment in the Aerotropolis area



The Aerotropolis area was the subject of a City of Memphis master plan completed in 2014. There are several employment areas, business parks, and residental neighborhoods within the Aerotropolis only accessible by car. However, there are two transit centers in the area, American Way and Airways. One potential transit solution is flexible services that use smaller vehicles to transport employees from transit centers to employers and neighborhoods during two or three fixed time points.

Further, transit services in the Aerotropolis area could be improved by expanding service on Route 30 Brooks, which links the two transit centers and the FedEx hub. MATA could bring frequency of Route 30 to every 30 minutes during peak periods.

Objective 4 Improve transportation system impact on the built environment, natural environment, and regional quality of life

Actions

- 3.4.1 Change public policy to include design standards, incentives, and encourage density in support of efficient transportation, transit-served development, and Complete Streets
- 3.4.2 Conduct a regional assessment of pedestrian infrastructure in proximity to schools and activity centers to identify improvements
- 3.4.3 Create dedicated funding sources for public infrastructure such as accessible sidewalks, crosswalks, traffic calming measures, and bike lane improvements
- 3.4.4 Advocate public agencies and private companies for the adoption of "Green Fleets" policies and use of alternative fuel sources
- 3.4.5 Promote access to resources for biofuel innovation, production, distribution and use
- 3.4.6 Establish goals, develop metrics and monitor progress towards improved environmental effects of the regional transportation system

In order to improve the impact of the transportation system on the built and natural environments, the Mid-South region can pursue several different actions. Investments prioritized by areas of greatest use and need, such as around schools, along key transit corridors, and within activity and employment centers can have the greatest benefit. Development of the transportation system in the Mid-South should focus on all users by adopting and promoting policies and designs of Complete Streets. More information about Complete Streets in the Mid-South is on the following page.

Adopting Complete Streets policies can also serve to improve pedestrian safety in the region. The region should enforce sidewalk maintenance ordinances, explore funding mechanisms for sidewalk repair and maintenance, and ensure sidewalk development and maintenance complies with the Americans with Disabilities Act (ADA).

Greater use of alternative fuels in transportation can have a more positive impact on the natural environment. The region should develop an alternative fuel and electric vehicle plan including recommendations for connecting regional suppliers of commonly-used alternative fuel sources to potential consumers, streamlining state and local procurement policies to ease the transition to alternative fuels in large fleets, and increasing public information on alternative fuels and fueling stations in the region. Local governments should pursue adoption of green fleets policies. More detail on green fleets policies can be found below.

Propogating use of alternative fuels by adopting green fleets

EV Charging Station

Memphis Bioworks Foundation led an analysis on the feasibility of alternative fuels in order to inform fleet manager decisions on a future transition to alternative vehicles for local governments. The analysis began with understanding current environmental impact of all vehicles on the road, identifying options for public fleets, and collecting data to help local leaders make decisions about fleet management considering alternative fuels.

The next step is to administer a pilot project in which a small sample of vehicles will be chosen within a particular vehicle category as an experiment group to demonstrate the effectiveness for an identified alternative fuel. For more information about the regional alternative fuels analysis, see the full report located in the *Resource Appendix*.

Complete Streets in the Mid-South

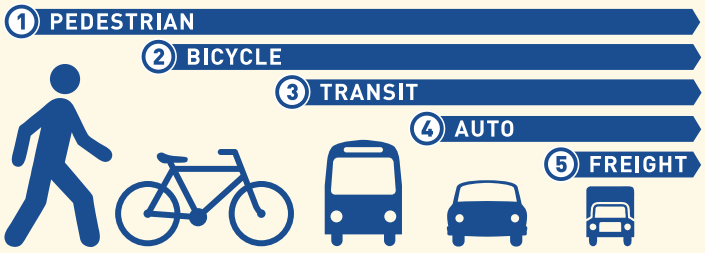
Every year, millions of public dollars are invested in roads built solely for automobiles, discouraging other transportation uses. Efforts have been made in the region to design "Complete Streets" to be accessible and safe for all users, including pedestrians, bicyclists, motorists, and transit riders regardless of age or ability.

In 2010, the city of Hernando adopted a Complete Streets policy. In February 2013, Memphis Mayor A C Wharton signed an executive order to enact a policy for Memphis, crafted by the multi-sector Mid-South Complete Streets Coalition. The city of Memphis policy created the need for a design and implementation manual.

Through the Greenprint subplanning phase, Livable Memphis partnered with the City of Memphis and Active Transportation Alliance to develop a Complete Streets Project Delivery Manual to further the City's commitment to providing transportation access to all citizens, regardless of how they travel.

The Memphis Complete Streets Project Delivery Manual provides engineers and planners with guidelines for the design, construction, and maintenance of Complete Streets throughout Memphis. It will also standardize decision making processes across city divisions, so Complete Streets are prioritized when designing and maintaining Memphis roadways.

Perhaps the most significant effect of the manual will be to reorient the order of consideration for modes of transportation when designing or redesigning roadways in Memphis as illustrated in the graphic to the right. Rather than designing only for the fluid travel of automobiles, the manual ensures roads will be rebuilt for safe and convenient movement of people. Rethinking road design includes increased considerations for more vulnerable travelers, particularly pedestrians, bicyclists, and transit riders, in how space is allocated in public rights of way.



Three additional subplanning projects support Complete Streets in the Mid-South: the Heritage Trails Green Streets retrofit, Tillman Street Green Lane, and restored landscape median on South Parkway.

The City of Memphis developed a green streets initiative for Martin Luther King Blvd., between Main Street and Danny Thomas Blvd. The plan recommends integrating protected bike lanes and pervious materials to lessen the impact of stormwater along a key on-street connector.

The Tillman Street Green Lane is a section of the Hampline, a two-way cycle track connecting the Shelby Farms Greenline and Overton Park. Binghampton Development Corporation led the effort to complete construction and engineering documents for protected bicycle lanes including separator islands, bulbouts, streetscape, rain gardens, crosswalks, signal modifications, and parking.

The Works Inc. led an initiative to improve connectivity on South Parkway by restoring a median on a one-mile section between Lauderdale Street to I-240. The section is currently a 75-foot wide thoroughfare encouraging high-speed traffic. The redesign and construction documents link green space, create safe access for bicyclists and pedestrians, identify additional pedestrian crossings, and designate the street as a no-truck route.

Healthy and Safe Communities

Objective 1 Promote a comprehensive concept of community health, wellness, and healthy lifestyles

Objective 2 Improve access to healthy foods

Objective 3 Promote safe, healthy, and walkable communities

Healthy and Safe Communities

Regional Context

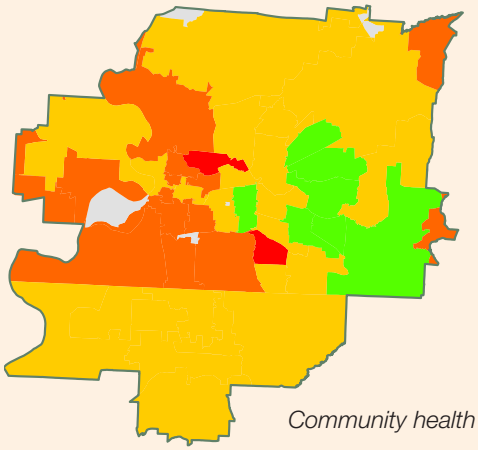
The population in the Mid-South region is dealing with many of the negative health outcomes common in the Southeastern United States. For chronic diseases, including heart disease, diabetes, stroke, and cancer, the four counties of the region have higher rates than the nation as a whole. However, the region is large and diverse, both in terms of people and environments. This diversity translates to considerable difference in health status in different areas of the region. As illustrated in the community health status map to the right, areas in the western portion of Shelby County and Crittenden County generally exhibit poorer health, while areas in the eastern portion of Shelby County and DeSoto County fare better. Results are mixed in varying portions of Fayette County.

Roughly one in three adults in the Mid-South region is classified as obese, which can be a contributing factor for many chronic diseases. The causes of these diseases vary, and can be difficult to describe at a population or community level. However, they are often associated with low levels of physical activity and poor nutrition.

A higher proportion of the regional population gets no leisure time physical activity (29%) than the United States population as a whole (24%), and with 34% classified as having low food access, the regional population also fares worse than the nation (24%) on this measure. In addition, the region has higher unemployment than all three states (Tennessee, Arkansas, and Mississippi) and the nation as a whole. The region also has a higher percentage of the population living in poverty than the rest of the nation.

Increased rates and costs of adult and child obesity and related chronic diseases in the last 30 years are a serious threat to the health and quality of life of residents in the Mid-South region. Obesity, lack of fitness, and reduced exposure to the natural environment contribute to poor health, depression, stress and other health and behavioral problems. This has enormous economic costs for individuals and the region as a whole.

A new cross-sector approach is needed to address these complex, inter-related problems to reduce health disparities and promote equity throughout the region.



Community health status

Proposed Outcomes

Addressing the objectives associated with **Healthy and Safe Communities** is expected to lead to:

- Lower occurrence of public health issues, such as obesity and asthma;
- Improved access to recreation and active lifestyles resulting in healthier residents;
- Nearby access to high quality fresh foods and health care, including farmers markets and community gardens;
- Increased and more frequent usage of pedestrian infrastructure, parks, trails, and open spaces;
- Improved safety and feelings of safety for users of parks, trails, and open spaces;
- Expanded opportunity for residents to age in place safely;
- Inclusion of Health in All Policies (HiAP) principles in planning, development, and legislation.

Based on regional context and greatest needs identified for Healthy and Safe Communities, the following objectives and actions focus on improving health conditions in the region by creating better access to green space, healthy foods, and walkable environments and improving safety of green spaces and communities.

Objective 1 Promote a comprehensive concept of community health, wellness, and health lifestyles

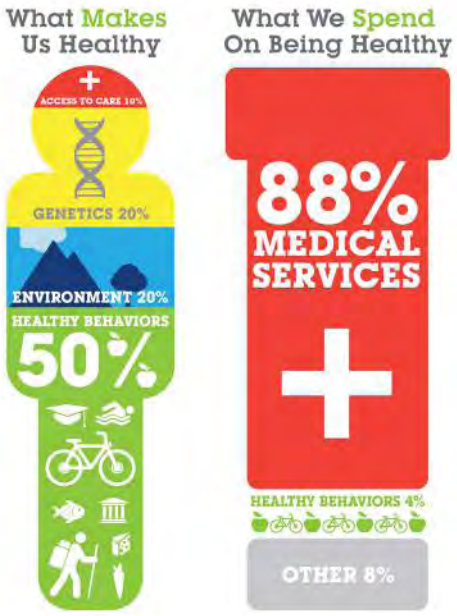
Actions

- 4.1.1 Create and conduct a coordinated education campaign that seeks to promote healthy lifestyles and active use of parks, greenways, and other green spaces
- 4.1.2 Advocate for the right for all people to live in communities that are well-planned, clean, green, and safe and provide opportunities for healthy lifestyle choices and living
- 4.1.3 Include Health Impact Assessments (HIA) and Health in All Policies (HiAP) reviews as part of municipal planning, development, and legislative processes, as appropriate
- 4.1.4 Create and support nature- and place-based youth education and physical fitness programs as a means for improving child health, development, and education
- 4.1.5 Incorporate fitness programming and equipment into local parks and greenways to increase access regionally

Levels of childhood and adult obesity in the Mid-South region and many associated health conditions such as diabetes and heart disease are well above national averages. However, addressing these issues is often not as simple as a prescription for more exercise and eating healthy foods. Socioeconomic factors and the built environment have a significant influence on an individual's ability to eat healthier or access safe, nearby recreation facilities.

As such, health and wellness are defined for the purpose of this plan as: *a dynamic process for achieving physical, mental, spiritual, emotional, intellectual, vocational and social well-being throughout the lifespan occurring within an environmental context mediated and influenced by individual choice and family, cultural, social, and political factors.* This definition guided the development of the health component of the regional plan.

To address this comprehensive concept, both availability and accessibility for users of all ages and abilities should be considered when promoting use and development of parks, greenways, and other green spaces in the region. In other words, not only should all individuals of the region have the choice to live in a healthy community with nearby green space, but green spaces should also include programming and equipment for all users. Oftentimes, parks and open spaces only include one amenity, such as a basketball court or playground, which is only used by a portion of the community. Diversifying the programming in parks and open spaces allows use by all, regardless of age or ability.



These considerations can also be part of a comprehensive strategy to influence public policy to ensure health is a primary factor in decision making about community design or amenities, known as Health in All Policies. As part of the Mid-South Regional Greenprint, a Health Impact Assessment was conducted to ensure health is addressed in all Strategic Directions of the regional plan. More information about the Health Impact Assessment and its recommendations can be found on page 71. The full report is located in the *Resource Appendix*.

Objective 2 Improve access to healthy foods

Actions

- 4.2.1 Comprehensively address food insecurity, focusing on communities with low access to healthy foods
- 4.2.2 Promote, incentivize and sustain community gardens by involving neighborhood groups, churches, and other organizations
- 4.2.3 Use public parks and open spaces for locating healthy food destinations such as community gardens, urban farms, and farmers markets
- 4.2.4 Inform public about resources and benefits of soil testing for levels of nutrients and pollutants before gardening
- 4.2.5 Create and sustain school gardens as part of an integrated healthy foods curriculum
- 4.2.6 Create a group to advocate for policy and regulatory changes to improve and sustain the tri-state food system
- 4.2.7 Create and sustain farm-to-school initiatives serving public, private, and charter schools
- 4.2.8 Advocate for institutional policies supporting the purchase of regionally-sourced, sustainably produced, healthy food in schools, daycares, and healthcare facilities
- 4.2.9 Advocate for policies and incentives supporting sustainable rural, urban, and peri-urban agriculture farming for subsistence and market growing

Access to healthy foods is a critical determinant of health, particularly in the Mid-South region where access to food is low in many communities. To improve access to healthy foods, recommendations focus on increasing production of locally grown, healthy foods in urban, peri-urban, and rural areas. Using parks, open spaces, schools, and vacant lots for community gardens and urban farms can improve food security at the community scale. At the regional scale, increasing markets through developing farmers markets, creating healthy corner stores, and changing institutional policies in schools, hospitals, and daycares for regional sourcing of healthy foods can increase demand for locally grown food.

Though available land exists for production of healthy foods, oftentimes access to land can present a barrier to growing locally. In addition, access to water and quality of soil can prohibit urban or peri-urban agriculture. The section below addresses these and other common barriers.

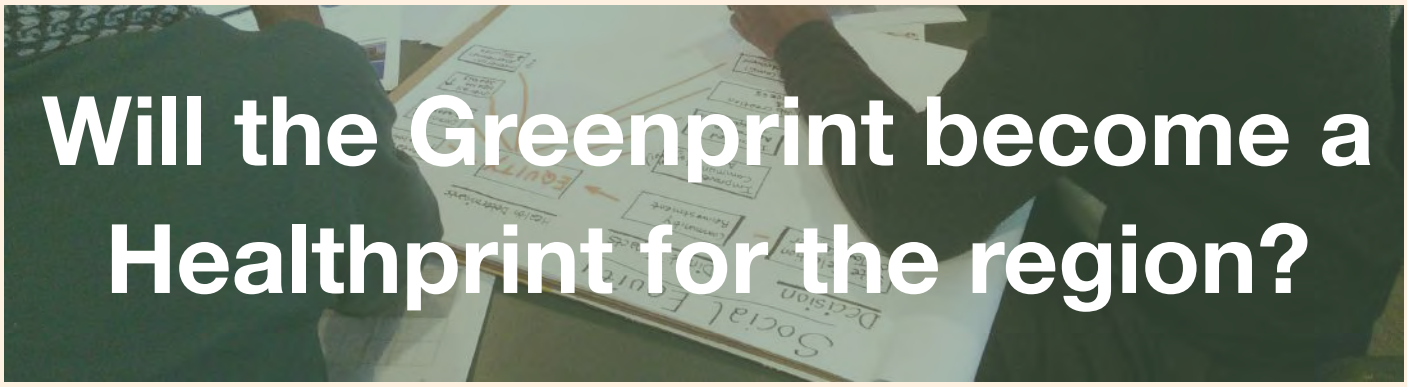
Improving food security at the community scale


Hernando Farmers Market

Two projects funded through the subplanning awards seeks to improve food security by addressing change at the community scale: the development of a landscape map and policy guide for urban agriculture led by GrowMemphis and healthy corner store initiative led by YMCA of Memphis and the Mid-South.

Research led by GrowMemphis identified three prime areas of opportunity for local policy change: land access, water access, and soil. Recommendations include development of a program to allow residents to lease vacant properties in the Shelby County Land Bank for food growing, changes to demolition standards to keep water lines intact, and communication and marketing on soil issues such as the need for testing soil for toxins.

The YMCA has developed a plan to increase access to fresh food in select low-income areas of the city of Memphis by introducing produce into corner stores. The goal is to improve access to fresh food within walking distance of communities and improve health in communities with high health disparities.



Will the Greenprint become a Healthprint for the region?

Introduction

Health Impact Assessment (HIA) is a process for ensuring plans and policies support healthy communities. HIA is typically used to enhance policies in non-health sectors, such as parks and recreation, transportation, or land use planning. HIA evolved from awareness that many projects, policies, and initiatives that have no explicit health goals impact public health, and as such, decisions regarding these actions should be informed about potential health impacts in a constructive and actionable way.

Within the context of the Greenprint, HIA was conducted in order to achieve the strategic direction of ensuring the Greenprint contributes to healthy and safe communities. Specifically, the HIA furthers the implementation of Action 4.1.3: "Advocate for the inclusion of Health Impact Assessments (HIA) and Health in All Policies (HiAP) reviews as part of jurisdictional planning, development and legislative processes, as appropriate."

There are three categories that best sum up how the Greenprint is likely to impact health: building healthy communities, framing parks and trails as resources for health, and promoting healthy travel behaviors. These bring together information from each Strategic Direction and present an integrated perspective meant to inform priority recommendations and implementation. The analyses that lead to these recommendations are available in the full Health Impact Assessment in the *Resource Appendix*.

Recommendations

The following are primary recommendations from the Health Impact Assessment:

- A public involvement plan for the Greenprint should be created to ensure that equity remains a focus throughout implementation
- Examine population characteristics near redevelopment sites to determine the specific health concerns of the local community and how addressing underutilized property may impact them
- Use work in existing parks as an opportunity to broaden the discussion beyond the park boundaries to include neighborhood factors such as vacant land and crime
- Develop a coordinated maintenance and safety improvement plan for all existing parks
- Promote safety in existing parks as a means to potentially increase use of these existing resources for health improvement
- Pursuit of actions that aim to increase greenery (through landscaping or other means) should be done in the context of other Greenprint strategies that more directly address underlying socioeconomic issues in the region
- Supplement direct routes for pedestrians and bicyclists with less-direct and lower traffic routes within the street network
- Implement an educational program promoting bicycle and pedestrian safety
- Incentivize mixed land use and higher densities through economic development tools
- Strategies to promote positive attitudes toward walking should be implemented in tandem with policies that could lead to supportive changes in the built environment, like mixed-use development
- Ensure pedestrian-oriented design
- Ensure that areas in and around employment and education centers are developed to include a variety of land uses (such as residential and commercial) and densities high enough to facilitate alternatives to driving

Objective 3 Promote safe, healthy, and walkable communities

Actions

- 4.3.1 Create and organize citizen groups, agencies, and community police to enhance safety in parks, trails, and green spaces
- 4.3.2 Integrate active and passive security measures in parks, trails, and green spaces
- 4.3.3 Incorporate Crime Prevention through Environmental Design (CPTED) principles in green space planning
- 4.3.4 Improve neighborhood streets, pedestrian and bicycle infrastructure and lighting to promote safety and walkability
- 4.3.5 Organize and promote activities for the safe use of parks, trails, green spaces, and bicycle and pedestrian facilities, such as organized walks and rides and walking school bus groups
- 4.3.6 Encourage the use and care of parks, trails, and green spaces and bicycle facilities by youth and youth organizations

During the public engagement phase, safety was raised as the top concern for individuals responding to surveys and attending meetings. In the first community survey, over 47% of respondents said streets and trails safe for walking and biking would most improve their health, above four other choices ranging from available park space to health education. In the same survey, the majority of respondents said lack of safe connections to parks, trails, or green space was their primary or secondary reason for not using green space regularly.

Unsafe streets, parks, and trails can deter individuals from regular use. Creating safer environments in communities and green spaces emerged as the most important value to public participants, signaling a strong need to address safety in order to improve use of green space region-wide. Properly maintained sidewalks and crosswalks should be treated as a health and safety priority for the region. Street furniture should also be considered in order to make short and medium walks more feasible.

Safety is a critical health issue for all residents of the Mid-South region, both in terms of safety from crime and injury and improving feelings of safety leading one to regularly use parks, trails, streets, and other green spaces for physical activity.

To address this concern, both passive and active measures are recommended to be undertaken by communities. Active measures include increasing police patrols of green spaces, enhanced lighting, and improved response times in cases of emergency. Neighbors can also take active roles in improving safety by organizing citizens groups, developing organized activities such as group walks or bicycle rides, and creating opportunities for youth to take ownership of maintaining parks, trails, and other green spaces.

Shelby Farms Greenline

Further, passive measures such as improved design in green space planning can improve safety, both from crime and injury. Communities across the country have turned to Crime Prevention through Environmental Design (CPTED) principles to help create safer communities. By creating partnerships between community, police officers, and planners, problem areas for criminal behavior in communities can be identified and addressed through design features such as lighting, improved visibility, and landscaping.

Improved Neighborhoods and Fair Housing Choices

Objective 1 Increase affordable, location-efficient, and fair housing choices

Objective 2 Ensure neighborhood access to green spaces and walkability

Objective 3 Improve existing neighborhood green assets and increase their use and benefit to the community

Objective 4 Spur the (re)development of neighborhoods that are clean, attractive, and convenient to a wide range of community facilities

Improved Neighborhoods and Fair Housing Choices

Regional Context

Housing and neighborhood conditions vary widely throughout the region, with a number of areas lacking affordable, quality housing and amenities. Past development practices and foreclosures have had a negative impact on vulnerable and transitioning neighborhoods that were previously stable. Communities have experienced increases in vacant and abandoned housing and lower homeownership rates.

Despite the relatively low cost of housing in the region, a significant share of the population is cost-burdened, paying more than one-third of income for housing. This burden is compounded by the high cost of transportation in the region due to development patterns and can be particularly acute for Black and Hispanic residents of the region who are more likely to live in neighborhoods with higher poverty.

Housing typically accounts for the largest single expenditure for individuals and households; transportation is often the second or third. The impact of combined transportation and housing costs underscores the financial challenges facing low and middle income households in the region.

The cost of owning and operating a single vehicle averages close to $9,000 per year, or about $750 per month. Average apartment rental prices in the City of Memphis for a two bedroom apartment are estimated to be between $600 and $700 per month. Given per capita income for Memphis and much of the study area ranges between $18,000 and $24,000, many people could spend the majority of their entire incomes on housing and transportation alone.

Today, there is unequal access to both green infrastructure and areas of opportunity, such as employment centers, from many neighborhoods in the region. However, development of the Greenprint network presents potential for equal access to green infrastructure and ability to strengthen neighborhoods physically and economically by linking neighborhoods, community amenities, and job centers.

Proposed Outcomes

The achievement of the objectives outlined in this Strategic Direction is expected to result in the following outcomes:

- Reduced overall housing costs for households
- Neighborhoods with amenities serving residents, such as town and neighborhood centers, community facilities, goods and services, and green infrastructure
- Changed land use and zoning planning policies which promote affordable housing linked to strong neighborhood housing, infrastructure and opportunities
- New and improved amenities, such as parks and open spaces
- Improved property values and a stronger tax base
- Greater valuation and support of historic and culturally important places and resources
- Provision of regulations which allow for alternatives to low density development
- Reduced blight and vacancy in established residential neighborhoods
- Cleaner, safer and more attractive neighborhoods
- More robust policies which encourage the creation of walkable and bikeable neighborhood forms
- More redevelopment of vacant and underutilized sites in urbanized areas

Linking neighborhoods to green amenities has the potential to improve neighborhoods and quality of life throughout the region. Based on regional context and greatest needs identified for **Improved Neighborhoods and Fair Housing Choices**, the following objectives and actions present comprehensive strategies toward stabilizing neighborhood housing markets, reducing blight and vacancy, and improving fair housing choices, while activating new neighborhood and town centers.

Objective 1 Increase affordable, location-efficient, and fair housing choices

Actions

5.1.1 Identify regional barriers that prevent availability of affordable, location-efficient, and fair housing choices

5.1.2 Create, prioritize, and expand programs that overcome barriers to fair housing choices

5.1.3 Create or change policies and legislation to overcome affordable housing impediments across the region

5.1.4 Create design standards, incentives, and encourage density in support of mixed-use and mixed-income communities near green infrastructure

5.1.5 Increase the number of housing units that are accessible and visitable using appropriate design standards and codes

5.1.6 Develop policies, incentives, and programs that ensure a wide range of types, styles, and costs of housing near green infrastructure

5.1.7 Develop metrics and monitor progress of fair housing impacts for use in evaluating future green infrastructure and other investments

A regional approach to improving affordable, location-efficient, and fair housing is needed in order to create better housing options for all residents. Changes are needed in policy, incentives, and programs, as well as pattern of development. Because much of the population and employment of the region are spread across a large area, many residents face financial burdens associated with affordability of combined housing and transportation costs. This can sometimes be compounded by limited housing options due to fair housing impediments.

A Fair Housing Equity Assessment developed for the Greenprint identified seven primary barriers to fair housing in the Mid-South region:

- Disinvestment in Minority and Low-Income Areas;
- Inadequate Public Transportation Choices;
- Predatory and Discriminatory Lending Practices;
- Lack of Knowledge of Fair Housing Rights and Responsibilities;
- Prevalence of Racially Prejudiced Attitudes and Patterns of Segregation;
- Limited Housing Options for People with Disabilities; and
- Insufficient Affordable Housing Options

To address barriers, a comprehensive range of solutions are recommended, from integrating data and research on opportunities and impacts of public funding decisions in environmental justice communities to forming a coalition of fair housing organizations to improve fair housing education and compliance in the region.

In many cases, existing organizational capacity can be tapped and enhanced to provide solutions to fair housing barriers, including expansion of Memphis Area Transit Authority to a regional transit authority or creating a cooperative of organizations that can serve as advocates for affordable housing. As an example of the latter, this cooperative could advocate for best practices of encouraging affordable housing and maintaining existing affordable housing stock in good repair. The organization could play a role in working with private owners to retain as many units of subsidized housing as possible as Low Income Housing Tax Credits and other contracts approach expiration.

Design standards and codes may also need revisions to improve fair housing choices. For example, code revisions that encourage greater accessibility or visitability in new and existing housing stock should be developed and adopted in order to expand housing choices for persons with disabilities or the aging.

For more information about the Fair Housing Equity Assessment, see the full report in the *Resource Appendix*.

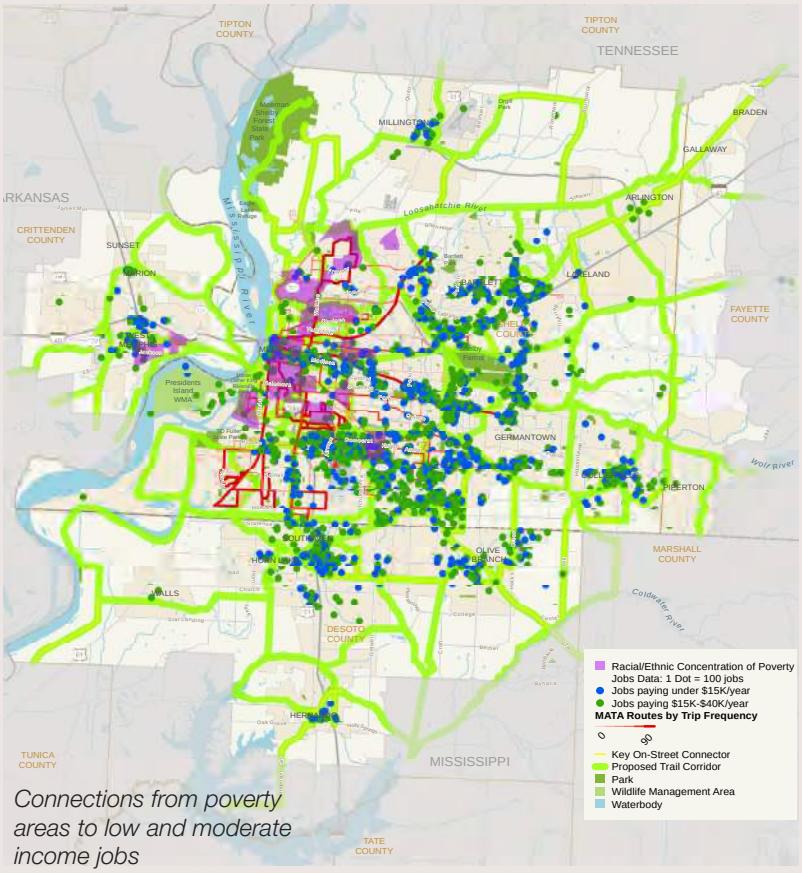
Integrating fair housing and equity into sustainability

A required element of the Mid-South Regional Greenprint and Sustainability Plan initiative, the Fair Housing and Equity Assessment (FHEA) is an endeavor to examine equity issues present in the region, inform priorities, strategies, and investments in the regional plan, and streamline the region's approach to fair housing and identify barriers to fair housing choice that are often not understood or do not follow jurisdictional boundaries.

As noted on the previous page, seven recommendations were made by the FHEA in order to address fair housing and equity issues, ranging from affordable housing stock, housing options for persons with disabilities to lack of access to public transportation. While the recommendations of the FHEA are important throughout the regional plan, and particularly highlighted in strategic directions related to housing and equity, recommendations with respect to transportation and access to employment are particularly important for the Greenprint since these links make the connection between housing and opportunity areas, such as employment.

The map to the right illustrates the areas where low-income and moderate-income jobs are present in the region, combined with presence of racial and ethnic concentrations of poverty and the MATA transit network. As shown, there is a cluster of low- and moderate-income jobs in the Downtown Memphis and Medical District area, near many of the areas of racial and ethnic concentration of poverty of the region. However, the majority of low- to moderate-income jobs are located outside of the I-240 loop and disconnected from areas of racial and ethnic concentration of poverty. These jobs are located at the farthest extent of the transit network or outside of existing transit access.

This distance and lack of access to low- and moderate-income jobs presents a challenge for low-income individuals residing in areas of racial and ethnic concentration of poverty to access jobs and opportunity for advancement. Investing in the Greenprint network to create connections between bicycling, walking, and transit can help to improve accessibility to jobs, in addition to investing in regional transit service, which would extend alternative transportation to job centers.



Connections from poverty areas to low and moderate income jobs

Objective 2 Ensure neighborhood access to green spaces and walkability

Actions

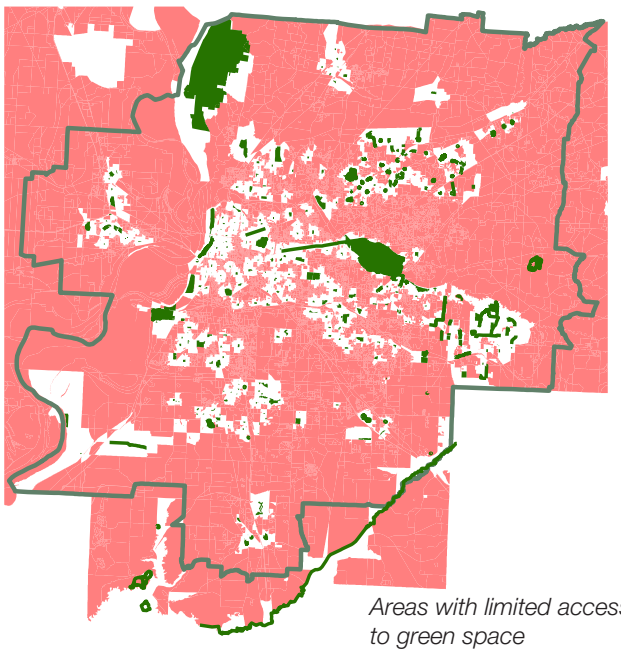
- 5.2.1 Identify and prioritize the development of parks, trails, and green space in urban areas lacking access within 0.5 miles and rural areas lacking access within 1 mile
- 5.2.2 Develop incentives and regulations encouraging developers to incorporate green space, open space conservation, or access to green space in development projects
- 5.2.3 Increase connectivity between subdivisions by enforcing existing regulations and encouraging construction of connections between existing subdivisions
- 5.2.4 Enhance accessibility by repairing existing sidewalks, installing new sidewalks where needed, and adding benches along sidewalk paths
- 5.2.5 Improve pedestrian comfort through traffic calming, well-designed streets, street furniture, and low impact development

Ensuring neighborhoods have access to parks and green space is important in promoting physical activity, recreation, and health. In addition, when parks and green spaces are designed as an integral part of a neighborhood, they also serve as community gathering places, leading to stronger sense of community, improved social connections, improved community safety, and greater community ownership of green space.

Housing that is integrated into a network of pedestrian and bicycle infrastructure that connects to neighborhood destinations and the larger region allows for greater access and opportunity for recreation and utilitarian trips without a vehicle. With greater access and opportunity comes greater use, leading to positive health and community benefits.

However, many communities and residents of the region, especially those living in underserved areas, have inadequate access to parks and green space. Over time, reserving space for community parks became less of a priority than in past years. Further, most suburban-style community development of the last several decades devalued walkability, leaving many subdivisions disconnected from parks, green spaces, walkable areas, and other subdivisions.

The map below illustrates areas throughout the region outside of a target distance of 0.5 mile to a park or green space in urban areas and one mile in rural areas. Areas in dark green represent parks and green spaces in the region.



Areas with limited access to green space

To illustrate the challenges of reduced walkability and connection to parks, it is interesting to note many of the neighborhoods surrounding Shelby Farms Park, the largest park in the City of Memphis, are outside of a 0.5 mile walking distance due to the pattern of development common in the area. Correcting these patterns by improving connectivity, access, and pedestrian infrastructure as well as integrating public green space into new development can greatly improve community access to green space.

Objective 3 Improve existing neighborhood green assets and increase their use and benefit to the community

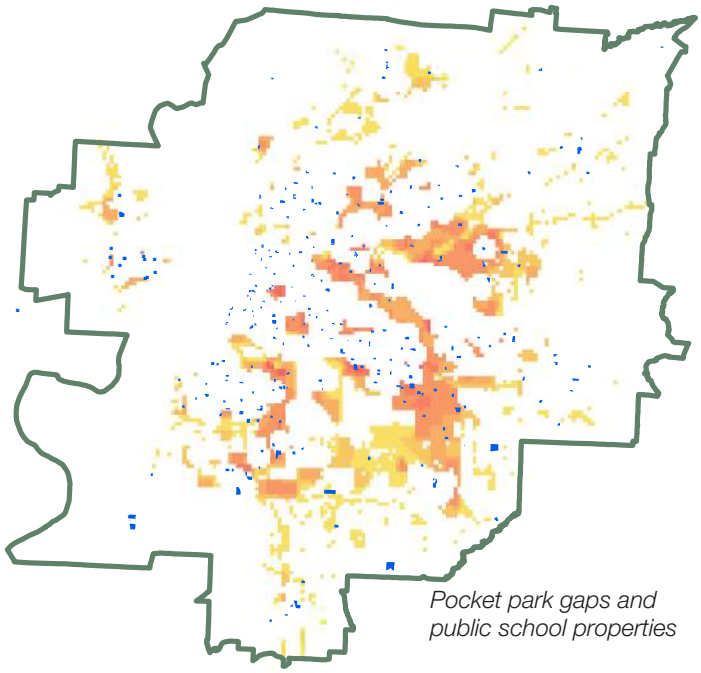
Actions

- 5.3.1 Conduct an inventory of presence and use of green spaces, working with organizations at the neighborhood level
- 5.3.2 Investigate the potential of converting underutilized land (including publicly owned vacant property) to green space in areas that are currently not well-served
- 5.3.3 Improve neighborhood-level green assets by converting vacant properties into pocket parks
- 5.3.4 Measure success of green space improvement programs and determine if and how programs can be replicated in other neighborhoods

Addressing gaps in green space, particularly at the neighborhood level, is an important objective of the Greenprint. While the region exceeds national standards and peer regions in the amount of park acres per resident (over 25 acres per 1,000 residents), much of the park acreage in the region is in large, regional parks such as Meeman Shelby Forest State Park, Shelby Farms Park, or T.O. Fuller State Park.

Based on the level of service analysis developed for the Greenprint, it is recommended the Mid-South region provide at least four acres of large park land, three acres of community park land, and two acres of neighborhood or pocket park land per 1,000 residents. Currently, the region greatly exceeds the recommendation of four acres of large park land per 1,000 residents and meets the recommendation of three acres of community park land per 1,000 residents.

The greatest challenge in providing accessible, equitable park space across the region is investing in greater access and availability of neighborhood and pocket park land. Currently, acres of neighborhood or pocket park land per 1,000 residents are well below the goal of two acres. The map to the right shows areas of neighborhood or pocket park deficiency, weighted by degree of access to nearby green space (in shades of red and orange).



Pocket park gaps and public school properties

In order to address this gap, solutions involving underutilized land in communities including publicly owned vacant property are essential. Activating underused or publicly-owned land should be tested as a pilot project, similar to the recommendations in Strategic Direction 1: An Interconnected Network of Parks, Greenways, and Open Spaces on boosting the use of underused, existing parks.

Communities and neighborhoods should work together with local parks departments and other public, institutional landowners, such as school districts, to enter into joint use agreements to create greater access to neighborhood or pocket park land. Joint use of parks and schools is fairly common in older areas of the region. As an illustration of the impact this strategy could have in the region, areas in blue on the map above indicate public school properties. A number of these properties overlap with park gaps.

Objective 4 Spur the (re)development of neighborhoods that are clean, attractive, and convenient to a wide range of community facilities

Actions

- 5.4.1 Establish guidance and design standards for development near green infrastructure investments
- 5.4.2 Encourage new or improved existing town and neighborhood centers near concentrations of green infrastructure investment
- 5.4.3 Develop strategies for redeveloping underutilized commercial and industrial property, including alternative green uses
- 5.4.4 Create a comprehensive and flexible package of incentives to assist infill development in targeted neighborhoods where there is vacant land and existing infrastructure

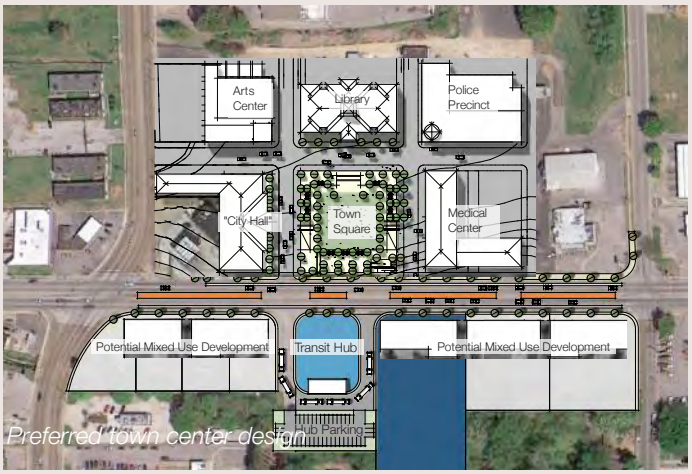
Investing in green infrastructure can have significant impact on surrounding communities. In Atlanta, over $1 billion in private investment has been made due to the 22-mile Atlanta BeltLine trail loop around the city. Across the country, property values have been found to generally rise 15-30% in communities with a greenway or trail within a half-mile. Redevelopment of housing and commercial development is one of the most important outcomes of implementing the Greenprint.

A number of areas throughout the region are designated on the Concept Map as areas of housing focus or commercial revitalization focus. These areas were selected through review of land use plans and comments from the consortium or public.

Zoning and design standards for areas around proposed Greenprint investments should be drafted and incorporated into municipal codes to ensure development near green infrastructure investments features a mix of uses and walkable neighborhoods at levels of density appropriate for communities in the region. A comprehensive package of redevelopment incentives should be developed to catalyze development in housing and commercial revitalization focus areas.

An example of a housing and commercial revitalization focus area is the Frayser community in Memphis. As an initiative of the Greenprint subplanning, the Frayser community and Community LIFT undertook an engagement and design process for the planning revitalization of an underutilized commercial node at Frayser Boulevard and Overton Crossing.

Designing a new town center for the Frayser community



Preferred town center design

As part of the Frayser 2020 plan, the Frayser Neighborhood Council determined a primary need for the community is a gathering space including various uses. The design for the Frayser Town Center was funded as a subplanning award, and includes a hub for public transportation, retail, government and social services. The community's vision seeks to transform an old strip mall at Frayser Blvd. and Overton Crossing into a bustling, pedestrian-friendly town center that provides multimodal access routes.

The town center and transit hub not only serves as a central point of activity within the Frayser community, but also contributes jobs and access to goods and services to the community, such as a library, arts center, and medical center, and is designed to improve safety by including a police mini-precinct.

Sustainable Resources and a Quality Environment

Objective 1 Conserve and protect natural resources including air, water, and land

Objective 2 Promote sustainable watershed management policies and practices

Objective 3 Create productive green assets from underutilized lands and brownfields

Objective 4 Promote and prioritize investments that protect biodiversity and wildlife habitat

Sustainable Resources and a Quality Environment

Regional Context

Water resources, green spaces, wildlife, and the natural environment do not recognize political boundaries. Because of this, a regional approach to improving our environment and stewarding our rich, natural resources is needed. Protection and sustainability of natural resources involves regional planning and cooperation across state, county, and municipal jurisdictions and among governmental, nonprofit, and for-profit entities.

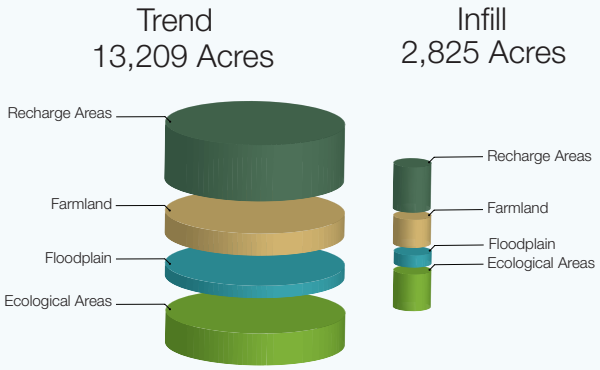
The objectives of this direction focus on conserving and protecting our natural environment for improved air quality, water quality, and wildlife habitat. The region can be better connected to its environment in multiple ways. The hidden value of our water resources, green spaces, and wildlife can be conserved and protected for environmental, economic, ecological, cultural, aesthetic, health, and recreational benefits. The direction also considers how underutilized land, typically in urbanized areas, can be put back into productive use, either as green space or new development.

Over time, the region has developed in a low density pattern. This has led to greater consumption of land, extensive investment in public infrastructure, loss of floodplain land and wetlands, increase in impervious surfaces, and degradation of air and water quality. Reconsidering the way we grow can have a significant impact on critical natural resources. By shifting future development patterns from undeveloped land to developable infill by 20%, loss of farmland, floodplain, aquifer recharge, and other critical ecological areas is reduced significantly, as shown in the chart to the right comparing the "Trend" and "Infill" development scenarios discussed on pages 32-33.

Not only does a more dense development pattern reduce environmental impacts, but it also reduces transportation costs, improves health, reduces public costs associated with infrastructure, and brings more people closer to infrastructure investments such as greenways, bike lanes, and transit.

Revised and improved community, municipal, and regional policies and programs are needed to promote improved methods of planning and resource management to ensure greater protection of natural resources, environmental quality, and balance of built and natural environments.

Important Resource Areas Lost to Development



Proposed Outcomes

Addressing the objectives associated with **Sustainable Resources and a Quality Environment** is expected to lead to:

- Better guaranteed access to clean, safe drinking water for future generations
- Improved water quality in the region's rivers, lakes, creeks and ponds
- More adequate and innovative stormwater management that reduces runoff and treats water close to the source
- Reduced point and non-point pollution and contamination
- Increased environmental remediation of contaminated former industrial land to improve water quality, air quality, and wildlife habitat
- Improved air quality and lower emissions
- Preserved rural agricultural and working lands, including eco- and agri-tourism
- Improved preservation, conservation or restoration of sensitive lands including flood-prone, habitat for wildlife, viewsheds, or wetlands
- Reduction in waste

Objective 1 Conserve and protect natural resources including air, water, and land

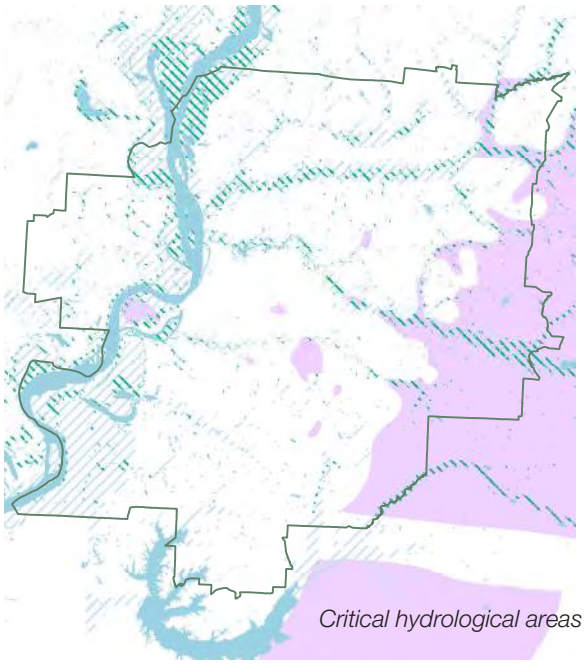
Actions

- 6.1.1 Establish a regional groundwater and surface water advisory group to inform decision makers on water quality and sustainability and protection of recharge areas
- 6.1.2 Communicate the economic benefits of green infrastructure and an ecologically sensitive approach to planning and development
- 6.1.3 Promote and incentivize the containment of urban expansion into rural areas, based upon a rational assessment of the ecological, social, and economic value of undeveloped areas
- 6.1.4 Increase tree canopy throughout the region, targeting key gateways, community gathering places, and between incompatible land uses
- 6.1.5 Assess the feasibility and ecological impact of burying electrical utilities
- 6.1.6 Revise the fee structure for household waste, recycling, and disposal of yard waste to a volume-based system that incentivizes recycling and composting

One of the greatest challenges to conserving and protecting natural resources, such as air and water is a lack of awareness of quality, quantity, and how humans impact these resources. In the Mid-South, drinking water comes from an aquifer (shown on the map to the right in solid purple), not a surface water source. As a result, community awareness of groundwater protection is low. Though the region enjoys high quality drinking water, supply of water is not an infinite resource. Degradation of surface water threatens the quality and quantity of groundwater supply. Similarly, a lack of awareness for air quality issues makes addressing sources of air pollution often difficult.

Addressing the green spaces of our region provides a significant impact on air and water quality. From removing invasive, non-native plant species and replanting native species to reducing channelization and re-establishing natural water flow, approaches that honor or restore natural ecology and environment not only improve air and water quality, but regional quality of life as well.

Increasing and protecting tree canopy in the region can have significant impact on air and water quality. Trees absorb precipitation during rain events, reducing the amount of water that hits the ground, enters the storm sewer, or runs off into streams. Trees also absorb air pollutants, improving air quality, and can reduce urban air temperatures.



Critical hydrological areas

Finally, better protection of land and critical environmental areas are needed in the region. Low-density development patterns threaten the region's ability to preserve green space, protect aquifer recharge area, and improve environmental quality. Containing the urbanized area and preserving rural areas in the region should be pursued through exploring opportunities such as transfer of development rights or credits, zoning code updates and revisions, incentives for sustainable agriculture, and growth management policies.

Objective 2 Promote sustainable watershed management policies and practices

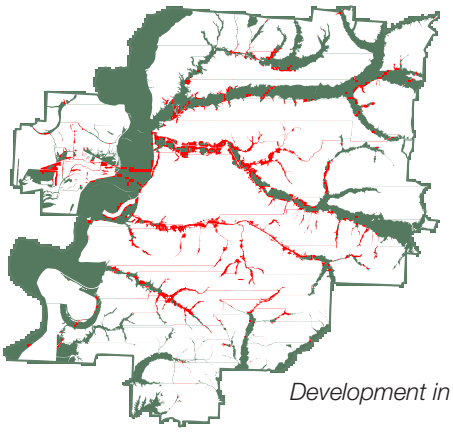
Actions

- 6.2.1 Identify and prioritize sensitive areas pertaining to surface and groundwater and promote their protection and improvement
- 6.2.2 Develop and adopt comprehensive watershed management plans that include community-based approaches for each watershed
- 6.2.3 Incorporate green infrastructure and low impact development practices into municipal policies and stormwater plans
- 6.2.4 Review land use codes and remove barriers to low impact development
- 6.2.5 Protect and restore existing natural wetlands and develop new wetlands in targeted areas
- 6.2.6 Organize a group to provide advocacy and information to developers, community groups, and individuals about green infrastructure and sustainable water management practices
- 6.2.7 Develop a guidebook on sustainable lawn care practices such as native plants, proper yard waste disposal, edible landscaping, composting, low chemical use, and small area water detention
- 6.2.8 Raise public awareness of health advisories warning against use of certain water bodies for activities and designated uses such as fishing and swimming
- 6.2.9 Prioritize water bodies with health advisories for remediation

A more comprehensive approach to water quality and stormwater management is needed for water conservation and protection. Since the region's drinking water comes from an underground aquifer, protecting sensitive recharge areas should be prioritized in order to sustain the quality and quantity of drinking water in the region.

In areas throughout the region's watersheds, appropriate green infrastructure or low impact development (LID) practices should be considered. More efficient treatment of stormwater using LID approaches will improve water quality and acheive additional community benefits.

Along stream corridors, protection and restoration of wetlands and floodplains are critical for flood prevention, water quality, wildlife habitat, and agriculture. These areas also make up many of the green space corridors on the Concept Map for active and passive recreation and transportation. However, many floodplain areas in the region are developed (in red below), which can cause degradation of water quality, stream erosion, and flooding. Areas along Nonconnah Creek and the Wolf River are of particular concern. Nearly 50% of the floodplain in the Horn Lake-Nonconnah watershed is developed, while 41% of the Wolf River floodplain is developed.



Development in floodplains

LID technologies placed at higher elevations in watersheds, such as rain gardens and bioswales, can provide significant impact on reducing stormwater runoff, improving water quality, and lowering dependence on pipe-and-drain infrastructure to manage stormwater. Integrating a greater amount of green stormwater infrastructure into the region's watersheds not only reduces need for pipe-and-drain infrastructure and associated public costs, but also reduces flooding, water treatment needs, urban air temperatures, and CO_2 emissions, among other benefits.

Objective 3 Create productive green assets from underutilized lands and brownfields

Actions

- 6.3.1 Determine the potential for reusing brownfields and underutilized properties for low impact development, sustainable agriculture, buffer zones, or alternative energy sources
- 6.3.2 Simplify the acquisition and reuse of abandoned or tax-delinquent property
- 6.3.3 Develop programs to sensitively reuse brownfields and underutilized property for biofuel and alternative energy production
- 6.3.4 Identify and promote sites suitable for urban and peri-urban agriculture
- 6.3.5 Advocate for reduction in impervious surfaces and transforming underutilized parking areas into green infrastructure

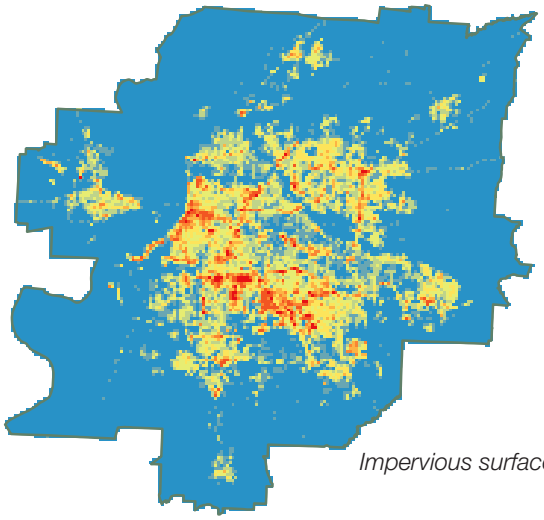
Due to disinvestment over time, most prominently seen in the urban core of Memphis, a large number of vacant, underutilized land parcels, brownfields, and grayfields exist in the region. Many of these properties have long been abandoned.

The issue of vacancy ranges from small lots to large commercial spaces with adjoining, impervious parking lots, and also includes several former commercial or industrial sites with real or potential environmental contamination. Redevelopment of these properties presents challenges, and presence of brownfields further complicates these challenges.

Brownfield sites may have multiple contaminants in the soil, water, and air, which have known and unknown health risks. The impact of brownfield sites on a community is not limited to exposure to environmental contaminants. These sites can also act as centers of illegal activities, dumping, and blight.

Addressing brownfield and other underutilized properties will likely have positive impacts on health in the surrounding communities by simply removing these health risks. Redevelopment of these sites involves assessment, cleaning, and reuse of the site, which can lead to positive health impacts on the surrounding communities. Reusing these sites for productive green assets such as parks, urban farms, or green stormwater infrastructure can create additional benefits for the community and environment.

Returning vacant sites to green space can reduce levels of imperviousness at the community and regional scales. Areas with highest levels of impervious surface are most vulnerable to flooding, urban heat island effects, and contribute negatively to air and water quality. Target areas of high imperviousness (in red below) such as along Poplar Avenue, Lamar Avenue, and Nonconnah Creek should be treated with improvements such as street trees, green stormwater infrastructure, reduced parking, and new parks and open spaces.



Impervious surfaces

Many abandoned sites are also delinquent on taxes. In Shelby County, county government operates a land bank for these properties. Reuse of these properties by governments or acquisition by nonprofit organizations and community groups can provide an avenue for returning sites to productive green assets. This productivity not only has environmental and social benefits, but economic benefits, as well, particularly if sites are put to use for production of alternative energy.

Objective 4 Promote and prioritize investments that protect biodiversity and wildlife habitat

Actions

- 6.4.1 Collect and assess data about wildlife species and habitats and plan ways to protect habitat
- 6.4.2 Promote land and water management best practices that benefit wildlife, soil quality, forests, and environmental quality
- 6.4.3 Advocate for cooperative rural land management practices to promote increased wildlife habitat
- 6.4.4 Promote and demonstrate use of native grasses or plants that provide wildlife habitat in neighborhoods and public areas
- 6.4.5 Encourage changes in policy and covenants to allow for natural landscaping in existing and new development
- 6.4.6 Promote increased availability of native plants at stores and nurseries

Biodiversity is an indicator of ecosystem health, and promoting actions that protect ecosystem health are likely to have positive effects on human health. Actions under this objective recognize the role of people as both stewards of the environment as well as organisms that are part of the ecosystems of the Mid-South.

In order to plan for an environment that values both humans and wildlife, many of the land and best practices discussed in this Strategic Direction should be undertaken, from conserving natural resources, improving watershed management practices, to creating productive green assets.

Taking actions such as preserving forest land and wildlife areas, protecting and increasing tree canopy, and utilizing green stormwater infrastructure all contribute to improving wildlife habitat and biodiversity. This is not only beneficial for human health, but creates opportunities for recreation such as wildlife watching.

Encouraging natural landscaping is an effective way of increasing vegetation in areas where people live and work. This type of landscaping provides benefits that can work with other forms of green infrastructure such as parks and trails to improve population health by encouraging social interaction, physical activity, and environmental quality.

Natural landscaping practices also present an environmentally friendly alternative to common landscaping practices that use non-native plantings and ground cover, chemicals, and fertilizers that have negative ecological and health impacts. However, many policies and covenants affecting homeowners may discourage use of natural landscaping in favor of traditional grass lawns. Changes in policies and covenants may be needed to ensure natural landscaping is permitted and encouraged at a scale that supports biodiversity.

Example of a bioswale

A Productive Workforce and Economy

Objective 1 Enhance access and connectivity to employment, education, and training centers

Objective 2 Empower individuals to improve economic outcomes at home

Objective 3 Promote and support neighborhood-level economic development

Objective 4 Increase and enhance regional employment and economic development opportunities

Objective 5 Expand green technology workforce development

A Productive Workforce and Economy

Regional Context

The Memphis urbanized area has a diverse and dynamic economy that developed out of a strategic location along the Mississippi River. The region built on its historic role as a logistics and distribution hub to become an intermodal hub with river, rail, road and air access. FedEx's use of the Memphis International Airport (MEM) as its primary hub has made MEM the highest volume cargo airport in the U.S. The airport and area immediately surrounding the airport, branded as the Aerotropolis, is the largest economic driver in the State of Tennessee, responsible for nearly $30 billion in economic impact annually.

Residents of the region work in a diverse array of industries. The largest share is employed in educational services, healthcare, and social assistance jobs (22%), followed by transportation, warehousing, and utilities (12%) and retail trade (11%). Three other industries each account for 9% or more of employed residents – arts, entertainment, recreation, accommodation, and food services; professional, scientific, management, administrative and waste management services; and manufacturing.

The unemployment rate in the four-county area was 8.6% as of December 2013, with an estimated 45,909 persons looking for work. The regional unemployment rate doubled from 5.0% in 2006 to 10.1% in 2009 as a result of the economic recession, but has edged downward since. County unemployment rates follow similar trends, with the lowest unemployment rate in DeSoto County and the highest in Crittenden. While DeSoto's December 2013 rate of 4.5% was below the national rate of 6.5%, the remaining counties of the region were above the national mark.

A major challenge facing the Mid-South is how to ensure regional employment growth is accessible to the broadest portion of the population possible. Decentralization has dispersed people and jobs over a large area. The lack of density has real implications for public infrastructure, including transportation since lower density automobile oriented communities are very difficult to access without a vehicle. It is difficult for transit to serve these areas because there are not enough jobs or population located along key corridors for transit service to operate with sufficiently frequent service to be considered convenient, or in some cases, a realistic option. At the same time, the cost of travel to and from these locations is significant and in many cases, can be prohibitively expensive for people with lower incomes.

With many of the region's more desirable jobs only accessible by automobile, it can sometimes be difficult for people without cars to make the transition to higher paying, higher skilled employment. The lack of transportation also challenges employers who have difficulty finding and retaining employees.

Proposed Outcomes

The achievement of the objectives outlined in this section is expected to result in the following outcomes:

- Improved quality of life capable of attracting and retaining business and qualified workers
- Improved connections to economic and employment opportunities near green infrastructure
- Education and training for residents to hold quality jobs
- Connections allowing residents well-functioning access to job centers
- More redevelopment of vacant and underutilized sites in urbanized areas

Based on regional context and greatest needs identified for **A Productive Workforce and Economy**, the objectives and actions of this Strategic Direction focus on building economic development opportunities throughout the region, attracting and retaining more businesses and jobs, and improving education and training for job skills by creating better access to education and employment, expanding green technology training, and improving economies at home, in neighborhoods, and across the region.

Objective 1 Enhance access and connectivity to employment, education, and training centers

Actions

- 7.1.1 Develop a multimodal transportation network that emphasizes connectivity to employment and education centers
- 7.1.2 Encourage MATA and other transportation providers to develop and implement ideal transit services to support employment and education centers
- 7.1.3 Engage key employers and educational institutions to develop and provide innovative solutions to transit services and non-transit options (such as flex schedules and employee incentives)
- 7.1.4 Include transit-served locations and transit access plans in decision-making about business and development incentives
- 7.1.5 Ensure continued development and connection of green infrastructure, bicycle and pedestrian infrastructure, and transit systems across all areas of the region

The mobility needs in the Mid-South Region are well beyond expanded bus transit. Employment in the Mid-South area is diverse, with some key employment nodes in industrial or suburban areas, removed from easy transit access. This geographic distribution of employment demands a more targeted and far-reaching set of solutions to meet the transportation needs of the greater Memphis region. A series of potential transportation solutions must be created to help guide access to work improvements, which may be employed at an employer, local or regional level.

The Transportation Demand Management (TDM) Toolkit, developed as a part of the Greenprint, is designed to help diversify regional travel options by introducing a series of strategies to the region known as transportation demand management. Across the United States, communities, regions and employers have used TDM as part of other strategies to help manage growth, alleviate congestion, and encourage economic development. In the Mid-South Region, the main objective is to increase the accessibility of employment, much of which is located in suburban areas and is inaccessible due to a lack of regional transit service. Providing greater access helps both potential employees by opening up economic opportunities and employers by enlarging their potential labor pool and minimizing costs. In many cases, there are direct tax benefits or available funding for the implementation of these access-to-work strategies.

An example of a TDM strategy recommended across five case studies on improving access to work in the Mid-South, conducted for this plan, is the creation of Transportation Management Associations (TMA). A TMA is typically a non-profit organization that serves to provide transportation coordination and implementation within a geographically defined area. TMAs are member-controlled and consist primarily of area businesses and institutions. Often, TMAs include public-private partnerships and have established coordination and funding relationships with local, regional and state governments.

In addition to TMAs, connecting to education and training centers in the region can be improved through developing U-Pass programs throughout the region. University and college transit passes, often referred to as U-Passes, are created through partnerships between public transit authorities and universities or large institutions. These programs are a mutually beneficial way to increase transit ridership and offer greater mobility to students, faculty, and staff.

For example, the University of Memphis operates an on-campus shuttle called the Blue Line to move people around campus and between major destinations. This new service operates from 7:00 a.m. to 11:00 p.m. A U-Pass program could complement this program by providing access from off-campus areas to campus, allowing students, faculty, and staff to get where they need to go without traveling by car.

Objective 2 Empower individuals to improve economic outcomes at home

Actions

- 7.2.1 Inform individuals about everyday choices that can save households income, such as housing and transportation costs, renewable energy, food growing, and incentivized waste and recycling
- 7.2.2 Create and sustain policies and programs to promote household energy efficiency and weatherization
- 7.2.3 Identify and share information about household weatherization resources and incentives
- 7.2.4 Promote policies and programs for generation of household clean energy and renewable energy resources to reduce consumption of fossil fuels

Throughout the region, median household income is estimated at $48,282, which is a 20% increase since 2000, according to the 2000 Census and the 2008-2012 American Community Survey. Highest median incomes are in DeSoto and Fayette Counties at $58,851 and $56,297, respectively. Fayette saw the largest increase over the period, growing by 40%. Medians in Shelby and Crittenden Counties fall below the national median of $53,046, while medians in DeSoto and Fayette Counties are above the national mark.

Of the total number of owner-occupied housing units in the Mid-South region, the 2012 American Community Survey (ACS) reported that 34.7% of households with a mortgage and 16.6% of households without a mortgage were cost burdened. Conversely, 57.1% of renters in the region spent more than 30% of their income on rent. Cost burden occurs when a household has gross housing costs that range from 30% to 49.9% of gross household income; while severe cost burden occurs when gross housing costs represent 50% or more of gross household income. When transportation costs are considered with housing costs, the combined cost burden on regional households grows significantly.

These statistics support the need for empowerment of individuals with the ability to apply sustainable practices in order to improve their economic conditions. Household economic factors have a large impact on the regional economy, in aggregate. It is important that residents understand the financial benefits associated with incorporating both energy savings and energy generation into their homes and businesses, as well as the benefits of recycling and alternative transportation options. These projects translate to financial savings for renters and homeowners, create demand for green jobs in the region, and have a positive, long-term impact on the regional environment.

Influencing community redevelopment through agriculture

Green Leaf Learning Farm

The focus of the *Green Leaf Learning Farm Phase 2 Expansion* is to develop a model for urban revitalization. The vision of the learning farm is to expand the opportunities for social and urban renewal of the South Memphis neighborhood through agriculture. Through the subplanning awards, a campus master plan was developed to allow Knowledge Quest to market and implement their neighborhood-based program of urban farming practices and implement strategies for sustainable growth.

The plan provides strategies for access to healthy, affordable food by surrounding communities, service expansion to a larger network of local farmers' markets, Community Supported Agriculture, and awareness of the importance of healthy eating and food preparation. The Green Leaf Learning Farm broadens the learning environment where adults and children participate in hands-on projects related to urban agriculture, water conservation, and farming skills.

Objective 3 Promote and support neighborhood-level economic development

Actions

- 7.3.1 Reuse underutilized properties in employment centers, neighborhood centers, and along Greenprint corridors for new business development
- 7.3.2 Create entities to aid in revitalizing neighborhood centers and corridors, such as Main Street and My Street programs
- 7.3.3 Assess best practices and promote spending in the local economy (Buy Local campaigns)
- 7.3.4 Create and sustain programs promoting energy efficiency in small businesses

There are significant opportunities to revitalize abandoned and distressed properties for neighborhood economic development throughout the Mid-South region. The sprawling growth trend over several decades has resulted in abandoned or underutilized properties and infrastructure in neighborhoods across the four-county area. Demand for walkable neighborhoods connected to housing, employment, and other daily needs is increasing, and new industry and markets focused on neighborhood economic development are emerging. Areas such as Crosstown in Memphis are seeing community-wide revitalization through investment in underutilized properties. Connecting those properties to green infrastructure can further boost investment and redevelopment of neighborhoods.

Municipalities throughout the region should seek to incentivize mixed land use and higher densities through economic development tools and corresponding changes to policy. This includes allowances of higher density development, or density bonuses, for developers who choose to build near intersections of alternative transportation modes. Other incentives may involve commitments to help expand or maintain trails near development, creation of location or design-based tax incentives, and targeted recruitment of businesses that support use of alternative transportation. Neighborhood residents in these areas would benefit from this type of development being close to their homes and municipalities benefit from increased tax revenue. These strategies could be piloted in the commercial revitalization focus areas associated with the Greenprint Concept Map.

Connecting green space and redevelopment in Crosstown

Crosstown Greenline Connector design

The Crosstown Greenline Connector is an urban pedestrian and bike trail designed to extend the existing V&E Greenline, once the L & N Railroad, to the Crosstown Development Project. The Crosstown project is transforming the abandoned 1.5 million square foot Sears building into a vertical urban village that will also include public green space.

The Crosstown Greenline Connector will connect surrounding neighborhoods to the resources available in the newly renovated Sears Crosstown building, including an art gallery, a charter school, and a wellness center that provides healthcare for the working uninsured. The design of the connector trail includes rail bridge acquisition, abatement, lighting for aesthetics and safety, bike lanes, walking paths, exercise equipment, and seating.

Objective 4 Increase and enhance regional employment and economic development opportunities

Actions

- 7.4.1 Support and invest in green industries and green jobs with an emphasis on sustainable tourism, agriculture, and clean energy
- 7.4.2 Encourage and adopt green practices in industry
- 7.4.3 Market green infrastructure assets to attract investment and support growth of a sustainable economy
- 7.4.4 Promote employer investment in green business practices as a way to improve local and regional economic competitiveness and community livability

As cities and regions continue to vie for businesses, jobs and talent, quality of life is emerging as a critical competitive advantage in economic development. Of course, a strong labor pool and tax incentive programs are key drivers for attracting and retaining businesses. But increasingly, companies and their employees are focused on what a community offers outside of the workplace before committing to relocate. Along with sports, arts, music, restaurants and entertainment, well-maintained parks and greenways are increasingly cited as important amenities. As a part of a regional economic development strategy, a concerted effort should be made to recruit and retain companies and industries that embody the spirit of the Greenprint in order to expand growth of a sustainable, regional economy.

The Greenprint plan should be used as a tool to promote existing tourism efforts and bring more dollars into the region. The strategic location of the region along the Mississippi River can be a significant benefit to the region to market geotourism opportunities. Leveraging a connected system of green space, existing spaces like Shelby Farms Park and Greenline, and proposed connections like the Harahan Bridge bicycle and pedestrian trail give the region a competitive advantage for geotourism, as well as attracting new residents and businesses.

Cities and regions across the country have been able to attract jobs and investment by marketing green infrastructure. Prior to the 1980s, Chattanooga, Tennessee treated their riverfront strictly as a commercial resource. As the city began to deindustrialize, it began to re-envision the river and other natural resources. This work culminated in the Tennessee Riverpark Master Plan in 1985, a multi-million dollar project that reinvented Chattanooga and the city's quality of life. Investments in parks and greenways led to significant increases in property values for residents and tax revenues for the city. As a result, Chattanooga was able to attract a manufacturing plant of Volkswagen in 2010, bringing 2,000 new jobs and $1 billion of investment in the region.


Harahan Bridge

Similarly, the St. Louis, Missouri region has experienced $20 million of economic activity and job growth of nearly 90 jobs per year over 10 years as a result of the development of the Great Rivers Greenway.

Objective 5 Expand green technology workforce development

Actions

- 7.5.1 Create new opportunities for green technology and workforce development
- 7.5.2 Build stronger connections between education and training and entrepreneurial and small business development
- 7.5.3 Incorporate sustainability into all levels of education and increase awareness of training, education, and career options in sustainability
- 7.5.4 Include green technology and job training in Workforce Investment Boards (WIB) training programs
- 7.5.5 Create a group of technical education and training providers and workforce development agencies to advance green technology and training

One of the core elements for business recruitment and retention is the availability of a skilled workforce. The region must support the education and training of residents to prepare them for the next generation of jobs and industries in this country. This means there must be post-secondary alternatives available in the form of training programs, certifications, associate and bachelor degrees, and other programs that equip Mid-South residents with the skills necessary to secure jobs in these growing sectors.

There are a wide range of green technology jobs that could see growth in the region, including those associated with energy efficiency, renewable energy, pollution reduction, and recycling. A report from Recycle Works titled *More Jobs, Less Pollution: Growing the Recycling Economy in the U.S.* finds recycling alone could create 1.5 million jobs across the United States. In addition, research of national trends indicates that an estimated 2,500 new jobs could be added to the regional economy as a result of building out the Greenprint network.

Implementing energy efficiency policies and launching green enterprises has the potential to generate new jobs across the region. In Tennessee alone, it is estimated green manufacturing industries could generate 15,100 new jobs by the year 2020 and create 20,700 new jobs by the year 2030.

Recycling Center

Effective Long-term Regional Planning

Objective 1 Continue regional collaboration of planning and policy-making and coordination of assets and resources

Objective 2 Establish and maintain a shared data resources system to support decision making

Effective Long-term Regional Planning

Regional Context

As resources and municipal budgets nationwide have been reduced, there has been a growing trend of developing regional partnerships to address needs. The alignment of priorities and initiatives has become increasingly important, as regions are competing for infrastructure dollars, jobs, and talent to help bolster local economies.

The Mid-South region could experience significant benefit from this type of regional multi-jurisdictional coordination, building off of the success of the Mid-South Regional Greenprint planning process. There are a number of issues that make coordination especially challenging for the Mid-South:

- The region includes 18 municipalities, 4 counties, and 3 states;
- Two Metropolitan Planning Organizations (Memphis Urban Area MPO and West Memphis MPO);
- Three Planning and Development Districts (Memphis Area Association of Governments, East Arkansas Planning and Development District, and North Delta Planning and Development District); and
- Multiple agencies and organizations charged with similar tasks for a relatively small region, creating fragmentation in planning.

The Mid-South region has numerous existing economic development, parks and open space, transportation, land use, public works, growth management, and sustainability plans, among others, that have been created to guide policies and development in municipalities and counties in the region. Most municipalities and counties in the region have planning staff that focus on a number of these areas, creating a significant opportunity for cross-jurisdictional alignment.

Coordination among cities and counties does take place around transportation issues within the Metropolitan Planning Organizations, but there are opportunities for coordination on other land use, environmental, and economic development planning issues. A review of over 100 plans, studies, and ordinances from across the tri-state region relating to the Greenprint can be found in the *Resource Appendix*.

Proposed Outcomes

The achievement of the objectives associated with **Effective Long-Term Regional Planning** is expected to result in the following outcomes:

- Alignment of policies between cities, counties, states and federal agencies
- Agreement across jurisdictions for bicycle and pedestrian connectivity, access to regional employment, and access to jobs and services
- Improved capacity for community-based planning and coordinated activities
- Increased recognition of the economic and health benefits of green infrastructure in planning documents and policies
- Increased use of tools and techniques to monitor and evaluate the effectiveness of plans and policies, including data gathering and sharing
- Greater support for organizations and agencies that are leading the way, and improved sharing of best practices among jurisdictions
- Better maintenance of existing parks, open spaces, and trails
- Focused investment in existing communities

Regional collaboration for visioning, goal setting, problem solving and action would help to improve economic competitiveness and livability of the Mid-South region. Collaborative planning across jurisdictions allows regional municipalities and communities to complement each other by coordinating assets, addressing issues that cross political boundaries, such as environmental, economic, and transportation issues, and identifying, preserving, and promoting unique attributes and competitive advantages. This type of regional collaboration would build on the progress and momentum of the Greenprint regional planning initiative.

Objective 1 Continue regional collaboration of planning and policy-making and coordination of assets and resources

Actions

- 8.1.1 Identify or create and sustain an entity to coordinate future regional collaboration of planning and policy-making and continued efforts of the Mid-South Regional Greenprint Consortium
- 8.1.2 Utilize the Greenprint Plan and process to advance strategic regional long-term planning
- 8.1.3 Conduct community-based visioning to align the goals of each municipality and county in the Mid-South to leverage the unique competitive advantages of rural, suburban, and urban communities
- 8.1.4 Organize and sustain semi-annual meetings of all regional mayors and executives to discuss priority goals and issues
- 8.1.5 Improve communication and coordination between city, county, and state departments to foster more collaborative land use and transportation planning
- 8.1.6 Promote improved communication among municipal departments such as solid waste, code enforcement, stormwater, police, parks, and public health
- 8.1.7 Coordinate local land use, housing, and open space plans with regional transportation planning
- 8.1.8 Pool grant-writing, public, and private resources in order to sustain and implement elements of the Greenprint Plan

The Greenprint planning process has demonstrated the value of collaboration across jurisdictional boundaries. The process pulled together representatives from public, private, nonprofit, philanthropic, and community sectors of the tri-state region to develop a wide range of objectives and actions intended to connect green space across city, county, and state lines and enhance regional sustainability. Priorities of Mid-South residents are amplified when they are presented as joint priorities of all the municipalities in the region.

In order to facilitate ongoing collaboration on regional planning issues, a new or existing organization should be charged with management of the process. The agency could coordinate periodic meetings with elected and appointed officials of the municipalities in the region to share progress on programs and initiatives, as well as coordinate more detailed planning processes engaging staffs of municipal departments. This ongoing cooperation will lead to a more strategic roadmap for improvements in our communities and the ability to attract funding for regional priorities. The organization should also seek to gain representation on a committee of the two Metropolitan Planning Organizations to advocate for Greenprint implementation.

The partnership developed through the Greenprint consortium should be leveraged to continue cooperation across city, county, and state lines to coordinate land use and housing plans with open space and transportation plans. The growth and development of the region has a profound impact on the built and natural environments, as well as the public infrastructure investments made to date. Forging collaboration among elected officials, as well as staff, to address these issues should be a priority for the region.

Greenprint Consortium Meeting

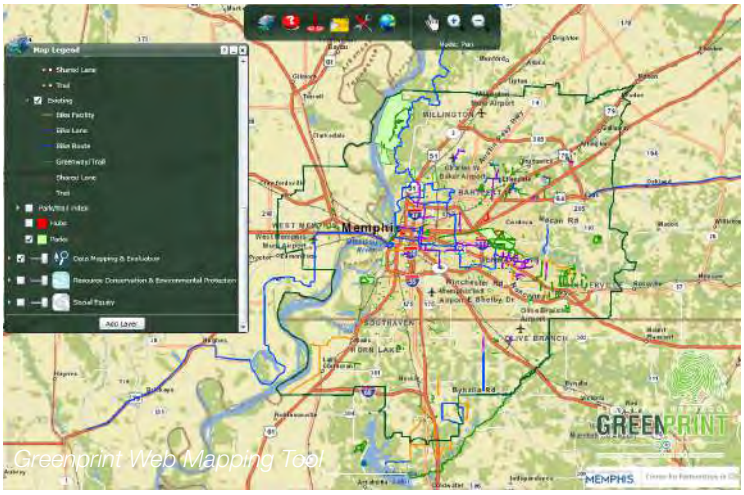
Objective 2 Establish and maintain a shared data resources system to support decision making

Actions

- 8.2.1 Continue to provide a regional open data source and interactive information system that is accessible and useful to all
- 8.2.2 Develop and adopt uniform data standards across regional jurisdictions and users in order to facilitate a shared data resource system
- 8.2.3 Identify or create and sustain an entity to hold, create, maintain, and share data for individuals and decision-makers
- 8.2.4 Conduct outreach and education promoting regional data as a resource to communities, organizations, and government in decision-making
- 8.2.5 Encourage community-based data users to become data collectors to increase data and information shared across the region
- 8.2.6 Create and maintain an electronic information platform for sharing planning information, gathering public input, and measuring regional performance on meeting key sustainability indicators
- 8.2.7 Encourage the participation of data user groups in community-wide open data efforts
- 8.2.8 Use special events, activities, and education programs to generate interest and awareness and engage individuals and groups in open data efforts

One of the first tasks of the Greenprint planning process was to collect data across the tri-state area in order to create a shared system of data. The first output of this data collection was the Greenprint web mapping tool, a simplified mapping system accessible to all, illustrated on the right.

The web mapping tool was intended to facilitate analysis and decision making by the Greenprint consortium working groups based on available data, but has long-term application for public use and benefit. Once the web mapping tool was fully operable, the Greenprint process took the next step in promoting open data in the region by making all spatial data available for public download through the data geoportal.



Greenprint Web Mapping Tool

These efforts represent one of the first initiatives toward open data in the region. In order to continue progress toward open data, a central entity should be created or identified to hold, develop, maintain, and share data. Municipal and county governments in the region are encouraged to make non-sensitive data available to the public and to work with the central entity in order to ensure uniform data standards across jurisdictions and users in order to successfully facilitate a shared data system. A project like the Livability Dashboard, discussed in Objective 2.2, is an example of how Memphis and Shelby County are moving toward open data and increased digital engagement in planning.

Fostering an environment of open and shared data will improve equity and decision-making on public policies, procedures, and investments by improving information government and the public can access. Open and shared data can lead to development of more data and higher quality data. As the public becomes more empowered to use data, their ability to generate data for public and private use grows.

IMPLEMENTATION

Adopt the Plan

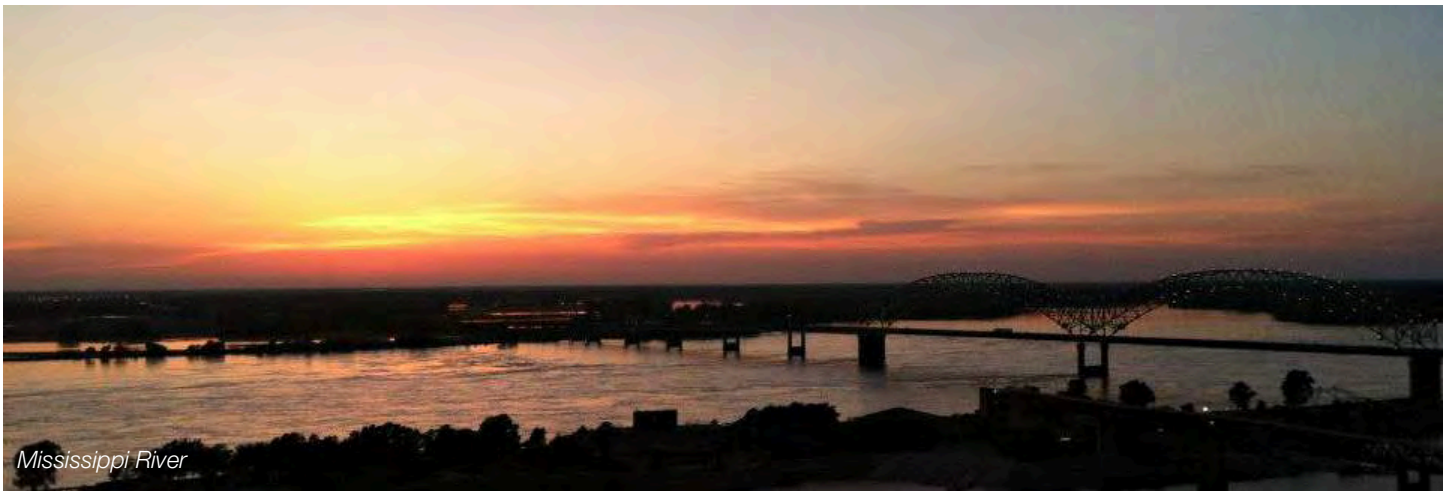
A major first step in implementation is for local governments and partner organizations of the Mid-South region to adopt, publicize, and champion the regional plan in their own communities. Through adoption of the plan and its accompanying maps, local municipal and county governments will be better able to shape green space, transportation, and development decisions to fit with the goals of this plan. Additionally, having an adopted plan is extremely helpful in securing funding from federal, state and private sources. Demonstrating the region-wide support for the Greenprint plan through adoption indicates to such agencies that projects associated with the Greenprint have been through a public process, well-thought-out, and locally approved.

Community members and organizations have been highly engaged in the Greenprint planning process. Many aspects of the plan are reflective their past and on-going efforts to advance green infrastructure development and promote sustainable communities throughout the region. The plan embodies their vision for the future. The region should anticipate and encourage community members and community organizations continue to advance the plan's implementation in a variety of ways, at a variety of levels, and in a variety of locations throughout the region. Public-community partnerships will be a critical element of successful implementation.

Adoption procedures vary from community to community. Adopting this plan does not commit local governments to dedicate or allocate funds. However, by adopting the Greenprint plan, municipalities and counties have a guiding document for green space connectivity across regional boundaries and creating sustainable communities, especially as it relates to providing access to green spaces, equitable participation in planning and implementation processes, promoting community health and wellness, creating accessible, affordable housing for all, and conserving and protecting natural resources and the environment.

Adoption of this plan communicates to residents, potential residents, businesses, and organizations its recognition of the value of the plan's implementation to their community.

For state agencies and regional planning organizations, the Greenprint plan and the recommended routes in the Concept Map should be officially recognized in the appropriate manner for each agency, whether that is through plan adoption or an official resolution that signals support for the plan.



Mississippi River

Roles and Responsibilities

The process of developing the Greenprint plan was a collaborative effort of the Mid-South Regional Greenprint Consortium, a group of over 80 organizations and 300 individuals. With representatives from public, private, non-profit, philanthropic, and community sectors working together, the Consortium guided development of the vision and final plan.

In addition, many elected officials, community leaders, and community partners have been involved in the planning process and will remain vital to successful plan implementation, such as mayors of the region, congressional staff, Chambers, health officials, colleges, and community organizations.

The vision and goals of this plan are ambitious; fulfilling them successfully will require a creative approach. No single sector in the Mid-South region can be expected to implement this plan alone. The Consortium provided an initial forum for collaboration among representatives of the region. This level of regional interest and coordination provided great value to the region, and great effort should be made to preserve and expand upon it as the plan transitions to implementation.

As urban areas throughout the United States continue to grow, they will also continue to compete and attract employers and investment at the regional scale. With the Consortium, the Mid-South region is well positioned to coordinate its growth and future development in a way that other, less organized regions will not be able to accomplish. This section outlines suggested roles and responsibilities for the core types of stakeholders involved in implementation of this plan. The actual roles and relationships will vary over time, but this offers a starting point for implementation.

Memphis & Shelby County Office of Sustainability

As the administrator of the planning grant for the regional plan, this office will play a significant role in implementation of the regional plan. The office will continue to organize the Consortium and working groups through implementation and will update the regional plan in regular intervals. Initially, the office will serve as a central entity to ensure implementation of the plan, but will transition this role to another entity when appropriate.

Consortium Members and Working Groups

As currently structured, the Consortium is an ideal collaboration to initiate implementation of the plan. The Consortium provides an ideal structure for coordination across different focus areas in order to ensure the comprehensive nature of the Strategic Directions is addressed. The Consortium should lead in initiating recommendations of the Strategic Directions, recruit new member organizations to the Consortium, and monitor and evaluate progress of implementation.

Local Government Agencies

Many of the communities in the Mid-South region are active in trail planning and development, health initiatives, multimodal transportation, and other areas related to the Greenprint. Communities with greater experience should share strategies (such as effective policies and procedures and budget estimates) with their neighboring communities that have less experience. The Consortium could be the facilitator of such an exchange, and it could also offer guidance in several other areas, including the following municipal and county tasks:

- County and municipal parks and recreation directors should formulate an annual plan of action for their trails programs.
- County and municipal planners should ensure trail connectivity between jurisdictional boundaries and enact local policies that facilitate and support the plan.
- County and municipal planners and engineers should aim for uniform standards in trail facilities, such as signage and wayfinding.
- County and municipal planners should encourage best practices in creating communities with a mix of homes, jobs, shopping, entertainment, parks, and other amenities served by walking, biking, and transit, where available.

Prior to the beginning of each fiscal year, the counties and local municipalities should adopt a budget for expenditures of funding that supports elements of the plan, whether related to trails, parks, open space, health initiatives, or alternative transportation. Having even a small budget set aside allows for greater opportunities in securing outside funding sources that require or look favorably on potential partners with matching funds.

Metropolitan Planning Organizations (MPOs)

The region's two Metropolitan Planning Organizations (MPOs) are the Memphis Urban Area MPO and the West Memphis MPO. Participation of these groups is important for the sake of overall efficiency in implementation, as they already have representatives from local communities, such as planners and officials. Together, these organizations have a huge influence on the way the Mid-South region will grow and develop in the coming decades, with critical decisions being made regarding land use and transportation. These groups should:

- Enact and support policies that facilitate and support the regional plan;
- Make multimodal transportation a priority for future projects and funding;
- Consider the locations of proposed trail routes and on-street connectors from the Concept Map, and take them into account in planning, design, construction and maintenance projects; and
- Include representatives of the Greenprint consortium, including planners and community organizations on advisory committees.

Shelby Farms Greenline

State Agencies

For this plan, key state government departments in Tennessee, Arkansas, and Mississippi include the transportation departments, parks and natural resource departments, health departments, cultural and historic departments, and commerce and tourism departments. Their involvement in this plan's implementation will vary by topic and department.

Transportation departments should assist in implementing proposed bicycle, pedestrian and trail-related facilities, including projects adjacent to or that intersect with state roadways, such as multi-use paths and on-street improvements to roadways, intersections, bridges, and underpasses. Transportation departments should continue to work with local and regional planners on coordination of upcoming and future roadway projects with bicycle, pedestrian and trail recommendations.

State-level parks and natural resource departments should provide guidance on Greenprint's potential impact on natural resource areas and proper alignment of trails through sensitive and regionally significant environmental features, as well as support local projects through statewide green space funding opportunities.

State departments of health should be included in implementation activities to establish important connections supportive of state-wide public health goals.

Cultural and historic departments should provide guidance on trail connectivity to regionally significant cultural and historic sites, and how those sites could best be better promoted, interpreted, and protected through connection with the trail network.

Commerce and tourism departments should be prepared to help attract new businesses and investment to the region as regional amenities such as trails and open spaces become more connected and accessible.

Non-Profit and Citizen Groups

Many non-profit agencies and citizen-led groups are already involved in this project, and have been advancing similar goals for many years. Non-profit organizations and citizen groups play a critical role in implementation as their involvement represents and reflects the citizen ownership of the plan. Some specific actions they can take in implementation include:

- Lead development of trails and other elements of the Strategic Directions;
- Advocate, promote, and encourage the development of trails and other elements of the plan throughout the region;
- Participate as members of the Consortium and its working groups;
- Rally public support for key public hearings and coordinate mass e-mail campaigns for special votes;
- Coordinate volunteer efforts with representatives from the necessary agencies;
- Assist in developing and coordinating educational programs and special events in conjunction with the partner agencies and organizations;
- Keep local leaders informed about trail-related issues and developments through direct dialogue and personal e-mail; and
- Promote trail development among local leaders through creative approaches, such as organized tours of existing trails.

Private Sector and Business Community Leaders

Private sector organizations are playing an increasingly important role in getting trail projects 'on-the-ground' in regions throughout the United States as they develop a greater understanding of the value and impact of quality of life factors on recruitment and retention of skilled workers. Residential and commercial developers are increasingly understanding the value that walkability and related amenities such as parks and trails bring to their projects, and local business owners see value in recreation-based and tourism economies, as well as in making streetscape improvements that are more inviting to customers.

Traditionally, individual businesses have supported quality of life improvements through financial or in-kind sponsorship development opportunities; however, they are increasingly finding they can have greater impact by participating in coalitions of businesses that have quality of life improvements as a key focus area.

For instance, the Atlanta Committee for Progress, a coalition of business, academic, civic and philanthropic executives working to provide leadership on economic development in Atlanta, supports implementation of the Atlanta BeltLine. In the Mid-South region, the Greater Memphis Chamber Chairman's Circle, created to engage Memphis business leaders on a variety of issues that affect Memphis and the Mid-South currently has more than 100 members. The Chairman's Circle has identified "Advance Green Space for Citizens and Retain Talent" as one of its five Moon Missions. This effort could have tremendous impact on successful Greenprint implementation.

In addition to financial or in-kind support of green infrastructure development, some examples of how individual businesses and coalitions of businesses can facilitate implementation of this plan include:

- Encourage all leaders of businesses to become familiar with the benefits, financial and otherwise, of creating environments and streetscapes that accommodate and encourage walking and bicycling and link these benefits to improved quality of life outcomes;
- Provide facilities at employment locations which support commuting by bicycle, walking, and transit;
- Support partnerships with local organizations on projects that improve regional quality of life, helping to attract and retain employees; and
- For business leaders that are already part of the Consortium, support or participate in developing a corporate sponsorship policy for trail implementation and other related goals of the plan.

Regional Leaders

Examples of regional leaders include the mayors of the region and federal congressional staff. Their continued support and involvement is critical and can come in many forms, including:

- Be champions of the Greenprint by speaking in support of it, celebrating related achievements, and advocating for local and regional investments;
- Support policies that enhance conditions for walking, bicycling, trail development, and other related elements of the plan; and
- Provide annual funding for trail and roadway improvements for bicycle and pedestrian transportation that could be used for construction or matching grants for construction.

Regional Network Implementation

The development process for trails will vary from community to community and project to project. Still, it is useful to have a sense of the typical process and the main steps involved in trail development. The diagram below outlines these steps.

Costs can vary widely from state to state and also from site to site. Cost information should only be used for estimates and not necessarily for determining actual bid prices for a specific infrastructure project.

Typical Trail Development Process

Costs

The table on the following page includes suggested costs to be used when making planning-level estimates for baseline infrastructure for multi-use trails, bicycle lanes, and sidewalks in the Mid-South region as well as additional infrastructure features that may be beneficial or required to facilitate the development of the regional network.

The figure of $777,000 per mile for multi-use trail construction is based upon the average actual cost of trail construction for four recent peer projects in Tennessee, Arkansas, and North Carolina. Design and administration costs are listed separately as observed industry standards in the form of percentages of total construction costs.

Land acquisition costs are not included as this cost varies for multiple reasons due to cost of land in different locations and due to different ways public right-of-way is secured for trails, ranging from purchase to negotiated easements.

For more information on this topic, see further discussion in the section titled “Guidance for Implementing Regional Open Space and Trail Infrastructure” in the *Resource Appendix*.

As the regional network grows, responsibility for operations and maintenance will grow, as well. Actual costs will vary depending on a number of factors, but generally annual routine costs for operations

and maintenance of multi-use or greenway trails may range from less than $3,000 to over $7,000 per mile. These costs assume a crew size using a guideline of one full-time employee per 15 miles of trail. Routine cleanup or monitoring of facility conditions are often handled by volunteers and maintenance crews. Further, organizations should budget for resurfacing of trails after a 20-25 year life span for paved, multi-use trails.

Suggested Planning-Level Cost Estimates

Baseline Infrastructure	Cost	Unit
Multi-Use Trail (trail construction only)	$777,000	mile
Design for Multi-Use Trails	10%	total construction costs
Construction Observation and Administration for Multi-Use Trails	3-5%	total construction costs
Bicycle Lane	$133,000	mile
Sidewalk	$32	linear foot
Curb and Gutter	$21	linear foot
Additional Infrastructure	**Cost**	**Unit**
Bicycle Locker	$2,090	each
Bicycle Rack	$660	each
Signed Bike Route	$25,070	mile
Median Island	$13,520	each
Bollard	$730	each
Curb Ramp (Wheelchair Ramp)	$810	each
Fence/Gate	$130	linear foot
Streetlight	$4,880	each
Wooden Bridge	$124,670	each
Pre-Fab Steel Bridge	$206,290	each
High Visibility Crosswalk	$2,540	each
Striped Crosswalk	$770	each
Striped Crosswalk	$9	linear foot
Boardwalk	$2,219,470	mile
Multi-Use Trail - Unpaved	$121,390	mile
Flashing Beacon	$10,010	each
Rectangular rapid flashing beacons	$22,250	each
Pedestrian Hybrid Beacon	$57,680	each
Pedestrian Signal	$1,480	each
Stop/Yield Signs	$300	each
Shared Lane/Bicycle Marking	$180	each

Sources: Wolf River Greenway Trail System Business Plan, Shelby County Government, Memphis MPO Bicycle and Pedestrian Plan (2011), Alta Planning + Design, City of Raleigh, NC, City of Wilmington, NC, "Costs for Pedestrian and Bicyclist Infrastructure Improvements" by UNC-HSRC, prepared for FHWA (2013).

Funding Options

In order to implement the Greenprint, community leaders must consider what revenues are available or could be available to fund the acquisition and development of parks and greenways. The ability to access substantial public and private investments will foster program development and aid in realizing a long-term vision.

This section provides a summary of potential funding sources at all levels of government, as well as philanthropic sources. Leveraging both public and private funding has and can play a valuable role in building parks and greenways in the Mid-South. These programs and public funding options are currently being utilized or may be used by communities in the region for the purposes of acquiring land by easement or fee title for conservation and park space. Research at the local level of government is focused on broad-based tax and bond mechanisms that are practical and have been proven capable of generating significant funding.

For more detailed information on funding options, please reference the "Funding Guide for Green Space Connectivity" in the *Resource Appendix*.

Private Support: While public investments will likely provide the backbone funding for the regional Greenprint network, private businesses and philanthropy will certainly be needed to assist in the effort. Based on the experience of other park and greenway programs across the country, private funds will do everything from educating the public about green space benefits, providing seed money, paying for out-of-the-ordinary amenities, and undertaking special studies and programs. Ideally, the Greenprint network will benefit from the large-scale philanthropy of foundations and corporations as well as grassroots gift-giving of small businesses and individual donors.

Federal Funding: The U.S. government is an important partner for state and local governments, parks and conservation organizations, and community advocates in Arkansas, Tennessee, and Mississippi. The tables below and on the following page provide a summary of numerous relevant federal funds for open space and urban areas that could assist implementation of the Greenprint. The programs are administered by federal agencies, but vary in how funds are delivered for projects. For example, some program funds are directed to the states, which decide what projects to fund (State Directed Federal Grants). Other program funds are granted by a federal agency through a competitive process (Federal Funding Sources). Most federal funding streams require a local match. Public and private sector partners should work together to ensure match can be leveraged.

State Funding: The State of Tennessee undertakes and funds land conservation through a number of state agencies and programs. There are four separate conservation funds for land acquisition in the state, three of which are funded exclusively through proceeds from the state's real estate transfer tax. A fifth source of interest funds watershed protection and improvement projects in partnership with Tennessee Valley Authority and the Nature Conservancy. The State of Mississippi has one fund, the Wildlife Heritage Fund, which provides grants to local governments for land acquisition. More information about these grant programs are in the table on page 111. While the State of Arkansas does not have grant programs for land acquisition available for local governments, in 1996 Arkansas voters approved a Constitutional Amendment to increase state sales tax by 1/8 of one cent to fund land conservation. Tax revenues are split between four agencies: Arkansas State Parks, Arkansas Game and Fish Commission, Department of Arkansas Heritage, and Keep Arkansas Beautiful.

State Directed Federal Grants

Program	Organization	Description
Land and Water Conservation Fund	National Park Service	Acquisition and development of land and water for land protection and outdoor recreation facilities
Clean Water State Revolving Fund (CWSRF)	US Environmental Protection Agency	Loans for water quality improvements, traditionally used for wastewater treatment upgrades, though some funds have been used for land conservation
Drinking Water State Revolving Fund	US Environmental Protection Agency	Loans and other assistance to finance costs of infrastructure projects, including land acquisition
Nonpoint Source Program (Section 319)	US Environmental Protection Agency	Grants for projects that address nonpoint source pollution, such as BMPs implementation, restoration, and public education
CWSRF Innovations: Land Conservation	US Environmental Protection Agency	Assistance with purchase of watershed land, restoration of watersheds, and flood reduction
Forest Legacy Program	US Department of Agriculture	Matching grants to states to prevent the loss of private forestlands
Farm and Ranch Lands Protection Program	US Department of Agriculture	Assistance with purchase of development rights and conservation easements on productive agricultural land
North American Wetlands Conservation Act	US Fish and Wildlife Service	Matching grants for acquisition, restoration, and enhancement of wetland ecosystems for the benefit of waterfowl and other wetland associated migratory species
State Wildlife Grants Program	US Fish and Wildlife Service	Matching grants for conservation efforts to restore or maintain populations of native species

Federal Funding Sources

Program	Organization	Description
Civil Works Programs	US Army Corps of Engineers	Assistance with planning, construction, operations, and maintenance of a range of water projects
Transportation Alternatives Program (TAP)	US Department of Transportation	Funds for construction, planning, and design of on-road and off-road trail facilities, infrastructure-related projects and systems providing safe routes for non-drivers, and rail-to-trail conversions
Recreational Trails Program Grant (TAP program)	US Department of Transportation	Funds for maintenance, development, acquisition, and construction of new and existing trail facilities
Congestion Mitigation and Air Quality Program (CMAQ)	US Department of Transportation	Funds for transportation projects that improve air quality, lower auto emissions, and reduce congestion (such as bike and pedestrian trail construction)
Transportation Investment Generating Economic Recovery (TIGER) Grants	US Department of Transportation	Grants for road, rail, transit, and port projects that are multimodal, multi-jurisdictional, or otherwise challenging to fund through existing programs
Transportation Infrastructure Finance and Innovation Act (TIFIA)	US Department of Transportation	Federal credit assistance in the form of direct loans, loan guarantees, and standby lines of credit to finance surface transportation projects of national or regional significance
Community Development Block Grants (CDBG)	US Department of Housing and Urban Development	Grants for acquisition of real property, relocation and demolition, and construction of public facilities and improvements
Choice Neighborhood Grants	US Department of Housing and Urban Development	Grants to transform distressed neighborhoods and public and assisted projects into sustainable mixed-income neighborhoods by linking housing with services, transportation, and access to jobs
Brownfields Program Funds	US Environmental Protection Agency	Direct funding for brownfields assessment, cleanup, revolving loans, and environmental job training
Our Town Grants	National Endowment for the Arts	Grants for creative placemaking projects that contribute toward livability of communities with arts at the core
Art Works Grants	National Endowment for the Arts	Grants for projects that extend the arts to underserved populations, those whose opportunities are limited by geography, ethnicity, economics, or disability
Community Transformation Grants	Centers for Disease Control and Prevention	Funds to design and implement community-level programs that prevent chronic diseases such as cancer, diabetes, and heart disease
Conservation Innovation Grants (CIG) Program	US Department of Agriculture	Funds to stimulate the development and adoption of innovative conservation approaches and technologies
National Wetland Program Development Grants	US Environmental Protection Agency	Grants to develop or refine wetland programs or individual components of those programs that address monitoring and assessment, voluntary restoration and protection, regulatory approaches, and wetland-specific water quality standards.

Sources for tables on federal funds: Trust for Public Land (see "Funding Guide for Green Space Connectivity" in the Resource Appendix*); Environmental Finance Centers Network (see "Green Infrastructure in the Mid-South" in the* Resource Appendix*).*

State Funding Sources

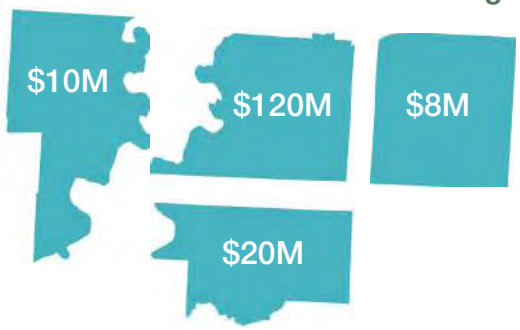
Program	Organization	Description
Local Parks and Recreation Fund	Tennessee Department of Environment and Conservation	Funds acquisition of land for parks, natural areas, greenways, and recreational facilities
Tennessee Healthy Watershed Initiative	Tennessee Department of Environment and Conservation	Funds for watershed improvement and protection projects, with a focus on new innovation and community-based initiatives
Wetlands Acquisition Fund	Tennessee Wildlife Resources Agency	Provides funds for acquisition of wetlands and watershed areas
State Lands Acquisition Fund	Tennessee Department of Environment and Conservation	Funds for acquisition of land or easements for state parks, forests, natural areas, boundary areas along state scenic rivers, trail systems, and trail development
Heritage Conservation Trust Fund	Tennessee Department of Environment and Conservation	Fund created to preserve and protect priority lands across Tennessee and promote tourism and outdoor recreation
Wildlife Heritage Fund	Mississippi Department of Wildlife, Fisheries, and Parks	Funds dedicated for land acquisition to make additions and enhancements to wildlife management areas

Sources: Trust for Public Land (see "Funding Guide for Green Space Connectivity" in the Resource Appendix*); Environmental Finance Centers Network (see "Green Infrastructure in the Mid-South" in the* Resource Appendix*).*

Local Revenue Options: There are significant opportunities to raise local revenue through general obligation bonds, property taxes, or sales taxes to fund acquisition and development of the Greenprint network. In many cases, leveraging funds needed to develop and complete the network comes at a minimal annual cost to the average household. Cities and counties may issue general obligation bonds to finance land, building, and equipment, increase local property taxes, or increase local sales taxes to raise money to fund the Greenprint.

The graphic to the right illustrates three scenarios to raise capital to develop the regional network over the next 20 years. The first scenario of issuing bonds in amounts roughly proportional to population could raise $158 million over 20 years at an annual cost of $19.26 to the average household. The second scenario of raising property taxes at varying rates could raise $268 million over 20 years at an annual cost of $18.17 to the average household. The third scenario involves raising sales taxes by 1/8 of one-cent in all four counties. This scenario provides the greatest return at an estimated $421 million over 20 years at an annual cost of $18.49 to the average household, a cost roughly equivalent to two movie tickets. Based on potential costs outlined on pages 107-108, scenario three suggests the region could effectively pay to develop the Greenprint network in the 25 year horizon of the plan.

Scenario 1: 20-Year General Obligation Bonds



= $158 Million over 20 years

Average household pays $19.26 per year

Scenario 2: Property Taxes

= $268 Million over 20 years

Average household pays $18.17 per year

Scenario 3: Sales Taxes (1/8 of 1 cent)

= $421 Million over 20 years

Average household pays $18.49 per year

Green Space Acquisition and Connectivity

There are many different ways to secure right-of-way for trails and to protect green spaces, most of which require coordination between land trusts, landowners, and land use planners. Opportunities are grouped into four primary sections: partnerships, government regulation, land management, and acquisition. The table below lists the multiple strategies under each section. More information about each strategy can be found in the section titled "Guidance for Implementing Regional Open Space and Trail Infrastructure" in the *Resource Appendix*.

Options for Acquiring Green Space

Type	Examples
Partnerships	Land Trusts, Private Land Managers
Government Regulation	Growth Management Measures (Concurrency), Performance Zoning, Incentive Zoning (Dedication/Density Transfers), Conservation Zoning, Overlay Zoning, Negotiated Dedications, Reservation of Land, Planned Unit Development, Cluster Development
Land Management	Management Plans, Conservation Easement, Preservation Easement, Public Access Easements, Riparian Easements
Acquisition	Donation or Tax Incentives, Donations by Developers, Mitigation and Legal Settlements, Interagency Transfer, Tax-Defaulted Properties, Fee Simple Purchase, Easement Purchase, Purchase/Lease Back, Bargain Sale, Installment Sale, Option/First Right of Refusal, Purchase of Development Rights, Land Banking, Condemnation, Eminent Domain

Sources: Trust for Public Land (see "Funding Guide for Green Space Connectivity" in the Resource Appendix*); From Recreation to Re-creation: New Directions in Parks and Open Space System Planning, Edited by Megan Lewis, APA PAS Report Number 551.*

Partnerships: Local government agencies can pursue partnerships with land trusts and land managers to make more effective use of their land acquisition funds and strategies. Land trust organizations are valuable partners for acquiring land and rights-of-way for trails and green space. In addition, local governments can partner with private land managers such as utility companies to build trails and greenways on rights-of-ways that are either owned or leased by utility companies.

Government Regulation: Regulation is defined as the government's ability to control the use and development of land through legislative powers. Regulatory methods help shape the use of land without transferring or selling the land. Regulatory tools can meet the challenges of growth and development while also conserving and protecting green space resources. Regulatory methods range from zoning tools such as conservation zoning or zoning overlays to development mechanisms such as cluster development.

Land Management: Management is a method of conserving the resources of a specific green space parcel by an established set of policies for publicly owned greenway land or through easements with private property owners. Property owners who grant easements retain all rights to the property except those which have been described in the terms of the easement. The property owner is responsible for all taxes associated with the property, less the value of the easement granted. Easements are generally restricted to certain portions of the property, although in certain cases an easement can be applied to an entire parcel of land. Easements are transferable through title transactions, thus the easement remains in effect perpetually.

Acquisition: Acquisition requires land to be donated or purchased by a government body, public agency, trail manager, or qualified conservation organization. Acquisition can be accomplished in a number of ways. One form of acquisition is through incentive programs such as donation or tax incentives or bargain sales. Purchasing options range from fee simple purchase of land or easements to the purchase of development rights or land banking.

Targets for Action

The targets for action below represent achievements expected after the first 5 years of plan implementation. *Each target corresponds to a vision statement of the regional plan in addition to actions of the Strategic Directions (noted in parentheses). Targets were selected based on contributions by Consortium working groups, two public surveys, and input from the public collected in over 20 community meetings following the visioning phase.*

Everyone is included in decision making, including traditionally marginalized populations

- Publish advocacy toolkit in various formats by 2016 (2.1.1)
- Convene a regional outreach council by 2016 (2.2.4)
- Grow regional consortium partnerships under identified or new coordinating agency or organization by 2016 (8.1.1)
- Expand regional geodatabase and establish data sharing platform by 2016 (8.2.6)

Access is available to greenways, bikeways, transit, and other modes of alternative transportation throughout the region, including low-income and minority neighborhoods

- Add 10 miles of trail per year, 50 trail miles by 2020 (1.1.2)
- Secure multi-year private funding and 20-year dedicated municipal funding by 2020 (1.3.3)
- Develop and implement a Complete Streets design manual for Memphis by 2015 and adopt Complete Streets policies in 3 other municipalities by 2020 (3.4.1)
- Create regional coordination agency or organization by 2015 (8.1.1)

Social and economic disparities are reduced or eliminated in disadvantaged populations, including reduction in poverty levels and a measurable increase in essential goods and services in low-income neighborhoods

- Adopt an equity monitoring tool to measure investment and impact of Greenprint implementation by 2017 (2.3.6)
- Amend existing incentive programs to encourage affordable housing development that includes green space or near Greenprint corridors by 2017 (5.1.4)
- Adopt visitability ordinances in municipal and county governments by 2020 (5.1.5)

Everyone has high **access to healthcare and quality fresh foods**, especially those with fewer means;

- Establish or designate an organization to coordinate the promotion of green space across all healthcare programs by 2015 (4.1.1)
- Create and implement educational programs for healthcare providers and school districts by 2016 (4.1.1)
- Develop a regional food system assessment to address issues of access, economics, and food system sustainability by 2016 (4.2.1)
- Double the number of gardens on public school campuses by 2016 (4.2.5)

Overall combined **housing and transportation costs** per household **have decreased**

- Create a pilot program to address last mile connections by 2016 (3.1.3)
- Increase the mode share of work commute trips made by bicycling, walking or transit within the region to 5% by 2015 and 10% by 2020 (3.2.7)
- Build a coalition of partners to initiate a housing energy efficiency program by 2016 (7.3.1)

More people are **close to walking trails, parks and schools**

- Add 5 pocket parks per year in underserved areas, 25 by 2020 (1.1.4)
- Perform inventory of parks, greenways, and waterway access to assure equity by 2016 (1.2.1)
- Enter into joint use agreements to create 20 community parks from publicly-owned land by 2020 (5.3.2)

Safe and walkable neighborhoods are created, improving public health outcomes.

- Identify greatest sidewalk needs within 0.5 miles of Greenprint corridors and prioritize for repair or installation by 2016 (5.2.4)
- Develop a package of incentives to target in housing focus areas, such as tax waivers, utility hookup fees, and down payment assistance by 2018 (5.4.4)
- Draft state legislation to offer property tax waivers or freezes for infill development in targeted areas by 2018 (5.4.4)

Improved quality of life enhances regional economic competitiveness, thereby attracting and retaining businesses, residents and visitors, and creating **access to quality jobs**; and

- Establish a formal transportation management association (TMA) by 2016 (7.1.3)
- Create incentives for businesses to locate in neighborhood centers near green infrastructure investments by 2018 (7.3.1)
- Establish geotourism as a regional tourism subsector by 2016 (7.4.1)

Health of the region's environmental systems is improved, with cleaner water and air, reduced flooding and pollution, sustained and sustainable working lands, and better quality and quantity of natural habitats.

- Provide education on economic benefits and financing options for green infrastructure by 2016 (6.1.4)
- Select one priority planting project in each of the three states to implement by 2017 (6.1.7)
- Develop guidance for protection and restoration of priority wetlands by 2017 (6.2.1)
- Create 3 native landscaping demonstration projects by 2016 (6.4.4)

Measuring Progress

In addition to regular assessment of the short-term targets identified on the previous pages, the following metrics and sustainability indicators identified by the consortium will be tracked to measure progress of the regional plan.

- Green space distribution
- Green connections (intersections of parks, greenways, and bike lanes)
- Total acreage of park space
- Total miles of greenways
- Green space usage

- Poverty index
- Racial and ethnic concentrations of poverty
- Dissimilarity index
- Ratio of sustainability benefits measured in Social Equity areas

- Travel to work mode share
- Multimodal connections (intersections of greenways, bike lanes, transit, and other forms of alternative transportation)
- Transit access/coverage
- Miles of bike lanes
- Bikeability
- Bus ridership
- Vanpool/carpool usage
- Vehicle miles traveled (VMT)

- Chronic disease rates (obesity, diabetes, heart disease, asthma)
- Access to community gardens and farmer's markets
- Access to full-service grocery stores
- Access to medical care providers
- Pedestrian and bicycle injuries

- Affordable housing near green space
- Housing + transportation costs
- Percent of infill development
- Walkability

- Undeveloped land in floodplains
- Percent impervious surface
- Tree canopy coverage
- Wetland acres
- Total acres of agricultural land
- Acres of natural and agricultural land lost to development
- Number of brownfield sites

- Economic impact of green space development
- Jobs created resulting from green space development
- Job access
- Labor market engagement
- School proficiency index
- Economic diversification

- Number of municipalities and counties adopting the plan
- Number of organizations adopting the plan

Publication Date: November 2014

For more information, please visit http://www.midsouthgreenprint.org