



SOUTHWEST TRAIL CORRIDOR & ECONOMIC IMPACT

STUDY

7/24/2015

EXECUTIVE SUMMARY

The Southwest Trail Vision

The vision for the Southwest Trail is of families walking with their children, bicyclists enjoying a sunny afternoon ride to Hot Springs or Little Rock, the local high school's cross country team practicing, retired couples strolling, joggers running, birdwatchers catching a glimpse of a migrating warbler, kids spying their first glimpse of a deer on their way to school - all enjoying the outdoors on a maintained trail without worrying about traffic.

To achieve this vision a technical Corridor and Economic Impact Study has to be conducted to include the interests of the local citizens and municipalities. These interests address community needs, which are incorporated into a guiding document.

The proposed Southwest Trail should be viewed as a recreational, physical fitness, and alternative transportation resource incorporating multiple uses including environmental education, better floodplain management, enhancing wildlife habitat, and improving water quality.

Recommendations for this multi-objective greenway are based largely on input from the general public, local businesses, civic and community organizations and public agencies. At the beginning of the planning process, a number of potential greenway corridors were identified through a meeting with staff members from the cities and counties. The greenway corridor map was created and broken down into multiple segments. From there, the corridor was evaluated, alternatives were developed and then presented at the following meetings with city and county officials. Comments received from these meetings were incorporated into the Corridor and Economic Impact Study recommendations for the greenway system.

Proposed greenway corridors are located along natural and man-made linear corridors and generally follow roadways, ridge tops and waterways within the study limits. This means greenways will fulfill objectives related to alternative transportation, natural resource conservation and water quality and floodplain management in addition to their function as recreational resources. Corridors were also selected to ensure development of a continuous greenway, centrally located and spanning the area from Hot Springs in Garland County to the Arkansas River Trail in Pulaski County. The greenway is designed with the potential to extend into neighboring jurisdictions when desired and funding becomes available.

Recommendations

The Southwest Trail in Garland, Saline and Pulaski counties is envisioned as a project with several objectives. The greenway corridor is designed to include improved floodplain management, protect wildlife habitat, enhance water quality, provide for passive recreation, encourage environmental and cultural education, promote personal fitness, accommodate alternative transportation and offer recreational resources.

The proposed Southwest Trail corridor is approximately 63 miles in length, and is located along natural and man-made linear corridors which generally follow roadways, ridge tops and waterways within the study limits. The corridors have been selected

to ensure development of a continuous system of on- and off-road greenway system flowing through North, South, East, West and Central Garland, Saline and Pulaski Counties, with the potential to extend into neighboring jurisdictions.

Of note, the Southwest Trail corridor presents a unique opportunity in the fact that there are three potential trail alternatives. The first is the U.S. Route 70 corridor, going east from Hot Springs, which will be undergoing construction from Arkansas Highway 128 to Interstate 30 in the upcoming future to incorporate increasing traffic volumes as well as provide space for on-street trail facilities. Although convenient, the U.S. Route 70 corridor may lack the character usually exemplified in a large-scale greenway, but this would be the most direct route through the study area. The second trail route alternative follows the Arkansas Highway 88 corridor, which would restrict bicycle transportation to on-street facilities, i.e. bike lanes and sharrows. The Arkansas Highway 88 corridor is an attractive strip of Garland County that flows through picturesque rural countryside, but features some adverse topography that may limit the amount of use for those traversing on bicycle for means of transportation. Lastly, the third alternative for the Southwest Trail is the use of the old railroad corridor, which has been deemed abandoned and features existing infrastructure and natural character that is ideal for greenway corridors. Of course, much work would have to be done to make this a complete and connected corridor, including paving of the trail and bridge replacement, but the trail would flow through different ecosystems and landscapes, connect physically and economically the major cities in the study area, and provide a social amenity to be used for recreation and transportation. To say the least, the Southwest Trail has ample opportunity to connect from Hot Springs to Little Rock through the use of major transportation corridors highlighted in the study area of Garland, Saline and Pulaski Counties.

Implementation Strategy

The recommendations proposed by the Southwest Trail Corridor and Economic Impact Study can best be implemented through a public-private partnership. Successful implementation will require a concerted effort by private citizens as well as the counties and cities of Garland, Saline and Pulaski. Implementation cannot be achieved by any one city or county. To be truly successful, the greenway system must become a partnership project.

It is recommended that county and city officials of Garland, Saline and Pulaski help to facilitate the formation of a private, nonprofit 501 (c) (3) corporation that would be formed to raise money from the private sector for use in parks, recreation and Southwest Trail projects. The counties of Garland, Saline and Pulaski should create a new Southwest Trail Advisory Commission, comprised of private citizens, to help prioritize segments identified in the Southwest Trail Corridor and Economic Impact Study. The commission should also be prepared to recommend projects and their funding to city councils and aldermen, to assist in right-of-way acquisition and to act as strong advocates for the Southwest Trail. City and county staff will perform planning, design and management functions for the Southwest Trail System. Staff should work closely with both the

nonprofit corporation and the Southwest Trail Advisory Commission described above.

The Garland, Saline and Pulaski Counties' Southwest Trail System is an initiative that will require a fresh look at how local dollars are spent to fulfill community-wide objectives. The greenway will serve as a functional land-use system providing financial return on money the communities invest in infrastructure, transportation, recreation and education. Based on expenditures of similar communities, it is recommended that the set-aside amount should be at least \$500,000 per year to be used as seed money for greenway planning, land acquisition, and development. It is vital for the counties and cities of Garland, Saline and Pulaski to continue to purchase property and right-of-way acquisition for the development of the Southwest Trail System whenever possible. When matched with another \$500,000 in public and private funds, this annual \$1 million will greatly contribute to the development of this trail system. Additional funding for the Southwest Trail could potentially come from a private donor(s) to help facilitate the project. Finding this private funding source could not only help for the implementation of the trail, but completely enhance the entire system in itself.



ACKNOWLEDGEMENTS

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Thank you to all of the people who participated in the Corridor Study interviews and meetings. Thanks also to the many individuals of the press and those engaged in social media throughout the process.

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The native landscape reclaiming the abandoned railroad.

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Example of a typical paved multi-use trail.



The Southwest Trail can offer opportunities of community, such as group bike rides, community-wide events, and youth outreach.

CHAPTER INTRODUCTION

1

OVERVIEW AND INTRODUCTION

Since the first city was founded in the heart of the Arkansas, the region has been recognized as one of the best places to live in the South. The region's popularity stems from the natural amenities of the Hot Springs, combining the friendly atmosphere of small towns such as Benton and the cultural activities of the larger cities of Little Rock. Tourists and other visitors come to see a wide range of attractions, such as Hot Springs National Park and the University of Arkansas-Little Rock, and many choose to make Garland, Saline and Pulaski counties their permanent homes, creating a growing urban area.

Chapter Contents:

Project Background

Plan Vision and Goals

*Definition of Trails and Greenways
(Trail Typologies)*

Benefits of Trails and Greenways

Guiding Principles

The Planning Process

The development of a comprehensive greenway system will enhance the region's natural amenities. Greenways are linear corridors of natural land that serve a variety of purposes, especially when trails are developed within these corridors. **As an alternative transportation route, tourist attraction and natural resource corridor, a central continuous greenway in Garland, Saline & Pulaski counties affords important connections between workplaces and homes, shopping areas and neighborhoods, parks and schools, historic sites and hotels, rivers and ridge tops and lakes and valleys. A central greenway developed as a continuous link between the cities of Hot Springs, Benton and Little Rock will bring further recognition to the region for its quality of life. Greenways have also been proven to attract new business.**

Not only have connections between popular origins and destinations in the region been severed, but the community's physical connections to its rivers and ridges have been limited. Many residents are unaware of the existence of the region's lakes and creeks, even though they may drive across them on a regular basis. Encroachment by residences and businesses on these waterways has led to water quality degradation and increased the potential for flooding. The parks serving the region offer residents and visitors excellent outdoor recreation opportunities, including trails along the major sites of the Foruche Bottomlands, Interstate Park and the Hot Springs National Park. However, continuous public open space within the central core of the counties is minimal.

Additionally, as is common in many other urban areas throughout the country, Garland, Saline and Pulaski counties are beginning to experience the problems that accompany rapid growth, including increased traffic congestion, diminishing air and water quality, a loss of wildlife habitat and natural lands, and fewer close-to-home recreational opportunities.

Responding to these growth problems, Garland, Saline and Pulaski government officials asked Alta Planning + Design to assist their communities in conducting a Corridor and Economic Impact Study. Prior to the initiation of the study, Alta is already at work in both counties and the region, negotiating with landowners to acquire land for greenways and other purposes.

The Southwest Trail Corridor & Economic Impact Study offers new opportunities for broadening community interaction and enhancing the environment in one of the state's most attractive growth areas.

PLAN VISION AND GOALS

Plan Vision: Garland, Saline and Pulaski Counties want to create a trail network that will establish safe, continuous corridors throughout the community that promote outdoor recreation, facilitate non-motorized transportation and highlight the natural and cultural resources of the community. The Southwest Trail will complement the existing historical and cultural fabric and will serve to make the three counties an even greater place to live.

Through this plan, the goal is to increase pedestrian and bicyclist opportunities for transportation and recreation, enhance safety, foster better access to community destinations, and create unique opportunities for active and healthy lifestyles in Garland, Saline and Pulaski Counties.

Plan Goals: The goals of this plan were developed based on input received from public comment forms, the project Steering Committee, and stakeholder interviews.

1. Develop new trails that complement and expand upon existing trails.
2. Create safe connections for bicycling and walking between existing and planned parks, schools, commercial and employment centers, and neighborhoods.
3. Establish new connections to the many natural features and recreation amenities that define the landscape of Garland, Saline and Pulaski Counties.
4. Develop a marketing / promotional plan for local trails.
5. Establish an alternative form of transportation.

Right: Kids are one of the many user groups to directly benefit from the development of a trail system.



DEFINITIONS OF TRAILS AND GREENWAYS (TRAIL TYPOLOGIES)

In this plan, the terms ‘trails’ and ‘greenways’ are used interchangeably. Typically, trails are the means of transportation within a greenway. Listed below are the definitions of each.

Definition of Trails

There is no universal legal definition of a trail in the United States. One of the best, used for national recreation trails, is: ... a travel way established either through construction or use which is passable by at least one or more of the following, including but not limited to: foot traffic, watercraft, bicycles, in-line skates, wheelchairs, cross-country skis, off-road recreation vehicles such as motorcycles, snowmobiles, ATVs, and 4-wheel drive vehicles.

Definition of Greenways

Greenways are corridors of land recognized for their ability to connect people, their natural environment and places together. Most greenways contain walking and bicycling trails. They are called blueways when they feature canoeing and kayaking. Both enhance opportunities for multi-modal transportation and recreation.

Greenways are located within linear corridors that are either natural, such as rivers and streams, or man-made, such as railroad corridors and utility corridors. As vegetated buffers, greenways also protect natural habitats, improve water quality and reduce the impacts of flooding in floodplain areas. Altogether, the many functions that greenways serve will benefit all involved: from residents to visitors, and from local businesses to the natural environment, an expanded and interconnected system of greenways will improve overall quality of life.

Left: Local youth come together for a group ride in celebration of their local greenway opening.

Photo Credit: Andy Hays, Razorback Regional Greenway Ribbon Cutting



Trail Typologies

A variety of trail facilities are recommended due to 1) the range of skill and comfort levels involved in bicycling and walking, and 2) the range of conditions for bicycling and walking in different types of environments.

Paved On-Street Trail

Permitted Uses:



Description:

Paved surface primary trail adjacent to roadways, and provides arterial connectivity

Materials:

Trail: Asphalt or concrete paving

Shoulder: Decomposed granite or similar permeable material



Left: On-street bike trails allow for users to ride along major vehicular thoroughfares.



Left: Trails offer opportunities for all, from children to young adults to married couples.

Paved Greenway Trail

Permitted Uses:



Description:

Non-hardened surface trail adjacent to roadways, typically used along roads with constrained right-of-way or topographical challenges

Materials:

Trail: Asphalt or concrete paving



Right: Typical trail width will range from 10-12' along the South West Trail.

Right: Greenway trails give users an offroad experience and an opportunity to connect with nature.



Rail and Utility Corridor

Permitted Uses:



Description:

Converted rail corridors into off-street paths. Rail corridors offer direct routes between major destinations and generally flat terrain.

Materials:

Trail: Asphalt or concrete paving



Left: Land adjacent to railroad corridors is prime real estate for trail development.



Left: Trails can bring users to areas typically not traversed.

Boardwalk

Permitted Uses:



Description:

Boardwalks are typically required when crossing wetlands or other poorly drained areas.

Materials:

Wooden plank, concrete plank or recycled material plank

Right: Boardwalks give trail users the unique opportunity to be above ground and almost “float” through an ecologically-sensitive area.



Right: Typically boardwalks are made of either wood or composite decking.



BENEFITS OF TRAILS AND GREENWAYS

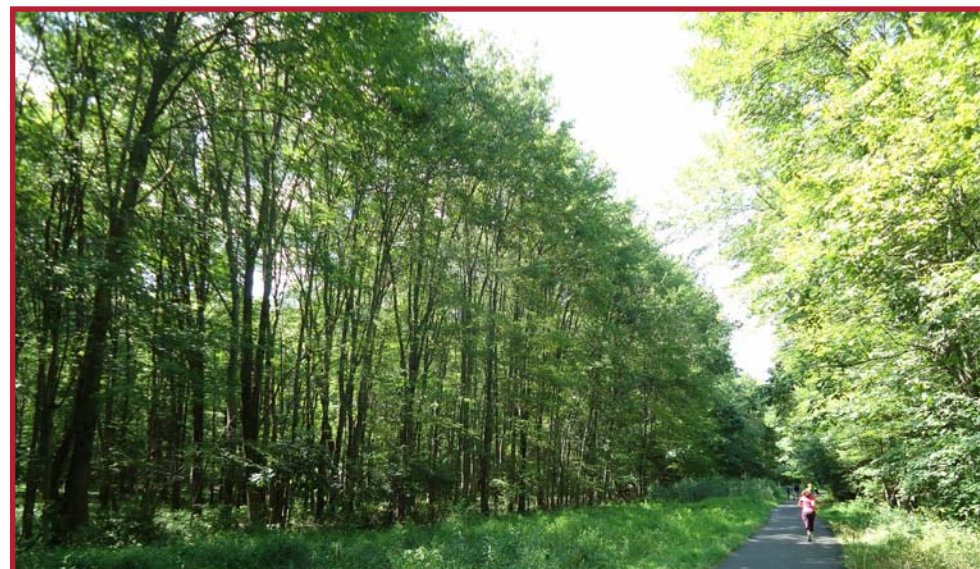
Given the hard work involved in the planning, design, and development of a comprehensive trails system, it is important for all those involved in this effort to periodically remind themselves, and others, of the meaning behind this work and the tremendous value it brings to the broader community. Communities across the U.S. and throughout the world are investing in trails as a factor of overall livability. They do this because of their obligation to promote health, safety, and welfare, and also because of the growing awareness of the many benefits of having a connected system of trails and greenways, which include social, ecologic, and economic benefits.

Greenways Create Value + Generate Economic Activity

The economic benefits of trails are generated from several sources and accrue to many different local groups, including residents, businesses, and government agencies. First, trails increase adjacent property values, which benefits property owners as well as local government agencies that see increased property tax revenues. Second, trails attract both businesses and tourists, spurring economic development that benefits all residents. Third, improved bicycle and pedestrian access near businesses, through trails or other means, has been shown to increase sales while reducing the need for expensive parking. Finally, trails are less expensive to construct than roadways and allow residents to travel by bike or foot, saving money on gas and car maintenance.

Greenways Increase Real Property Values

There are many examples, both nationally and locally, that affirm the positive connection between trails, walkability, and property values. Residential properties will realize a greater gain in value the closer they are located to trails and greenspace. In a survey of home buyers by the National Association of Realtors and the National Association of Home Builders, trails ranked as the second most important community amenity out of a list of 18 choices (highway access was number one). Similarly, the 2009 report “Walking the Walk” by CEO’s for Cities, which looked



Left: One of many benefits of having a trail and greenway system is the ability to provide access to areas of nature typically “untouched” by the general public.

Right: Trails and greenways offer pedestrians another viable option for transportation and promote trail users to spend their money at places other than the gas pump.



at 94,000 real estate transactions in 15 markets, found that in 13 of those markets, higher levels of “walkability” were directly linked to higher home values. For example, in Apex, North Carolina, the Shepard’s Vineyard housing development added \$5,000 to the price of each of the 40 homes adjacent to the regional greenway – and those homes were still the first to sell. The report, ‘Walking the Walk’ looked at 94,000 real-estate transactions in 15 markets. In 13 of those markets, higher levels of “walkability” were directly linked to higher home values.

Other Real Property value examples include:

- Dayton, OH: Five percent of the selling price of homes near the Cox Arboretum and park was attributable to the proximity of that open space.
- Salem, OR: land adjacent to a greenbelt was found to be worth about \$1,200 an acre more than land only 1000 feet away.
- Oakland, CA: A three-mile greenbelt around Lake Merritt, near the city center, was found to add \$41 million to surrounding property values.
- Seattle, WA: Homes bordering the 12-mile Burke-Gilman trail sold for 6% more than other houses of comparable size.
- “The real estate market consistently demonstrates that many people are willing to pay a larger amount for a property located close to parks and open space areas ...” Professor John L. Crompton, Texas A&M University.

Greenways Spur Economic Growth

in addition to real estate values, trails also create positive economic impacts from tourism and recreation-related revenue. Trails and greenways create opportunities in construction and maintenance, recreation rentals (such as bicycles, kayaks, and canoes), recreation services (such as shuttle buses, ferry services, and guided tours), historic preservation, restaurants, and lodging. The industry rule of thumb is that for every one dollar of investment, there is a three dollar return on that investment, if not more. One of the most relevant tourism examples that saw an even higher return on investment is from the North Carolina coast. In the Outer Banks, bicycling is estimated to have an annual economic impact of \$60 million, and 1,407 jobs are supported by the 40,800 visitors for whom bicycling was an important reason for choosing to vacation in the area. The annual return on bicycle facility development in the Outer Banks is approximately nine times higher than the initial investment. Another study in Kansas City found an even higher return of \$11.80 for every \$1 invested.

Recreational facilities also attract businesses seeking a place to locate with a high quality of life for their employees. In Morgantown, West Virginia, the 45-mile Mon River trail system is credited by the Convention and Visitors Bureau for revitalizing an entire district of the city, with a reported \$200 million in private investment as a direct result of the trail. Similarly, Chicago's Millennium Park is credited with one-quarter of all new retail, commercial, and residential development that has taken place in the East Loop since the park's creation. At the street scale, pedestrian and bicycle access have been shown to increase retail sales. High quality walking and cycling conditions tend to attract retail customers. Further, consumers report a willingness to pay approximately 11 percent more for goods in landscaped business districts than in non-landscaped districts. They are willing to pay as much as 50 percent more in these districts for convenience goods. One of the goals of the greenway system in Garland, Saline and Pulaski Counties will be to link commercial and residential areas, in order to reap these benefits for local businesses.

Greenways Offer Transportation Cost Savings

When looking at the returns on investment noted in the previous section, it is also important to put into perspective the massive differences in costs inherent in the transportation decisions we make, both as individuals and as a region. Consider the individual costs associated with various forms of transportation. Walking is virtually free and the cost of operating a bicycle is far less than operating a car. A study cited by the Victoria Transport Policy Institute found that households in automobile-dependent communities devote 50 percent more of their income to transportation (more than \$8,500 annually) than households in communities with more accessible land use and more multi-modal transportation systems (less than \$5,500 annually).

On a broader scale, consider the regional costs of our transportation infrastructure investments. According to the Federal Highway Administration, the basic cost of a single mile of urban, four-lane highway is between \$20 million and \$80 million. In urban bottlenecks where congestion is the worst, common restrictions such as the high costs of right of ways and the need to control high traffic volumes can boost that figure to \$290 million or more. By contrast, the costs of bicycle and pedestrian facilities range anywhere from a few thousand dollars per mile to rarely more than \$1 million, with great variability between types of infrastructure and local circumstances.



Left: Bicycle skills and safety courses can become community events and encourage an active lifestyle for people of all age

Right: Trails and greenways offer business and market opportunities as employers and employees can display their commitment to active lifestyles.



lane highway is between \$20 million and \$80 million. In urban bottlenecks where congestion is the worst, common restrictions such as the high costs of right of ways and the need to control high traffic volumes can boost that figure to \$290 million or more. By contrast, the costs of bicycle and pedestrian facilities range anywhere from a few thousand dollars per mile to rarely more than \$1 million, with great variability between types of infrastructure and local circumstances.

Bicycling and walking are affordable forms of transportation, and with the relatively low cost and high return on investment for trails, it is hard to argue against developing a regional system that creates value and generates economic activity.

"...bike commuters save an average of \$1,825 annually in auto-related costs, reduce their carbon emissions by 128 pounds, conserve 145 gallons of gasoline and spare themselves 50 hours of gridlock."

- Rep. Earl Blumenauer, D-Ore. Founder, Congressional Bike Caucus

Greenways Enhance Bicycle and Pedestrian Transportation Options

Communities that invest in trail systems will be better prepared to accommodate shifting modes of travel, especially as driving becomes more expensive. Provided there are viable alternatives to driving, Americans are willing to change their travel habits, as shown during the dramatic increases in gas prices in 2008. According to the Rails to Trails Conservancy and the Bikes Belong Coalition, "Every day, more commuters switch to public transportation, bicycling and walking in places where prior infrastructure investments have made these options safe and convenient".

Choosing to bike or walk rather than to drive, however, is often made difficult by the way our cities and towns have developed. The sprawling nature of many land

development patterns often leaves residents and visitors with little choice but to drive, even for short trips. In fact, nearly two-thirds (62.7 percent) of all driving trips we make are for a distance of five miles or less.

Surveys by the Federal Highway Administration show that Americans are willing to walk as far as two miles to a destination and bicycle as far as five miles. A complete system of trails throughout Garland, Saline and Pulaski Counties, combined with other bicycle and pedestrian infrastructure, will offer viable opportunities for walking and biking to homes, workplaces, schools, parks, downtowns, and cultural attractions.

Greenways Improve Health Through Active Living

Land and water trails throughout Garland, Saline and Pulaski Counties will contribute to the overall health of residents by offering people attractive, safe, and accessible places to bike, walk, hike, jog, skate, canoe, and kayak. In short, regional trails will create better opportunities for active lifestyles. The design of our communities—including towns, subdivisions, transportation systems, parks, trails, and other public recreational facilities—affects people’s ability to reach the recommended 30 minutes each day of moderately intense physical activity (60 minutes for youth). According to the Centers for Disease Control and Prevention (CDC), *“Physical inactivity causes numerous physical and mental health problems, is responsible for an estimated 200,000 deaths per year, and contributes to the obesity epidemic.”*

In identifying a solution, the CDC determined that by creating and improving places in our communities to be physically active, there could be a 25 percent increase in the percentage of people who exercise at least three times a week. This is significant considering that for people who are inactive, even small increases in physical activity can bring measurable health benefits. In a December 2010 article published by the Mayo Clinic, it is suggested that:



Left: Trails and greenways offer transportation options to anyone, from young children to suit and tie-clad professionals.

Right: Trails and greenways give undevelopable lands along waterways a purpose.



“Walking, like other exercise, can help you achieve a number of important health benefits such as:

- Lowered low-density lipoprotein (LDL) cholesterol (the “bad” cholesterol),
- Elevated high-density lipoprotein (HDL) cholesterol (the “good” cholesterol),
- Lowered blood pressure,
- Reduced risk of or managed type 2 diabetes,
- Improved mood, and
- Increased feelings of strength and fitness.”

Many public agencies are teaming up with foundations, universities, and private companies to launch a new kind of health campaign that focuses on improving people’s options instead of reforming their behavior. A 2005 Newsweek Magazine feature, “Designing Heart-Healthy Communities,” cites the goals of such programs: *“The goals range from updating restaurant menus to restoring mass transit, but the most visible efforts focus on making the built environment more conducive to walking and cycling.”* Clearly, the connection between health and greenways is becoming common knowledge. The Rails-to-Trails Conservancy puts it simply: *“Individuals must choose to exercise, but communities can make that choice easier.”*

Greenways Support Clear Skies, Clean Rivers, and Wildlife

There are a multitude of environmental benefits from trails, greenways, and open spaces that help to protect the essential functions performed by natural ecosystems. Greenways protect and link fragmented habitats and provide opportunities for protecting plant and animal species. Trails and greenways reduce air pollution by two significant means: first, they provide enjoyable and safe alternatives to the automobile, which reduces the burning of fossil fuels; second, they protect large areas of plants that create oxygen and filter air pollutants, such as ozone, sulfur dioxide, carbon monoxide, and airborne particles of heavy metal. Greenways improve water quality by creating a natural buffer zone that protects streams, rivers, and lakes, preventing soil erosion and filtering pollution caused by agricultural and road runoff.

As an educational tool, trail signage can be designed to inform trail users about water quality issues particular to each watershed. Such signs could also include tips on how

to improve water quality. Similarly, a greenway can serve as a hands-on environmental classroom for people of all ages to experience natural landscapes, furthering environmental awareness.

Greenways Protect People and Property from Flood Damage

The protection of open spaces associated with greenway development can also protect natural floodplains along rivers and streams. According to the Federal Emergency Management Agency (FEMA), the implementation of floodplain ordinances is estimated to prevent \$1.1 billion in flood damages annually. By restoring developed floodplains to their natural state and protecting them as greenways, many riverside communities are preventing potential flood damages and related costs.

Greenways Enhance Cultural Awareness and Community Identity

Trails, greenways, and open space can serve as connections to local heritage by preserving historic places and by providing access to them. They provide a sense of place and an understanding of past events by drawing greater public attention to historic and cultural locations and events. Trails often provide access to historic sites such as battlegrounds, bridges, buildings, and canals that otherwise would be difficult to access or interpret. Each community or region has its own unique history, its own features and destinations, and its own landscapes. For example, in the study area, some unique features could include the Hot Springs Convention Center, the Saline River Bridge Crossing, Bauxite Historical Museum, the William J. Clinton Presidential Center, and the Arkansas River Trail. Cultural and historic groups like the Bauxite Historical Association could help identify the most relevant events for different sites. By recognizing, honoring, and connecting these features, the combined results serve to enhance cultural awareness and community identity, potentially attracting tourism. Being aware of the historical and cultural context when naming parks and trails and designing features will further enhance the overall trail and park user experience. Finally, greenways and trails provide opportunities for people to interact with one another outside of work and their immediate neighborhood. Positive interaction (such as through exercising, strolling, or even just saying ‘hello’) among people from a wider community helps to build trust and awareness of others, which strengthens the overall sense of community.



Left: Trails and greenways promote active lifestyles, bring members of a community together, and support sustainable initiatives.

Right: Trails and greenways that connect to places of interest give users a sense of satisfaction and appreciation as these users take a stance of personal ownership for the places they love.



GUIDING PRINCIPLES

The following are guiding principles for this plan:

The Walking and Bicycling Environment Should Be Safe.

All bicycling and walking routes should be physically safe and perceived as safe by all users. Safe means minimal conflicts with external factors, such as noise, vehicular traffic and protruding architectural elements. Safe also means routes are clear and well marked with appropriate pavement markings and directional signage. Safety also concerns the personal safety of trail users, such as keeping viewsheds along the trail open in order to can prevent unwanted encounters as well as to encourage others to help maintain a safe trail corridor through the principals of having “eyes on the trail,” meaning to encourage others in the surveillance of the trail through means of people watching and their personal trail usership.

The Pedestrian and Bicycle Network Should Be Accessible.

Sidewalks, shared-use paths, bike routes and crosswalks should permit the mobility of residents of all ages and abilities. The pedestrian and bicycle network should employ principles of universal design. Bicyclists have a range of skill levels, and facilities should be designed with a goal of providing for inexperienced/recreational bicyclists (especially children and seniors) to the greatest extent possible.

The Pedestrian and Bicycle Improvements Should Be Economical.

Pedestrian and bicycle improvements should achieve the maximum benefit for their cost, including initial cost and maintenance cost, as well as a reduced reliance on more expensive modes of transportation. Where possible, improvements in the right-of-way should stimulate, reinforce and connect with adjacent private improvements.

The Pedestrian and Bicycle Network Should Connect to Places People Want to Go.

The pedestrian and bicycle network should provide continuous direct routes and convenient connections between destinations such as homes, schools, shopping areas, public services, recreational opportunities and transit. A complete network of on-street bicycling facilities should connect seamlessly to existing and proposed multi-use trails to complete recreational and commuting routes. Also, to encourage a complete and connected network, gaps in the different modes of transportation (for the purposes of this study, from public transit to trail facilities or vice versa) should be eliminated, such as the addition of bike racks on buses and trail access from bus stops and stations.

The Walking and Bicycling Environment Should Be Clear and Easy to Use.

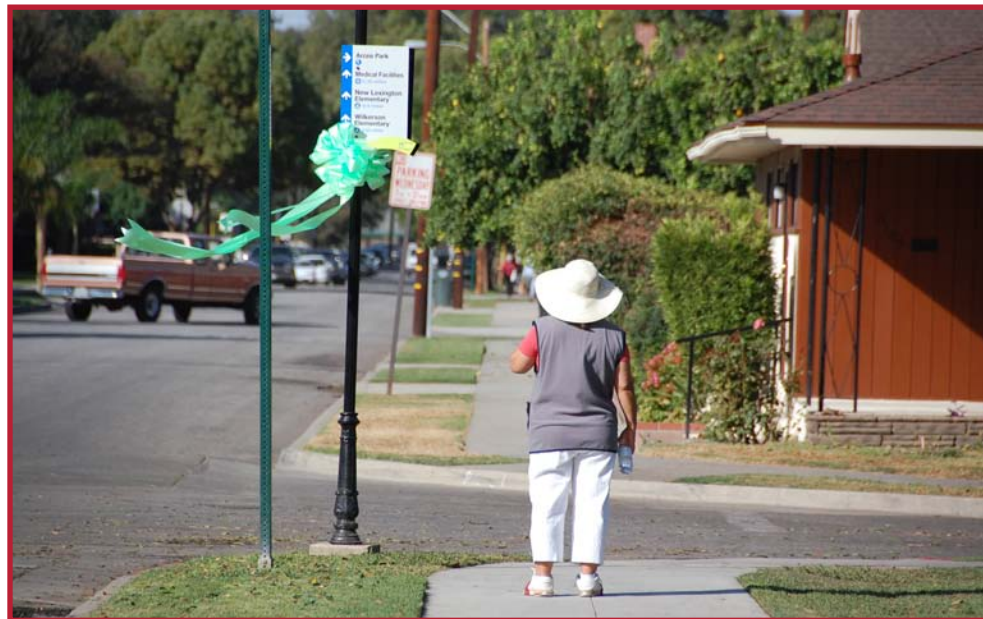
Shared-use paths and crossings should allow all people to easily find a direct route to a destination with minimal delays, regardless of whether these persons have mobility, sensory, or cognitive disability impairments. All roads are legal for the use of pedestrians and bicyclists (except freeways, from which each is prohibited unless a separate facility on that right of way is provided). This means that most streets are bicycle facilities and should be designed, marked and maintained accordingly.

The Walking and Bicycling Environment Should Be Attractive and Enhance Community Livability.

The walking and bicycling facilities should be compatible with the nature, history and character of the environment. Context and scale should be given thoughtful consideration. Good design should integrate with and support the development of complementary uses and should encourage preservation and construction of art, landscaping and other items that add value to communities. These components might include open spaces such as plazas, courtyards and squares, and amenities like street furniture, banners, art, plantings and special paving. These along with historical elements and cultural references, should promote a sense of place. Public activities should be encouraged and the municipal code should permit commercial activities such as dining, vending and advertising when they do not interfere with safety and accessibility.

Design Guidelines are Flexible and Should Be Applied Using Professional Judgment.

This document references specific national guidelines for bicycle and pedestrian facility design, as well as a number of design treatments not specifically covered under current guidelines. Statutory and regulatory guidance may change. For this reason, the guidance and recommendations in this document function to complement other resources considered during a design process, and in all cases sound engineering judgment should be used.



Left: Trails and greenways will develop clear and legible wayfinding that promote easy-to-navigate experiences.

THE PLANNING PROCESS Project Kick-Off

The planning process began with a Kick-Off Meeting with each County representative and continued through mid-2015. The Kick-Off meeting was the first of four project Steering Committee meetings. The Alta Planning + Design team continued working to create a vision that will guide the planning process, and identify high priority trail and greenway corridors.

Opportunities and Constraints

From February 2015 through May 2015, Alta Planning + Design project consultants began researching existing conditions by drawing upon input received during the kick-off events and local public outreach efforts. They accomplished this by analyzing geographic information system (GIS) data, reviewing locally adopted plans, and by reviewing existing conditions throughout the study area in an on-the-ground field review. After identifying the opportunities and constraints as well as several site visits throughout the study area, the team developed multiple trail alternatives based off of property records and aerials (both current and historical), while using Google Earth as a prime means of collaboration between the individuals on the Alta Planning + Design team. *Please refer to Chapter 2 of this plan for more on this topic.*



*The Hot Springs Creek Greenway flows underneath
an active railroad corridor.*

CHAPTER

2

INVENTORY OF EXISTING CONDITIONS

THE GROWTH OF TRAILS AND GREENWAYS

Chapter Contents:

The Growth of Trails and Greenways

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Introduction

From small rural towns to large urban areas, trails and greenways are transforming communities across the country. The economic, social, and environmental benefits of trails and greenways make these transportation and recreation amenities attractive infrastructure investments for communities of all shapes and sizes. Trails provide outlets for recreation and physical activity, serve as catalysts for economic development and recreational tourism, diversify transportation choices, increase property values, and support healthy and active lifestyles. Successful trail projects like the state-wide Katy Trail in Missouri, which generates an annual economic impact of nearly \$18.5 million, and the Monon Trail, which has increased property values in Marion County, Indiana by more than \$140 million, highlight the positive impacts of trails and greenways.

As communities in Garland, Pulaski and Saline Counties continue to pursue the creation of the regional Southwest Trail, they must internalize and effectively communicate the benefits of trails and greenways to their communities and visitors.

Health and Recreation

Trails and greenways are different from most parks and recreational sites. Instead of providing numerous activities at a single location, they focus on supporting just a few types of activities across a long, narrow corridor. Greenways and trails function like the highways of the park system, providing both transportation and recreation benefits while connecting walkers, joggers, and bicyclists to other destinations in the community, like schools, local businesses, and other parks.

Through increased access to active transportation and physical exercise, trails help foster healthier communities and healthier individuals. More than one in every three adults and one in every seven children in Arkansas are obese. Increasing opportunities for daily physical activity is a health imperative that addresses not only obesity, but also related diseases like diabetes, hypertension, heart disease, arthritis, and obesity-related cancer. Trails and greenways support physical activity and provide residents with scenic and enjoyable spaces for walking, bicycling, jogging, and other forms of physical activity. A study for the proposed 36-mile Wolf River Greenway in Memphis, TN found that the increases in walking and bicycling generated by the trail will save Memphians nearly \$1.5 million in annual healthcare cost savings.

Economic Development

As trails and greenways have grown to become prominent recreation, transportation, and quality of life assets for communities throughout the country, the body of literature documenting their economic impacts has expanded significantly as well. From job creation and business revenues to property values and tax revenues, trails and greenways are serving as catalysts for economic development and the generation of revenue and wealth for both individual property owners and local governments.

The proposed Southwest Trail features a variety of landscapes and experiences.

HISTORIC CONTEXT

Introduction

The growth and development of communities along the study corridor over time is intrinsically connected to migration, mobility, and means of transportation. From Native American traces and riverboats to railroads and highways, transportation infrastructure have dictated migration patterns, shaped the built environment, and transformed the way people interact with one another. Nearly every community in the study area grew as a result of investments in the transportation system of the day – first waterways and ports, then railroads and depots, and most recently, the highway system. The Southwest Trail represents a concerted effort by regional leaders to change the way residents and visitors connect to the people and places around them, to develop new infrastructure that shapes to shape growth and development within the region.

An overview of the origins of the Southwest Trail provides an historic foundation on which future investments in trail facilities can be built. The area’s rich culture and history is an asset for trail development and should be utilized to strengthen the character of the trail and surrounding communities as a unique recreation and tourism destination. The trail corridor utilizes segments of two of Arkansas’s most important transportation corridors – the historic Southwest Trail and the Rock Island and Missouri Pacific Railroads. As described below, the impacts on the State of Arkansas are indelible and profound, and while they are barely visible to the naked eye, they should be celebrated and remembered as an important part of the Arkansas narrative.



Left: Garland, Saline and Pulaski Counties each have their own rich history, from Native American nomadism, early settlers and pioneers, and the railroad boom. This image displays a Missouri Pacific Railroad overpass plaque, one of many historical clues found along the proposed Southwest Trail.

Right: Map showing the Southwest Trail or Military Road as it was in the mid-1800s (in red) and the Natchitoches Trace that it replaced (in brown).

Photo credit: <https://natchitochestrace.wordpress.com/>



Early Settlements and the Southwest Trail

The Natchitoches Trace

Long before the arrival of Europeans to North America, Native Americans had established settlements and communities across the continent. Large settlements were connected to one another by waterways and by footpaths and trails, commonly referred to as traces. The Natchitoches Trace was a network of trails that ran from present-day St. Louis, Missouri south through Arkansas and into Louisiana, where it ended at Natchitoches and connected with other pathways.

Early Pioneers and Settlers

European explorers and pioneers took advantage of the existing Natchitoches Trace as a corridor for north-south travel. After the Louisiana Purchase in 1803, pioneers traveled along the trace, also referred to as the Arkansas Road and the Red River Road, to settle in Arkansas and in the Red River Valley of Texas.

Military Road

In order to protect the recently acquired territory and better facilitate the movement of people and goods to Arkansas and Texas, Congress appropriated funding for the United States Army to construct a single alignment along the Natchitoches Trace in the 1830s. This new route, which became known as Military Road, provided a more level and comfortable path for travelers on foot, horseback and wagon. While the Military Road remained a vital transportation corridor for decades, changing migration patterns and the rise of the railroad after the Civil War left much of the Military Road abandoned, particularly north of the Arkansas River.

Today

Very little remains of the Natchitoches Trace and Military Road today. An occasional historical marker reminds passers-by of this importance of this corridor, but the legacy of these vital transportation routes is slowly fading.

The Rock Island & Missouri Pacific Railroads

Origins

The origins of the railroad network in Arkansas began in 1850 with an order from the United States Chief Engineer of the War Department to survey the most feasible railroad route from St. Louis to the Big Bend of the Red River. In 1853, the State of Arkansas chartered the Cairo and Fulton Railroad to build a cross-state railroad generally following the Military Road. However, financial difficulties delayed construction. By 1861, this railroad had not been constructed, and the only rail line operating in Arkansas was a 38-mile section of tracks between Hopefield (West Memphis) and Madison.

Growth

After the Civil War, Reconstruction brought significant capital investment to Arkansas, and the rapid expansion of the railroad system created economic opportunities throughout the state. Construction began on the Cairo and Fulton Railroad in 1871 and was later completed in 1874, providing a continuous connection from Texarkana, Arkansas to southeastern Missouri and northward to St. Louis. As Hot Springs's popularity as a resort and vacation destination grew, two short line railroads were built to connect the popular destination to the growing railway network. The first of these short lines was the Hot Springs Railroad (1875), which connected Hot Springs to Malvern, roughly 25 miles to the southeast. The second was the Little Rock, Hot Springs and Texas Railway (1893), which provided a shorter connection from Little Rock to Hot Springs.



Left: At the peak of the railroad industry, Missouri Pacific and Rock Island Railroads were some of the most successful. The rise of the motor vehicle quickly dissolved the railroad industry.

Photo Credit: <http://www.bridgeportxhistorical.org/pages/rock%20island%20railroad.html>



Right: The Missouri Pacific Railroad continued passenger services until 1964

Photo Credit: <http://www.jpbellphotography.com/photo/missouri-pacific-lines-eagle/>

Consolidation

The trend for railroad construction continued throughout the latter half of the 19th Century. By 1880, 822 miles of track were in operation, and more than 2,750 were in operation by 1900. Rail lines continued to change hands as companies either merged, folded, or were acquired by larger competitors. By 1927, there were more than 5,000 miles of track. The Missouri-Pacific owned and operated 1,810 miles of railroad in Arkansas, and the Chicago, Rock Island & Pacific, commonly known as the Rock Island, owned over 700 miles. With consolidation came more luxurious amenities and expansive opportunities for long-distance travel. As a result, passenger service continued to flourish. At its peak, roughly 4,700 miles of railroad were open to passenger service in Arkansas, and thousands more beyond its borders.

Decline

While the railroads maintained their vital importance to industry and shipping, passenger rail service declined as the personal automobile rose to prominence. The freedom of independent mobility trumped the fixed lines and rigid schedules of passenger rail service. In the study area, passenger service to Hot Springs waned considerably. In 1964, the Missouri-Pacific Railroad ended passenger service from Little Rock to Hot Springs. This was also the final year the Rock Island turned a profit. The golden era of the railroad was by then a distant memory.

Abandonment

While freight rail has maintained a significant presence in Arkansas, not all railroad companies were able to remain in business. Following a protracted merger attempt with Union Pacific, Rock Island filed for bankruptcy and later disbanded in 1980. While much of the company's infrastructure was sold off to other railroad companies, some track was abandoned and dismantled.

PHOTOGRAPHIC SUMMARY OF EXISTING CONDITIONS



Dead end street in Hot Springs.



Utility corridor in South Little Rock.



Utility and railroad corridor in South Little Rock.



Railroad corridor in south Little Rock.



Utility corridor in south Little Rock.



Utility corridor in south Little Rock.



Abandoned rail corridor in rural Garland County.



Abandoned rail corridor in Benton.



Active rail corridor over the Hot Springs Creek Greenway.



Railroad corridor in Little Rock.



Railroad corridor in Hot Springs.



Railroad corridor in Hot Springs.



Saline Crossings - bridges that connection over the Saline River.



Railroad corridor in Hot Springs.

CORRIDOR CHARACTER AND ASSETS

Communities along the Corridor

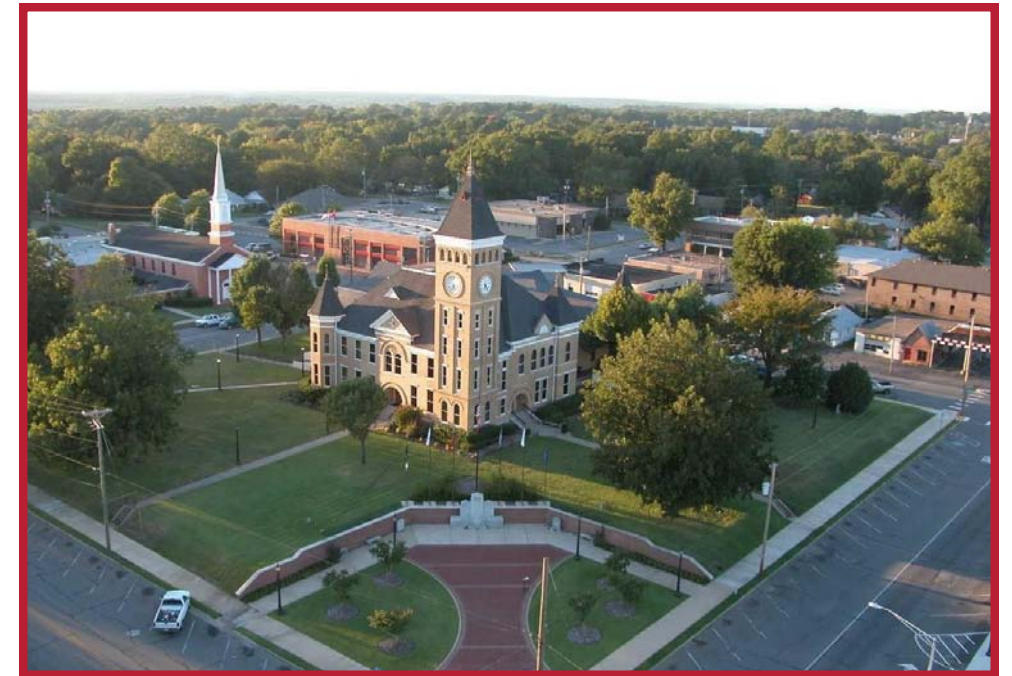
Hot Springs

Hot Springs is the eleventh-largest city in Arkansas and the county seat of Garland County. The city is located deep within the Ouachita Mountains among the U.S. Interior Highlands, and is set among several natural hot springs for which the city is named. The center of Hot Springs is the oldest federal reserve in the United States, today preserved as Hot Springs National Park. The hot spring water has been popularly believed for centuries to possess medicinal properties, and was a subject of legend among several Native American tribes. Following federal protection in 1832, the city developed into a successful spa town. Incorporated in January 10, 1851, the city has been home to Major League Baseball spring training, illegal gambling, speakeasies and gangsters such as Al Capone, horse racing at Oaklawn Park, the Army and Navy Hospital, and 42nd President Bill Clinton. The city contains a population of 35,193 according to the 2010 United States Census.

Today, much of Hot Springs's history is preserved by various government entities. Hot Springs National Park is maintained by the National Park Service, including Bathhouse Row, which preserves the eight historic bathhouse buildings and gardens along Central Avenue. Downtown Hot Springs is preserved as Hot Springs Central Avenue Historic District, listed on the National Register of Historic Places. The city also contains dozens of historic hotels and motor courts, built during the Great Depression in the art deco style. Due to the popularity of the thermal waters, Hot Springs benefited from rapid growth during a period when many cities saw a sharp decline in building. As a result, Hot Springs's architecture is a key part of the city's blend of cultures; including a reputation as a tourist town and a Southern city. Also a destination for the arts, Hot Springs features the Hot Springs Music Festival, Hot Springs Documentary Film Festival, and the Valley of the Vapors Independent Music Festival annually.



Left: The community of Hot Springs is nestled quietly, yet distinctly, into the Ouachita Mountains.



Right: The Saline County Courthouse is located in the heart of downtown Benton.

Hot Springs is the principal city of the Hot Springs metropolitan area, which includes all of Garland County, registering a population of 96,024 in 2010 according to the United States Census Bureau. The metro was ranked by Forbes as one of the top "small places for business and careers", citing a low cost of doing business, high job growth and an educated workforce.

Lonsdale

With less than 100 residents, the small town of Lonsdale prospers as a residential community with convenient access to schools, jobs, goods and services in nearby Hot Springs and Benton. While Lonsdale today is a small, quiet community, the town's original founders had grandiose ambitions of railroad-driven growth and prosperity. Lonsdale was founded in 1900 by John Gerdes Lonsdale, Sr., one of the owners of the Little Rock and Hot Springs Western Railroad. With access to markets in Hot Springs, Little Rock and beyond, Lonsdale growth was driven by the timber industry, textiles and manufacturing. In 1922, a fire spread through town, destroying twenty buildings and leaving 45 residents homeless. Despite later efforts of John Lonsdale, Jr. to revive the community in the 1940s, Lonsdale never reached the level of prosperity it had once achieved. In 1964, Missouri Pacific ended passenger service to Hot Springs, and the train depot was shuttered. US Highway 70 now serves as the community's primary connection to adjacent communities.

Haskell

Once recognized as a railroad town, located between the Missouri Pacific and the Rock Island tracks, Haskell is best known in the twenty-first century as the home of the Harmony Grove School District. Following the Civil War, railroads began to expand their operation in and across Arkansas. The name Haskell reportedly was selected because it was the first name of the man who donated land for the Rock Island system, Haskell Dickenson. By 1920, most of the workers in the city were involved in agriculture, with railroad work coming second and the timber industry third in importance. Around

1927, the Mount Harmony and Hickory Grove schools were consolidated, creating the Harmony Grove School District. The decline of the railroad industry led to harder days for cities like Haskell. Interstate 30, beginning in Little Rock and going to Texas, was built several miles to the west of Haskell. However, by the end of the twentieth century, the growing population of cities such as Benton and Bryant (Saline County) meant population growth for Haskell as well. Between 2000 and 2010, the population jumped from 2,645 to 3,990.

Benton

One of the most colorful characters in American history – Thomas Hart Benton, a former senator and advocate of westward expansion to Missouri and Arkansas – is responsible for the thriving central Arkansas community’s name. Located halfway between Little Rock and Hot Springs along I-30 and on the original Southwest Trail route, Benton, historically, makes a perfect home base for those wanting to visit both communities.

The discovery of bauxite ore is the reason this area of Saline County was settled. This is only place in the United States where it has been feasible to commercially mine the aluminum. The industry took hold in this area in 1899 with top output coming during World War II, when demand increased because German subs were sinking foreign ore ships. The mining thrived for many, many years before the high grade, low silica bauxite ore gave out.

The picturesque Benton town square is the focal point of the community. Don’t miss the oddity of the Gann Museum of Saline County, housed in the only known structure in the world constructed of bauxite. In addition to the history of the county, the museum boasts an impressive collection of Niloak Pottery, made in the region from 1909 to 1946. The unique method of “swirling” colors, the pottery’s distinctive trademark, died with creator Charles Hyten, making the pieces highly sought after by collectors. The Royal Theatre, now listed on the National Register of Historic Places, hosts live theatrical productions.



Left: Lonsdale is an attractive community that features a centrally-located public park. This is an excellent connection to make along the Southwest Trail, and portions of the abandoned rail corridor are already being used for the trail..



Right: The Bauxite Museum is another great connection as trail users can learn about the rich history associated with Central Arkansas.

One of the town’s main thoroughfares, Military Road, dates to the 1830s. This route parallels the Old Southwest Trail used by frontier travelers on their way West. The Southwest Trail is part of the Arkansas Heritage Trails System.

Both Benton and nearby Bryant provide antique seekers ample opportunity to search for treasures with several antique malls on both sides of the interstate. The Saline River has excellent fishing, scenery and backcountry floating for the outdoors enthusiast.

Bauxite

Located within Central Arkansas, the town is named for bauxite, the source ore for aluminum, which was found in abundant quantities in the area and became a source of aluminum refining. The town’s population boomed during expanded aluminum production during World War II and shrank rapidly with output of the ore. Bauxite was incorporated as a town in 1973.

Production began to slow as the war drew to a close, but the city’s population and infrastructure had swelled to include multiple new communities and a larger school district. The Aluminum Company of America, or ALCOA, and Reynolds Metal Company continued to refine Bauxite in the area, with Reynolds finally ceasing operations in 1981. ALCOA still maintains a chemical processing plant between Bauxite and Bryant, and McGeorge Contracting Company continues to mine bauxite for its use in the oil and gas industry.

Today, The City of Bauxite has a population of 487, according to the 2010 Census, and features the Bauxite Historical Museum, which was built by ALCOA in the mid-1920s and was originally a community center, but later became the museum.

Bryant

The central Arkansas community Bryant bears the distinction of surrounding the geographical center of the state. A historical marker on Ark. 5 next to Pinecrest Cemetery in Saline County marks the spot.

Early residents of the town were pioneers of European descent traveling through the area on their way to Texas. When they came to Hurricane Creek, it was too high for crossing so they camped for several days while waiting for the waters to recede. As they explored the area, they fell in love with the scenic beauty of the forests and decided to stay.

Bryant, like many Arkansas towns, depended on the railroad for its beginnings. In 1871 during Reconstruction (1865-1877), the St. Louis and Iron Mountain Railroad began working on a line from Little Rock, completing it in 1873. Many businesses, including a canning factory, began to move to town and prosper because of the railroad. The Bryant Township was created in 1878, becoming the first time the name “Bryant” was officially used. Prior to this, it was a part of the Owen Township. Continued growth led to Bryant becoming an incorporated town on October 29, 1892.

The mining boon at nearby Bauxite during World War II led to another period of growth after a decline in population from 1910 into the 1930s. The town’s population went from 173 to 387 between 1940 and 1950.

In the 1950s, Bryant became a prime location on the first stretch of interstate in Arkansas: Interstate 30 from Little Rock southwest to Texarkana. Much like the railroad decades before, the highway led to an increase in population.

Today, Bryant is a fast-growing community approximately 20 miles southwest of Little Rock in Saline County.

Shannon Hills

Incorporated in 1977, Shannon Hills is largely a bedroom community, with few businesses and no industry. The population of northern Saline County centered around communities such as Benton (Saline County) for much of the county’s history. The area that would become Shannon Hills remained unclaimed and undeveloped until after World War II. Around 1960, plans were announced to create a housing development at that location. Residents voted to incorporate as a city in 1977 for two reasons: to provide city services for themselves and to avoid annexation into Little Rock, as happened to



Left: The Arkansas River Market is the heartbeat of Little Rock, providing a variety of entertainment and off-site event venue options.

Right: The Little Rock skyline at dusk is a picturesque view.



nearby Mabelvale (Pulaski County) at around the same time.

Today, the city of Shannon Hills has full-time police, water, and street departments; a volunteer fire department; and an appointed planning commission. The few businesses in Shannon Hills include a pharmacy, a grocery store, a dentist’s office, and a restaurant. The population of Shannon Hills grew from 2,005 in 2000 to 3,143 in 2010.

Little Rock

Little Rock is the capital and the most populous city of the U.S. state of Arkansas. Archeological artifacts provide evidence of Native Americans inhabiting Central Arkansas for thousands of years before Europeans arrived. The early inhabitants may have included the Folsom people, Bluff Dwellers, and Mississippian culture peoples who built earthwork mounds recorded in 1541 by Spanish explorer Hernando de Soto. Historical tribes of the area included the Caddo, Quapaw, Osage, Choctaw, and Cherokee.

Little Rock was named for a stone outcropping on the bank of the Arkansas River used by early travelers as a landmark.[4] La Petite Roche (French for “the Little Rock”), named in 1722 by French explorer and trader Jean-Baptiste Bénard de la Harpe, marked the transition from the flat Mississippi Delta region to the Ouachita Mountain foothills. Travelers referred to the area as “the Little Rock,” and the landmark name stuck.

The capital of the Arkansas Territory was moved to Little Rock from Arkansas Post in 1821. The city’s population was 193,524 at the 2010 census. The five-county Little Rock–North Little Rock–Conway, AR Metropolitan Statistical Area (MSA) is ranked 75th in terms of population in the United States with 724,385 residents according to the 2013 estimate by the United States Census Bureau.

Little Rock is a major cultural, economic, government and transportation center within Arkansas, the South and the nation. Amenities such as Arkansas Arts Center, Arkansas Repertory Theatre, Arkansas Symphony Orchestra are available in addition to the hiking, boating, and other outdoor recreational opportunities available to residents and visitors. Little Rock’s history is also available to residents and visitors in a variety of

ways; history museums, historic districts or neighborhoods like the Quapaw Quarter, and historic sites like Little Rock Central High School. The city is the headquarters of Dillard's, Windstream Communications, Acxiom, Stephens Inc., University of Arkansas for Medical Sciences, Heifer International, the Clinton Foundation, and the Rose Law Firm. Other large corporations, including Dassault Falcon Jet and LM Wind Power have large operations in the city. State government is also a large employer, with most offices being located in downtown Little Rock. Two major Interstate highways, Interstate 30 and Interstate 40 meet in Little Rock, with the Port of Little Rock serving as a major shipping hub.

Significant Assets along the Corridor

While the rail corridor has long since been abandoned and the tracks removed from the rail bed, the legacy of the railroad remains visible and prominent in the communities along the corridor. Railroad overpasses, depots and stations, historic bridges, and other vestiges of this once active railroad dot the landscape and serve as reminders of a bygone era when railroads transported people, raw materials, livestock, and finished goods throughout the United States. Other historic and cultural landmarks in communities along the corridor should be highlighted as valuable community assets and be linked to the trail through signage and/or infrastructure improvements.

William J. Clinton Presidential Center and Park

Home to the presidential library of Bill Clinton, as well as the Clinton Foundation and the University of Arkansas Clinton School of Public Service, the William J. Clinton Presidential Center and Park is situated on a 30-acre site immediately east of Interstate 30 on the Arkansas River. The modernist complex features a multitude of sustainable design features, earning it a LEED-Platinum certification by the United States Green Building Council. The Arkansas River Trail runs through the center and park, providing access to the site for bicyclists and pedestrians. In 2011, renovations were completed on the Rock Island Railroad Bridge, now called the Clinton Park Bridge and the facility was reopened for bicycle and pedestrian traffic.



Left: The William J. Clinton Presidential Center and Park is a major attraction to the Little Rock community.



Right: Hot Springs National Park has a rich history to go along with the inviting bathhouses and natural landscape.

Arkansas State Capital Building

Completed in 1915, the neoclassical Arkansas State Capital was designed and constructed by George R. Mann over a period of 16 years at a cost of \$2.2 million dollars. There are numerous memorials on the Capital grounds, including the Monument to Confederate Soldiers, Confederate War Prisoners Memorial, Vietnam Veterans Memorial, Law Enforcement Officers Memorial, Little Rock Nine Civil Rights Memorial, and even a replica of the Liberty Bell. The State Capital Building is listed on the National Register of Historic Places.

Hot Springs National Park

Hot Springs National Park has a long and colorful history, beginning long before its designation as Hot Springs Reservation in 1832. American Indians came here for thousands of years to quarry novaculite for their tools and weapons. The Dunbar-Hunter Expedition came here in 1804, sent by President Thomas Jefferson to explore the southern reaches of the Louisiana Purchase. Soon a bustling town grew up around the hot springs to provide services for health seekers. The resultant bathing industry led to Hot Springs becoming known as the "American Spa."

Little Rock Central High School National Historic Site

Little Rock Central High School is recognized for the role it played in the desegregation of public schools in the United States. The nine African-American students' persistence in attending the formerly all-white Central High School was the most prominent national example of the implementation of the May 17, 1954 Supreme Court decision Brown v. Board of Education.

Old River Bridge

The Old River Bridge is one of the oldest surviving bridges in the State of Arkansas. Also known as the Iron Bridge, the Old River Bridge crosses the Saline River just southwest

of Benton at Saline Crossing, the first pioneer settlement in Saline County, established in 1815. The bridge was originally commissioned in 1889 for a cost of \$5,000 and opened for use in 1891. Although it was closed in 1974 after the bridge floor collapsed under the weight of an overloaded truck, recent interest in preserving the bridge has grown significantly. Following initial meetings in 2008, dedicated area residents created the Saline Crossing Regional Park & Recreation Area, Inc. in order to preserve the Old River Bridge and create a public open space with fishing, boating, picnic areas, and other recreation activities.

Arkansas River Trail

The Arkansas River Trail System is a tribute to outdoor recreation, conservation, wellness and the diverse geographies of Central Arkansas that creates an expansive 88-mile loop through the Natural State, including Little Rock, North Little Rock, Maumelle and Conway. A loop from the Clinton Presidential Bridge via North Little Rock to the Big Dam Bridge and back to the Clinton Bridge via Little Rock is 15.6 miles.

This community effort winds its way across the entire metropolitan area, through Little Rock and North Little Rock, connecting 38 parks, six museums and 5,000+ acres of federal, state and local parkland. Thousands of hikers, cyclists, skaters, joggers and other outdoor recreation enthusiasts flock to the trail to explore its diversity of habitats, landscapes and activities. Expansive and of primarily flat-terrain, the trail offers recreational opportunities for people of all ages, fitness levels, interests and health conditions.

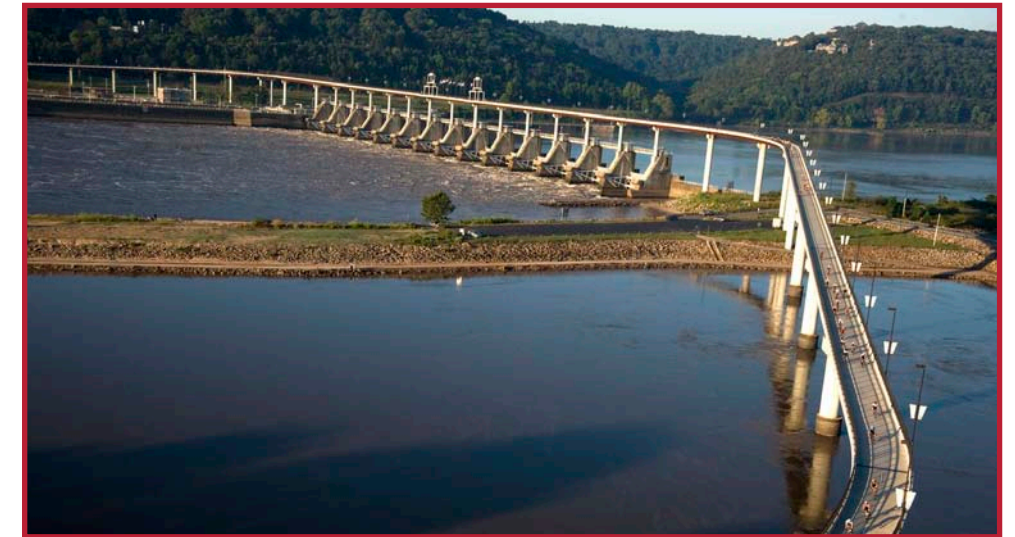
Big Dam Bridge

The Pulaski County Pedestrian and Bicycle Bridge, commonly known as the Big Dam Bridge, is the longest bicycle and pedestrian bridge to have never been used by trains or motor vehicles. The 4,226-foot bridge provides bicycle and pedestrian access across the Arkansas River at Murray Dam and is the northern-most bicycle and pedestrian crossing on the Arkansas River Trail.



Left: The Old River Bridge has the potential to be a very iconic portion of the Southwest Trail.

Right: The Big Dam Bridge helps to complete the trail circuit formed on either side of the Arkansas River.



Benton-Bauxite Mines

This 1,250-acre Nature Conservancy property a few miles southeast of Benton, Arkansas protects specialized communities that have developed on a syenite bedrock-substrate. Natural communities include rock face, xeric upland oak-ash-hickory-shortleaf pine forest, and sunny glades. A range of mosses, algal mats, and lichens can be found anchored to the rock surfaces in the syenite glade, a globally rare community. Several rare or endangered species grow here, including the small-headed pipewort. Ferns thrive in seepage areas.

Little Rock Audubon Center

Located in the old Granite Mountain Community center, the Little Rock Audubon Center is the region's premier nature education center, boasting a community room, science and technology labs, and an adjacent 400-acre park for recreation and field science studies.

Union Station

Originally constructed by the Missouri Pacific Railroad in 1921, the Union Station is an historic railroad station in downtown Little Rock. The station was built on the foundation of its predecessor, which was destroyed by fire in 1920. The station was renovated in 1992 to function as an Amtrak station for passenger rail service. In 2014, the station served 19,652 passengers on the Texas Eagle line, Amtrak's only passenger rail line in Arkansas. The building is listed on the National Register of Historic Places.

Roselawn Cemetary

With over 100 acres of mausoleums, crypts, and headstones, the historic Roselawn Memorial Park is the final resting place for some of Arkansas' most famous residents, including politicians, musicians, athletes, and businessmen. The cemetery's unique Spanish Colonial Revival style gatehouse, built in 1924 by renowned Little Rock architect Charles L. Thompson, is on the National Register of Historic Places.

Fourche Creek

One of Little Rock’s most scenic riparian corridors, Fourche Creek runs the length of Little Rock and borders ten city parks before converging with the Arkansas River just east of the Bill and Hilary Clinton International Airport.

Interstate Park in Little Rock

Interstate Park is one of the many gems in Little Rock’s park system. The park boasts eight athletic fields for football, baseball, and softball, a pavilion, and fishing and canoe access to Fourche Creek. With such as diversity of active and passive recreation uses to attract area residents and visitors, Interstate Park could serve as an important trailhead and access point to the Southwest Trail.

Little Rock National Cemetary

The Little Rock National Cemetery is a United States National Cemetery administered by the Department of Veterans Affairs. More than 25,000 soldiers are interred at this 31-acre cemetery. Also located in the cemetery are the Confederate Monument and the Minnesota Monument, two pieces of art commissioned to honor veterans of the Civil War. The Little Rock National Cemetery was added to the National Register of Historic Places in 1996. The last active duty burial was a Pine Bluff man killed at the Pentagon on September 11, 2001.

Arkansas State Fairgrounds

The current Arkansas State Fair began in 1938, but there had been several other efforts over the years to establish a state fair. Well into the 1930s, Arkansas was still feeling the effects of the Depression. The economy was in disarray, and the primary cash crop

Right: Once a major hot bed for entertainment and retreat, the Missouri Pacific Railroad Co. stationed a train depot in Hot Springs which still stands today.



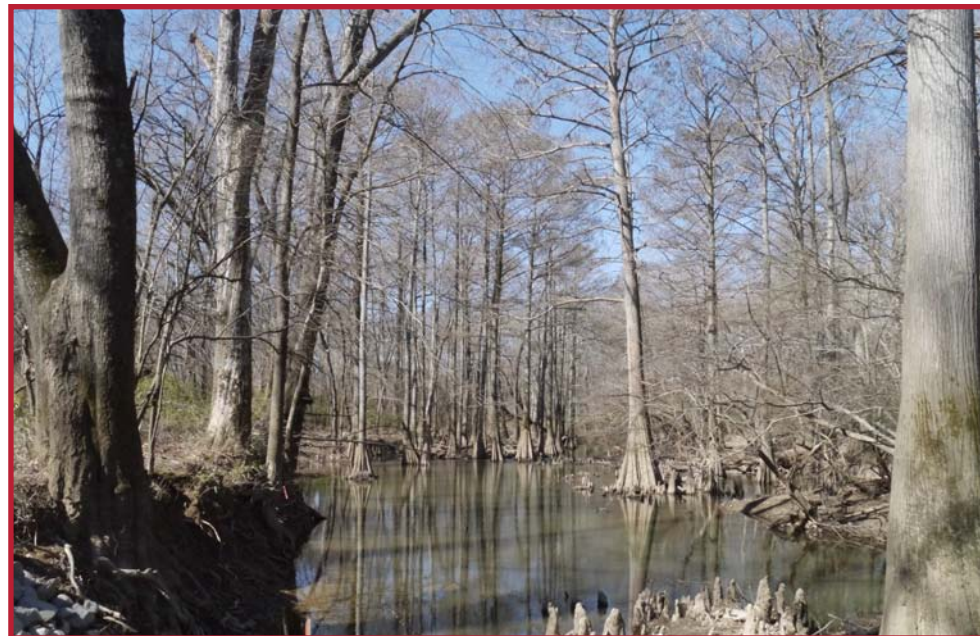
of the state—cotton—was in decline. In 1937, a survey by the University of Arkansas Agricultural Cooperative Extension Service (UACES) revealed that livestock would be successful in the state. A group of leaders, who later formed the Arkansas Livestock Show Association, decided to hold a livestock exposition to educate farmers and to promote the new industry. The first Arkansas Livestock Show—later changed to the Arkansas State Fair and Livestock Show—was held November 9–13, 1938, in North Little Rock.

Construction of a major arena began in 1948, was completed in 1951, and was dedicated in September 1952. For many years, the building had the largest seating capacity in the state. It is used for concerts the first weekend of the fair and for the annual rodeo the second weekend. Today, major attractions to the fair include the stock show, beauty contests, art and crafts fair, and of course, the food.

Missouri Pacific Railroad Depot

After acquiring the St. Louis, Iron Mountain and Southern line from Missouri to Texas, the Missouri Pacific Railroad constructed the Hot Springs Depot to serve both passenger and freight service. During this period of significant growth and expansion for Missouri Pacific, the company used the distinctive Italianate/Mediterranean architectural style to develop its corporate identity. The depot is a perfect example of this unique architectural style, as seen the building’s red clay tile roof, arched windows, and Italian tower. The building was added to the National Register of Historic Places in 1992 and still functions as an event space and as the hub for Hot Springs’ bus and trolley system.

Left: Fourche Creek, located near the heart of Little Rock, is an ancient Cypress forest just waiting to be discovered by locals and recreation enthusiasts.



SIGNIFICANT ARKANSAS TRAIL PROJECTS

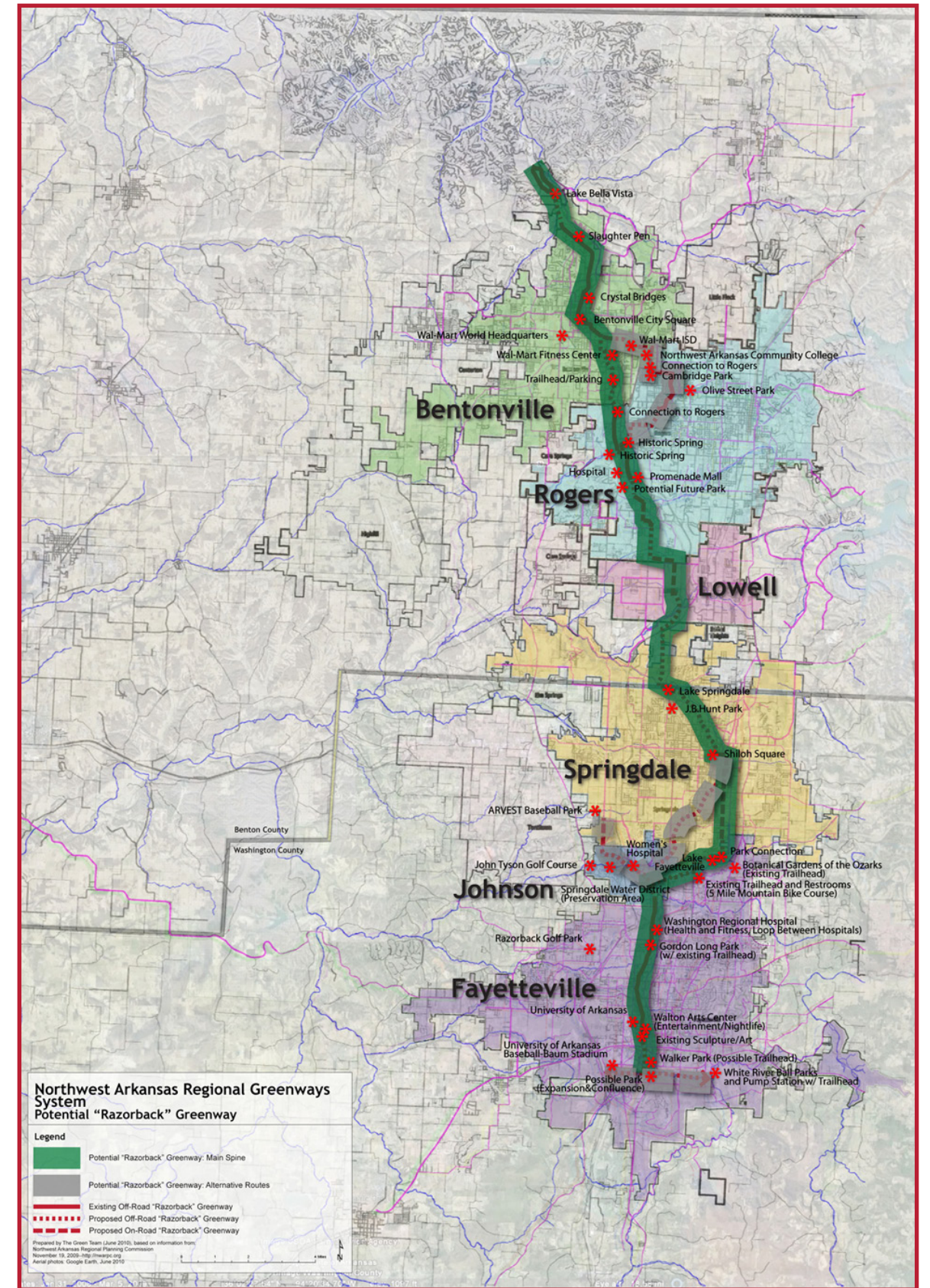
Regions throughout Arkansas have a strong history of trail development and productive partnerships to foster an environment that supports walking and bicycling. This can be seen in the numerous plans and policies that have been developed throughout the region, a number of which may have a direct impact on the development of this plan. The following plans and documents encapsulate the values of the community and provide a policy framework for the development of trails and greenways.

Razorback Regional Greenway

The Razorback Regional Greenway serves as the backbone of the region's rapidly growing bicycle and pedestrian network and represents decades of dedication and persistence by local communities to transform Northwest Arkansas into a premier destination for healthy living and recreational tourism. In 2000, the Northwest Arkansas Regional Planning Commission (NWARPC) began a long-range planning process that included regional trails as a key component. A task force consisting of regional leaders and key stakeholders formed by the NWARPC helped to implement this vision for a regional greenway.

The Razorback Regional Greenway links together dozens of popular community destinations, including:

- 6 downtowns
- 3 hospitals
- 23 schools
- The University of Arkansas campus
- Corporate headquarters of Walmart, JB Hunt Transport Services and Tyson Foods
- Arts and entertainment venues
- Historic sites
- Parks and playgrounds
- Residential communities
- Shopping areas



NORTHWEST ARKANSAS: RAZORBACK REGIONAL GREENWAY (FAYETTEVILLE TO BELLA VISTA)

Delta Heritage Trail State Park

With 21 of the 73 miles already complete, the Delta Heritage Trail is quickly becoming one of the longest rail-to-trail projects in Arkansas. The completed section runs from Helena Junction to Elaine, traversing hardwood forests, open farmland, and vibrant streams and waterways. The trail will eventually span three counties – Arkansas, Desha, and Phillips – and will function as a magnet for economic activity surrounding recreational tourism. In a tourism feasibility study developed for four counties in eastern Arkansas, the Delta Heritage Trail was listed as a high priority, with an expected annual use of 96,000 visitor days generating over \$6 million dollar economic impact based on tourism activity alone.

This rail-to-trail conversion in southeast Arkansas is being developed in phases along the former Union Pacific Railroad right-of-way that stretches from one mile south of Lexa (six miles west of Helena) to Rohwer, and extending via the Mississippi River levee to Arkansas City. In the northern portion, the first 21 miles of trail have been completed from Helena junction to Elaine. Trailheads are at Helena junction near Lexa, Walnut Corner at the U.S. 49 overpass, Lick Creek (Ark. 85 just south of Barton), Lake View, and Elaine.

The compacted, crushed rock trail leads through a shaded canopy of native hardwoods, alongside agricultural fields, and across streams. Wildlife viewing and birdwatching opportunities abound along the route.

When completed, the Delta Heritage Trail will also offer sweeping views from bridges that span the Arkansas River and the White River.



Left: Arkansas Delta Heritage Trail currently connects the communities north from Lexa to Wabash in the south, adjacent to the Mississippi River.



Right: The Katy Trail traverses through the diverse landscape of central Missouri, offering recreation opportunities throughout its 240 mile track.

SIGNIFICANT NATIONAL TRAIL PROJECTS

Katy Trail (Missouri)

At 240 miles long, the Katy Trail is the longest Rails-to-Trails project in the United States. The trail crosses the State of Missouri, following the Missouri River from the St. Louis Region westward before turning to the southwest and ending in the City of Clinton. The popular trail has become both health and recreation amenity for local residents and an economic engine and tourism generator for the State of Missouri and the hundreds of businesses located along the trail. A tourism industry has grown around the trail to support the 400,000 visitors that use the trail each year. The trail connects dozens of small communities across the state, supplying business to local restaurants, bicycle shops, wineries, campgrounds, bed and breakfasts, hotels, and other retail and commercial services along the trail. In 2011, the direct economic effect in 2011 included an estimated \$10.4 million in direct sales, which in turn supported 317 jobs and \$4.1 million in salary and wages.

Swamp Rabbit Trail (South Carolina)

The Greenville Health System Swamp Rabbit Trail is a 18.7-mile Rails-to-Trails, multi-use trail system in Greenville County, South Carolina, that largely follows the bed of a former railroad that had been nicknamed after the indigenous swamp rabbit. South-to-north, the current trail begins at Greenville Technical College, crosses the city of Greenville, proceeds through Falls Park and the campus of Furman University, and ends in Travelers Rest.

In 1999, the City of Greenville created the Greenville County Economic Development Corporation to buy an abandoned shortline railroad for use as a light commuter rail and greenway. Although the proposed commuter rail was abandoned, planning for the multi-use trail began in the summer of 2005, and the Swamp Rabbit Trail officially opened on May 7, 2010, despite “legal entanglements, regulatory roadblocks, financial issues and citizen opposition.”

A scholarly study in 2012 estimated that more than 350,000 people annually used the trail and that area businesses increased their sales from 30 to 85%. A 2014 study estimated usage had increased to half a million people a year, a quarter of whom were tourists. In 2013, the mayor of Travelers Rest said that the trail had “been phenomenal for the whole county, but more so for us in Travelers Rest. I can’t begin to tell you how much of an economic boost it’s been to this town.” A 2012 Greenville News editorial described the Swamp Rabbit Trail as “one of the most popular assets in Greenville County...proving that when it comes to such trails, if you build them they will come.”

Cardinal Greenway (Indiana)

Cardinal Greenway, Inc. is a non-profit organization of volunteers dedicated to creating and maintaining the Cardinal Greenway Trail, the longest rails-to-trails project in Indiana. Cardinal Greenway takes its name from the last passenger train to regularly travel our rail-trail, deriving its name from the state bird of all five of the states which crossed on the Chicago-Cincinnati-Washington line.

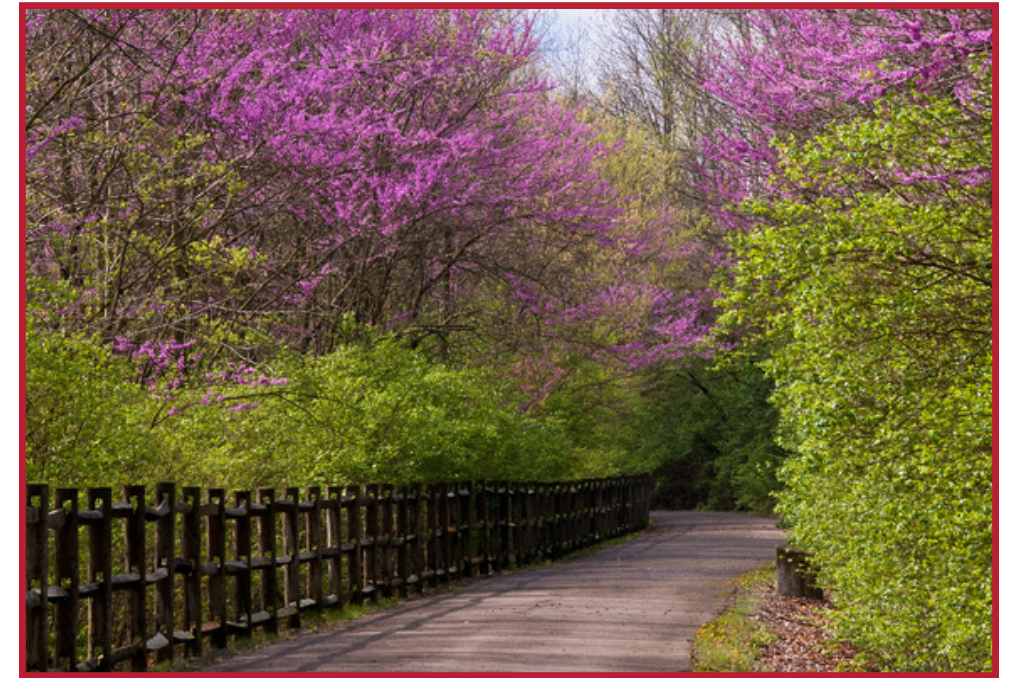
In 1993 Cardinal Greenway purchased 60 miles of the former railroad corridor from CSX Transportation Corporation to develop a rails-to-trails recreational linear park covering five counties in Eastern Indiana (Wayne, Randolph, Henry, Delaware and Grant).

The route begins in Richmond, adjacent to the Whitewater Valley Gorge Park at the historic Gas Company Works building on U.S. 40 and extends northwest through Wayne County and the small towns of Webster, Williamsburg and Economy. The trail continues through Losantville in Randolph County and Blountsville in Henry County and enters Delaware County near the southern end of Prairie Creek Reservoir and Park. Bisecting the heart of Muncie, the trail crosses the White



Left: The Swamp Rabbit Trail links smaller communities to larger ones, like to the Downtown Greenville. This can be a similar aesthetic for the Southwest Trail in the urban core of Downtown Little Rock.

Right: With the redbuds in bloom and an attractive railing fence running along portions of the Cardinal Trail make it one of the best places not only in Indiana, but in the country.



River and continues northwest to the town of Gaston. Between Gaston and Jonesboro in Grant County is a gap, a 11.3 mile section of abandoned rail corridor purchased by landowners. A route(s) will be chosen using public roads to connect the two sections of Cardinal Greenway. The Cardinal Greenway resumes in Jonesboro and overlooks the Mississinewa River and the western edge of Gas City. Continuing northwest, the trail extends all the way through Marion.

During 1994 Cardinal Greenway selected a design team which specifically addressed trail issues of management and planning strategy, site analysis, project development, and funding. A Master Plan was completed in early 1996 and final tracings were submitted to the Indiana Department of Transportation (INDOT).

A ground breaking ceremony in September 1997 sets in motion the construction of 10 plus miles for the Phase 1 section of the Cardinal Greenway from the Wysor Street Depot in Muncie to County Road 534 East, southeast of Prairie Creek Reservoir. Since that first ground breaking ceremony the trail has been extended from the Wysor Street Depot to the Town of Gaston north of Muncie. This provides the trail user with a total of 20 completed miles. The trail includes trail heads, rest areas, and interpretative signage.

Silver Comet Trail (Georgia)

The Silver Comet Trail follows the bed of the old Seaboard Air Line. From 1947 to 1969, the shiny Silver Comet passenger train provided luxury service between New York and Birmingham. Today, three trestles and a railroad tunnel integrated into the trail design hint at past glories.

The well-maintained 61.5-mile trail is 12-foot wide and paved; mile markers help navigate and the trail accommodates nearly all non-motorized uses. An adjacent equestrian path stretches some 40 miles west from Florence Road in Powder Springs. Rounding out the stats are 17 wheelchair-accessible access points (six with horse trailer parking), 15 restrooms, 10 water fountains, and a variety of trailside services.

Today's Silver Comet runs from Smyrna all the way to Esom Hill. The eastern section runs through residential areas, including housing developments with private trail access. The western section is more bucolic, a mixed landscape of pine stands and farmland. At dusk, the countryside comes alive with animal sounds.

Trail highlights include several relics of its railroading past. At Mile Marker 23, the Pumpkinville Creek Trestle stands 100 feet high and 700 feet long. Standing atop the trestle, you can almost picture the Comet streaking past in a silver blur. At Mile Marker 30.8, the Brushy Mountain Tunnel sounds a spooky note with 700 feet of damp, dark corridor.

You'll find the Silver Comet Depot, a trailside bike rental shop, on Floyd Road in Mableton, while Mile Marker 37.6 heralds your arrival in idyllic, small-town Rockmart. Two miles west of town, baseball and recreation fields provide more entertainment. Cedartown features a restored train depot, as well as places to load up on refreshments for the round-trip to Smyrna.

The Silver Comet offers a wide array of activities: Its rich history appeals to railroad enthusiasts, and its first-rate facilities draw recreation seekers from miles around. Whether you want to run 5 miles or bike 60, this rail-trail is an excellent option. Enjoy it for an hour or make an entire day of it.

Right: The Wolf River Greenway attracts many users from the urban core of Memphis to the lush river corridor teeming with life.

Source:www.rivermarket.info



Wolf River Greenway (Tennessee)

The Wolf River Greenway is a corridor of protected green space along the Wolf River which includes a paved pathway for non-motorized transportation. Built in sections, this 10-foot wide pathway will eventually extend a total of 30 miles to connect neighborhoods all the way from downtown Memphis through the cities of Germantown and Collierville, Tennessee.

In accordance with patterns established by other developed greenways across the country, the Wolf River Greenway will help to connect people and communities, raise property values, reduce crime, encourage healthy lifestyles, and improve the general quality of life in adjacent neighborhoods. Meandering along the banks of the Wolf River, this scenic greenway will be a centerpiece for the transformation of the Mid-South into a 21st century community, allowing users to experience the natural beauty of bottomland hardwood forests and wetlands, and to visit local shops and cafes along the way via multiple access points. The Wolf River Greenway will also intersect with other area trail systems including the Shelby Farms Greenline, providing visitors with a link to the largest urban park in the United States.

The initial phase of the project, completed in 2010, runs from Walnut Grove Road to Shady Grove Road along the southern bank of the Wolf River. Construction of the second phase began on October 3, 2011, and will connect the first phase with the Germantown City Greenway system. Because progress on the Wolf River Greenway is contingent upon land acquisition and fundraising, all plans for future segments remain conceptual only.

Shelby Farms Greenline (Tennessee)

The Shelby Farms Greenline is a 6.5 mile urban trail connecting Midtown Memphis to Shelby Farms Park—the largest park of its kind in the country. Managed and operated by the nonprofit Shelby Farms Park Conservancy, the trail is an incredible community asset that provides new opportunities for recreation, exercise, togetherness, healthy activity, commuting and more. A 4.5 mile extension to connect Shelby Farms east to Cordova Station in East Shelby County has also been designed and will break ground in late 2015.

Left: The Silver Comet Trail travels through three counties in Georgia on this 61.5-mile long greenway, used by walkers, cyclists, hikers, horses and is wheelchair accessible.



OPPORTUNITIES AND CONSTRAINTS

Opportunities

- There is ample horizontal clearance along the railroad ROW, which could be used for trail waysides or interpretive areas. Restaurants, retail spaces, and residential uses are within a five minute walk from the line.
- Existing trail facilities in Hot Springs, Lonsdale, and Little Rock that would greatly supplement the Southwest Trail corridor.
- There are opportunities for trailhead development, but also ample possibility to share trail-use parking with existing parking infrastructure of businesses, churches, schools, parks, etc.
- The old railroad corridor connects through the heart of the three major cities in the study area, Hot Springs, Benton and Little Rock, as well as smaller cities like Lonsdale and Bauxite.
- There are three options for the Southwest Trail: 1.) The U.S. Route 70 Corridor 2.) The Arkansas Highway 88 Corridor 3.) The Old Railroad Corridor.
- The U.S. Route 70 Corridor has road construction planned in the near future that will support trail facilities, as well as features the most direct route and least traverse terrain for trail users.
- The Arkansas Highway 88 Corridor features an excellent, greenway-friendly landscape character as the road flows through rural countryside.
- The Old Railroad Corridor provides the best greenway character, connects a variety of ecosystems and landscapes, connects physically and economically to the major cities in the study area, and provides a social amenity to be used for recreation and transportation.
- Roadway intersections are typically quiet two-lane roadways with low traffic volumes, which encourages the development of continuous trails.



Left: The Arkansas River Market could become an even bigger attraction with the implementation of the Southwest Trail.

Source: www.rivermarket.info

Right: The image displays just a sample of the type of character exemplified along the Arkansas Highway 88 Corridor.



- There are numerous opportunities to connect to National Parks, local parks, sports complexes, school campuses, historical museums, cultural and entertainment attractions.
- A trail would help connect residents and tourists to their destinations safely, and it would encourage the use of non-motorized transportation.
- Small businesses could benefit from having a trail nearby, and experience in other communities has shown that trails attract small businesses that cater to trail users.
- The trail takes on a different character through the entirety of the Southwest Trail. Open pastures and hillside backdrops are scenic draws that create a unique sense of place. Education signage along these sections could highlight the three counties' rich history.
- There are opportunities to connect with existing neighborhoods, which would help to improve passive recreation opportunities and encourage more trail users.
- Despite being outside the city limits, there are still opportunities to connect the trail to local businesses, enhancing the economic development in the area.
- Educational and interpretive areas could put residents and visitors to the area in touch with more of the study area's natural features, such as the Saline River Crossing.
- A nearby trail could allow more children to walk or bike to school from surrounding areas, especially if a spur trail were extended from the main trail to the school.
- Existing railroad crossing signage and infrastructure could be repurposed for use as trail crossing signage.

Constraints

- Few pedestrians were out and about in the area, due to the lack of facilities throughout the study area. This demonstrates a need for safe, continuous, non-motorized transportation.

- The existing creek crossings will need structural reinforcement to support pedestrian activity, as well as additional support safety elements, such as railing.
- Following the road construction from Arkansas Highway 128 to Interstate 30, the U.S. Route 70 Corridor will likely follow adjacent to the new highway, making this a less than ideal but plausible option for routing the Southwest Trail.
- The Arkansas Highway 88 Corridor features the most adverse topography in comparison to the other corridors, as well as will restrict bicycle/pedestrian transportation to on-street facilities, such as bike lanes and sharrows.
- The Old Railroad Corridor lacks some of the infrastructure necessary to make trail connections, so work will have to be done to remove any health and safety concerns. Also, the railroad corridor runs through private property, which can be a hassle for trail planning and could cause the entire trail alignment to be altered.
- The existing railroad corridor can be accessible from the roadway and adjacent lands. Converting the line to a trail will require additional engineering to meet the existing grades.
- Adjacent industrial buildings may require privacy screening measures along the corridor to protect their facility operations and management.
- When the railroad corridor begins to parallel US Route 70 Corridor, the ROW narrows. If implemented, the trail will have little flexibility to deviate from the centerline of the tracks.
- As the railroad corridor progresses from Hot Springs to Little Rock, fewer railroad bridges remain, further enforcing the demand to replace these and solidify the connection.
- Private road and nearby homes may require privacy screening or cross access agreements.
- The railroad corridor passes through a few wet sites and runs adjacent to a rivers and streams in Little Rock. While these sites would add natural, aesthetic interest to a future trail, additional engineering or environmental mitigation may be required for the protection of these areas.



Left: Making the connection along the Saline River Crossing Bridge is a prime objective for the implementation of the Southwest Trail.

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CHAPTER ECONOMIC ANALYSIS

3

Chapter Contents:

Overview

Economic Impact from Upfront Construction

Property Value Impact

Tourism Impact

Direct Use Impact

Health Care Cost Reduction Impact

Environmental Impact

Market Analysis

Summary and Cost-Benefit Analysis

OVERVIEW

In contemplating the feasibility of the Southwest Trail, it is useful to identify and estimate the major economic impacts that may result from the project. It will provide a variety of economic benefits to a variety of audiences, which can be estimated based on conservative assumptions.

1. The economic impact of upfront construction of the trail, which translates into a one-time stimulus of economic activity and job creation during the construction period – **\$20 million in total expenditures supporting 180 jobs.**
2. The property value impact associated with people's willingness to pay a premium to be located near such an outdoor amenity, which translates into wealth gains for property owners and property tax revenue generation for municipalities and school districts – **\$22 million in property value increases, and up to \$160,000 per year in property tax revenues generated.**
3. The economic impact of additional tourism activity that is attracted to the region by the existence of the trail, which draws in purchasing power from outside the region to support economic activity and employment within the region – **20,000 new visitors injecting \$1.2 million into the local economy, resulting in \$2 million in total expenditures supporting 27 jobs each year.**
4. The direct use value impact enjoyed by users of the trail – **1.2 million new uses and \$2.2 million in aggregate value to users each year.**
5. The health care cost reduction impact of increased active exercising resulting from the newfound accessibility of a recreational amenity – **1,600 new exercisers, and \$5 million per year in health care cost reductions.**
6. The environmental impact of additional pervious surface and tree cover and the various ecological services that are rendered by them – **minimal value generated per year.**

These impact estimates are based on conservative assumptions; a retrospective look, upon completion and implementation of this recreational amenity, may very well yield much higher impact results, and the estimates do not include the trail's role in attracting and retaining employees and employers, which may prove to be significant. Whether these "returns" – to the local economy, property owners, users, and local government – warrant the initial investment to construct the trail is for policymakers to decide. It is hoped that this report has provided some of the framework, categories, and estimates to inform that decision.

The proposed Southwest Trail features a variety of landscapes and experiences.

ECONOMIC IMPACT FROM UPFRONT CONSTRUCTION

There is a growing realization of and appreciation for the significant economic stimulus that results from large-scale physical improvement projects. They create immediate construction employment opportunities, resulting in large initial expenditures that ripple through entire local and regional economies. They create jobs within a region and generate tax revenues for the local jurisdictions within that region. This is particularly helpful at a time of slack construction demand, high unemployment, and distressed fiscal conditions.

Project costs for the initial construction of the Southwest Trail are estimated at about **\$33.3 million for the 65-mile trail**, as calculated by Alta Planning + Design.[2] To estimate the total economic impact associated with this amount of upfront construction, a standard input-output model was developed. Multiplier data provided by the US Department of Commerce was used to calculate the composition and scale of total expenditures, employment, and earnings resulting from the aggregate direct expenditures from trail construction.[3] Based on this model, it is estimated that economic impact within Garland, Saline and Pulaski County during the construction period of the Southwest Trail will be significant. It is estimated that economic impacts within the three-county region will total about \$33.3 million in expenditures and will support about 450 jobs (see Table 5.1). [4]

To be sure, the primary objective of the construction of the Southwest Trail is not the upfront economic gain of stimulating the local economy and creating construction jobs, but rather the ongoing provision of a recreational amenity, alternative means of transportation, and economic gains throughout the project’s life. Nevertheless, at a time of moderate-to-high unemployment, growing construction demand, and limited municipal budgets, it is noteworthy that trail construction has the immediate effect of stimulating economic activity, creating construction work, and producing tax revenues.

PROPERTY VALUE IMPACT

The Southwest Trail would represent a major recreational resource and infrastructural investment. It would also increase the demand to live near such an amenity, which would increase house values and population, which would generate additional tax revenues to support future investment. Property value impact is therefore another major form of economic impact that would result from the proposed Southwest Trail, with gains to homeowners in the form of increased household wealth and to local jurisdictions in the form of higher property tax revenues.

TABEL 5.1 - ESTIMATED TOTAL, UPFRONT ECONOMIC IMPACT RESULTING FROM CONSTRUCTION OF THE SOUTHWEST TRAIL

IMPACT TYPE	EXPENDITURES	EMPLOYMENT
Direct	\$26.6 Million	320
Indirect	\$6.7 Million	130
Total	\$33.3 Million	450

Source: US Department of Commerce (2011). Ecoconsult Corporation (2011).

TABEL 5.2 - SUMMARY OF RELEVANT STUDIES ON THE PROPERTY VALUE IMPACT OF TRAILS, PARKS, AND GREEN SPACE

SOURCE	ESTIMATED PROPERTY VALUE IMPACT
“A Dynamic Approach to Estimating Hedonic Prices for Environmental Goods: An Application to Open Space Purchase,” Riddel (2001)	+3.75%
“Quantifying the Economic Value of Protected Open Space in Southeastern Pennsylvania,” Econsult Corporation (2010)	+7%
“The Economic Impact of the Catawba Regional Trail,” Campbell and Monroe (2004)	+4%
“The Potential Economic Impacts of the Proposed Carolina Thread Trail,” Econsult Corporation (2007)	+4%
“Valuing the Conversion of Urban Green Space,” Econsult Corporation (2010)	+7.2%

Source: Ecoconsult Corporation (2011).

A more extensive and direct calculation of the property value impact of the proposed Southwest Trail on its immediate surroundings is beyond the scope of this report, especially since the exact location of the trail is not yet finalized. However, there is extensive literature and analysis in this field that can offer guidance on the nature and scale of this property value impact, and their results can be applied to the Southwest Trail (see Table 5.2).

Since it is yet uncertain as to the existence and distribution of trail characteristics - such as access points, vista points, and other amenities - that may have an influence on property values, one can only make a rough estimate of the property value impact at this juncture. To be conservative, it is assumed that the implementation of the Southwest Trail will result in a one-time four percent increase in the value of properties located within a quarter mile of the trail.[6]

Based on this conservative assumption, it is estimated that implementation of the Southwest Trail will result in a one-time property value increase of about \$13.7 million, of which about \$3.2 million will be in Garland County, \$6.8 million will be in Saline County, and about \$4.2 million will be in Pulaski County (see Table 5.3).

This has the effect of increasing household wealth for property owners located within a quarter mile of the Southwest Trail. Also, to the extent that these house value increases are properly accounted for in assessed values, this property value impact also has the effect of generating additional property tax revenues for municipalities and school districts.[7]

It is important to note from this analysis that the Southwest Trail will benefit even non-users. People living near the trail need not actually use the trail to receive benefits from it since their proximity to this attractive recreational amenity results in an increase in the value of their houses irrespective of if and how often they use it.

TABEL 5.3 - ESTIMATED ONE-TIME PROPERTY VALUE INCREASE IN GARLAND, SALINE AND PULASKI COUNTIES RESULTING FROM IMPLEMENTATION OF THE SOUTHWEST TRAIL

	GARLAND	SALINE	PULASKI	TOTAL
# of Houses within 1/4 mile	~400	~1000	~600	2000
Median House Price	\$202,574	\$157,908	\$173,613	
Aggregate House Value within 1/4 mile	\$81 Million	\$157 Million	\$104 Million	\$342 Million
Estimated Increase in House Value	4%	4%	4%	4%
Estimated Increase in Property Value	\$3.2 Million	\$6.3 Million	\$4.2 Million	\$13.7 Million

Source: US Census Bureau (2011). Ecoconsult Corporation (2011).

TABEL 5.4 - ESTIMATED INCREASE IN SPENDING RESULTING FROM IMPLEMENTATION OF THE SOUTHWEST TRAIL

Users per Mile per Year	1,000
# of Users per Year	65,000
% Increase in Visitors	3%
Increase in Tourism Spending	\$3 Million
Economic Impact from Increase in Tourism Spending	\$4.8 Million
Total Jobs Supported by Increase in Tourism Spending	68

Source: US Department of Commerce (2011). Ecoconsult Corporation (2011).

TOURISM IMPACT

Tourism is an important engine of economic growth; visitors spend money on hotels, transportation, dining, and entertainment, and therefore, they represent the use of outside purchasing power to support local businesses and governments. Thus, it is important to consider the tourism impact of a major recreational amenity such as the Southwest Trail.

It is unknown at this time how much additional tourism activity will result from implementation of the Southwest Trail. One way to forecast this amount is to estimate the current base of tourism activity, and then assign some percentage increase that results from the implementation of the trail.[9]

The experience of other, similar trails suggests that about 1,000 out-of-town users per mile per year is a conservative estimate for usage. This represents about 65,000 new visitors. Conservatively estimating \$58 of spending per out-of-town visitor,[10] this translates into an annual \$3 million injection of spending into the local economy, and it is estimated to result in a total economic impact of about \$4.8 million within Garland, Saline, and Pulaski Counties as a result of increased tourism spending, supporting an additional 68 jobs (see Table 5.4).

These estimates could very well end up being far too conservative. The State of Arkansas

currently attracts about \$6 billion in tourism spending and receives some 23 million visitors, supporting an industry that employs over 59,000 people; \$1.7 billion of that tourism spending takes place in Pulaski County, while \$642 million takes place in Garland County, and \$52 million in Saline County. Thus, \$3 million in additional spending by visitors, as estimated for the Southwest Trail, would represent less than one half of one percent of current visitor spending within Garland, Saline, and Pulaski Counties. As trail plans proceed, better estimates of usage and of the tourism impact will yield a better understanding of the economic impact associated with purchasing power imported into Garland, Saline and Pulaski Counties by implementation of the Southwest Trail.

In addition to drawing tourists, the trail is likely to play a major role in attracting and retaining employees and employers. Increasingly, cities and regions are making investments in outdoor amenities for this very purpose. For example, it is estimated that Millennium Park, Chicago's premier outdoor amenity, is responsible for one-quarter of all new retail, commercial, and residential development that has taken place in the East Loop since the park's creation.[11] It is therefore conservative to not assign any figure to the significant role the trail is likely to play in influencing locational decisions by employees and employers.

DIRECT USE IMPACT

At its core, a recreational amenity like the Southwest Trail is designed to enable enjoyable uses on it, such as jogging, hiking and bicycling. Little or no money exchanges hands when people use a trail in these ways, but they still derive significant gains, which economists call "consumer utility" and which can be quantified using "willingness to pay" surveys.

TABEL 5.5 - ESTIMATED CURRENT BASE OF RECREATIONAL USERS IN GARLAND, SALINE AND PULASKI COUNTIES, BY ACTIVITY TYPE

Activity	% of Population Participating	GARLAND - Within 1/4-Mile	GARLAND - Not Within 1/4-Mile	SALINE - Within 1/4-Mile	SALINE - Not Within 1/4-Mile	PULASKI - Within 1/4-Mile	PULASKI - Not Within 1/4-Mile	Total Recreational Uses
Population		927	96,246	1,697	112,507	5,435	385,849	4,102,661
Walk for Pleasure	84%	779	80,847	1,425	94,506	4,565	324,113	506,235
View/Photograph Natural Scenery	67%	621	64,485	1,137	75,380	3,641	258,519	403,783
Day Hiking	47%	436	45,236	798	53,878	2,554	181,349	284,251
Bicycling	31%	287	29,936	526	34,877	1,685	119,613	186,924
Backpacking	13%	121	12,512	221	14,626	707	46,650	74,837
Mountain Biking	13%	121	12,512	221	14,626	707	46,650	74,837
Horseback Riding	11%	102	10,587	187	12,376	598	42,443	66,293
Total Users (Select Activities)		2,467	256,115	4,515	300,269	14,457	1,019,337	1,597,160
Total Uses (Select Activites)		133,218	13,820,210	243,756	16,214,526	780,678	55,044,198	86,236,586

Source: Costanza et al (2006). Ecoconsult Corporation (2011).

The implementation of the Southwest Trail is likely to lead to a significant increase in the number of recreational users and recreational uses, and therefore it confers a benefit to those users, on which an estimated aggregate value can be placed. The most accepted “willingness to pay” estimates are based on surveys conducted by the US Army Corps of Engineers, which publish “Unit Day Values” of a variety of recreational activities. Hence, the direct use value of every recreational activity on the Southwest Trail can have a dollar amount assigned to it.

It is unknown at this time how much additional recreational activity will result from the implementation of the Southwest Trail. One way to forecast this amount is to estimate the current base of recreational activity and assign some percentage increase that results from the implementation of the trail.

The Arkansas Department of Parks and Tourism Statewide Comprehensive Outdoor Recreation Plan (SCORP) provides some guidance as to the percentage of residents who partake in various recreational activities.[12] These percentages can be applied to the populations of Garland Saline and Pulaski Counties. Since usage of the Southwest Trail is likely to be heavily dependent on proximity to the trail, these residents are segregated between those who live within a quarter mile of the trail and those who do not.

Thus, out of an estimated 1.5 million recreational activity participants, it is estimated that 5,000 are located in Pulaski County within a quarter mile of the trail; 385,000 are located in Pulaski County over a quarter mile from the trail; 2,500 are located in Garland County within a quarter mile of the trail; and 256,000 are located in Garland County over a quarter mile from the trail; 1,600 are located in Saline County within a quarter mile of the trail; and 112,000 are located in Saline County over a quarter mile from the trail (see Table 5.5).[13]

It is further assumed that residents who live within a quarter mile of the trail will increase their

TABEL 5.6 - ESTIMATED AMOUNT AND VALUE OF INCREASE RESULTING FROM IMPLEMENTATION OF THE SOUTHWEST TRAIL

Activity	Unit Day Value	GARLAND - Within 1/4-Mile	GARLAND - Not Within 1/4-Mile	SALINE - Within 1/4-Mile	SALINE - Not Within 1/4-Mile	PULASKI - Within 1/4-Mile	PULASKI - Not Within 1/4-Mile	Total Recreational Uses
Estimated Increase in Uses		25%	5%	25%	5%	25%	5%	
Total Increase in Uses		33,305	13,256	1,129	15,013	3,614	50,967	117,293
Walk for Pleasure	\$1.47	\$28,628	\$594,226	\$52,369	\$694,619	\$167,764	\$2,382,231	\$3,919,836
View/Photograph Natural Scenery	\$1.32	\$10,247	\$212,801	\$18,751	\$248,754	\$60,077	\$853,112	\$1,403,751
Day Hiking	\$3.16	\$8,611	\$178,682	\$15,761	\$212,818	\$50,442	\$715,933	\$1,182,247
Bicycling	\$3.16	\$5,668	\$118,247	\$10,389	\$137,764	\$33,279	\$472,471	\$777,818
Backpacking	\$1.47	\$1,112	\$22,990	\$2,030	\$26,875	\$6,496	\$85,719	\$145,223
Mountain Biking	\$3.16	\$2,390	\$49,422	\$4,365	\$57,773	\$13,963	\$184,267	\$312,180
Houseback Riding	\$6.99	\$4,456	\$92,504	\$8,170	\$108,135	\$26,125	\$370,845	\$312,035
Total Value of Increase in Uses		\$61,112	\$1,268,872	\$111,843	\$1,486,739	\$358,145	\$5,064,581	\$8,351,291

Source: Costanza et al (2006). Ecoconsult Corporation (2011).

TABEL 5.7 - ESTIMATED NUMBER OF NEW EXERCISERS RESULTING FROM IMPLEMENTATION OF THE SOUTHWEST TRAIL

	GARLAND - Within 1/4 Mile	GARLAND - Not Within 1/4 Mile	SALINE - Within 1/4 Mile	SALINE - Not Within 1/4 Mile	PULASKI - Within 1/4 Mile	PULASKI - Not Within 1/4 Mile	TOTAL
# Residents	927	96,246	1,897	112,507	5,435	385,849	602,861
% New Exercisers	5%	1%	5%	1%	5%	1%	
# New Exercisers	46	963	95	1125	272	3859	6,380

Source: US Census Bureau (2011). Ecoconsult Corporation (2011).

TABEL 5.8 - ESTIMATED HEALTH CARE COST REDUCTION IMPACT RESULTING FROM IMPLEMENTATION OF THE SOUTHWEST TRAIL

	Low-End Estimate per Exerciser	Estimated Impact (in \$M)
Direct Health Care Cost Reductions	\$308	\$1.9
Indirect Health Care Cost Reductions	\$924	\$5.9
Direct Worker's Compensation Cost Reductions	\$6	\$0.0
Indirect Worker's Compensation Cost Reductions	\$24	\$0.0
Lost Productivity Cost Reductions	\$1,630	\$10.4
Total		\$18.3

Source: US Department of Commerce (2011). Ecoconsult Corporation (2011).

recreational activities by 25 percent as a result of the implementation of the trail, while residents who do not live within a quarter mile of the trail will increase their recreational activities by five percent as a result of the implementation of the trail.[14] Based on these conservative assumptions, it is estimated that implementation of the Southwest Trail will result in 1.2 million additional recreational uses, resulting in an aggregate \$8.3 million in direct use benefits to users (see Table 5.6). About 65 percent of the additional uses and aggregate direct use benefits are expected to take place in Pulaski County, and about 16 percent and 19 percent of the additional uses and aggregate direct use benefits are expected to take place in Garland and Saline County, respectively.

While no money is changing hands when people use the trail, this estimated aggregate direct use benefit is real and significant. In a sense, there are monetary consequences to the trail's usage since people may choose from a variety of recreational options. Using the trail for free may substitute for other options that cost money, thus saving households money that can be diverted to other, preferred uses.

HEALTH CARE COST REDUCTION IMPACT

Direct use of a recreational amenity confers enjoyment to users. It also produces a health care cost reduction impact since it makes exercising options more accessible. Unhealthiness due to inactivity is a growing problem in the US, and outdoor amenities are particularly helpful in making possible the manageable amounts of physical activity and the minor changes in daily habits that can make a difference.

There is an increasing body of literature connecting access to recreational amenities to increased exercise, and in turn connecting increased exercise to improved health outcomes and to lower health care costs.[15] Health care cost reductions take place on a number of levels:

1. Direct health care costs – The amount spent immediately as a result of short-term health care needs.
2. Indirect health care costs – The amount spent over a lifetime as a result of reduced risk of chronic illness.
3. Direct worker’s compensation costs – The direct amount spent on worker’s compensation claims.
4. Indirect worker’s compensation costs – The indirect administrative amount spent on worker’s compensation claims.
5. Worker productivity – The cost of absenteeism (unhealthy and not at work) and “presenteeism” (unhealthy and present at work but not fully functioning).

Using similar assumptions from the previous section, [16] it is estimated that the implementation of the Southwest Trail will yield about 6,000 new exercisers in Garland, Saline and Pulaski Counties (see Table 5.7). Multiplying this number by the low-end estimates of cost impacts for each of the five health care cost reduction categories conservatively yields an estimated health

TABEL 5.9 - ESTIMATED CHARACTERISTICS OF THE SOUTHWEST TRAIL

Trail Length (mi)	65
Average Trail Width (ft)	12
Trail Area (acres)	70
% Pervious	30%
% Tree Cover	60%

Source: US Department of Commerce (2011). Ecoconsult Corporation (2011).

TABEL 5.10 - ESTIMATED VALUE OF ECOLOGICAL SERVICES RENDERED BY THE SOUTHWEST TRAIL (ALL VALUES ARE ANNUAL UNLESS OTHERWISE NOTED)

Water Regulation	\$21
Waste Treatment	\$454
Biological Control	\$124
Soil Formation	\$10
Pollination	\$134
Pollution Removal	\$823
Carbon Storage (one-time)	\$2,477
Carbon Sequestration	\$82
Total Value of Ecological Services Rendered	\$4,125

Source: Costanza et al (2006). Ecoconsult Corporation (2011).

Right: Multi-use trails are an excellent amenity that an entire community can utilize for health & well-being purposes, as well as educational, environmental, mobility purposes.



care cost reduction impact of about \$18 million per year as a result of implementation of the Southwest Trail (see Table 5.8).[17] About 65 percent of that impact is expected to take place in Pulaski County, and about 16 and 19 percent is expected to take place in Garland and Saline County, respectively.

As health care costs continue to soar, and as individuals’ health care burdens are increasingly inter-related, these health care cost reduction impacts will continue to increase in importance. The provision of an accessible outdoor recreation amenity provides a very real benefit to local residents, and, in turn, to the health care coverage groups of which they are a part.

ENVIRONMENTAL IMPACT

To the extent that the Southwest Trail would represent net new additions in pervious surface and in tree cover, it is rendering ecological services that have a value to the region and to society as a whole. There are many ways to place a value on these services. The value may be what it costs in the marketplace to replace the service, the value of costs to the public the service avoids, or how much people say they value the service in “willingness to pay” surveys.

For the purposes of this report, impact estimates from existing literature were conservatively applied in order to arrive at rough estimates of the value rendered by the following types of ecological services:[18]

1. Water Regulation – Management of stormwater runoff
2. Waste Treatment – Protective buffer between water supplies and metals and sediments
3. Biological Control – Control of invasive or unwanted species (e.g. mosquitoes, weeds)
4. Soil Formation – Protection of soil quality
5. Pollination – Preservation of plant fertilization
6. Pollution Removal – Absorption of particulate matter by trees
7. Carbon Storage – Current carbon storage by trees
8. Carbon Sequestration – Carbon storage by new trees, minus carbon release by dying and

decaying trees

In the absence of more detailed information about what the trail will look like upon completion, assumptions were made about its characteristics (see Table 5.9).

Based on these conservative assumptions, it is estimated that implementation of the Southwest Trail will render a relatively small amount of ecological services - only a few thousand dollars per year (see Table 5.10).[19] This is due in large part to the fact that, because it is long and thin and utilizes area that was previously cleared for man-made use, it is not actually adding that much acreage of green space or tree cover to the region. However, to the extent that it is literally and programmatically connected to other green space and other green space initiatives, it is playing a positive role in broader environmental objectives.

MARKET ANALYSIS

Conservative estimates of local and non-local visitors to the proposed Southwest Trail were provided in the Direct Use Impact and Tourism Impact sections. It is also useful to estimate both the number of potential visitors and the typical visitor profile based on the use of similar trails, as identified by geography, demographics, or other factors. This section summarizes the available data on the usage and user profile of several rail trails in North Carolina, Virginia,

South Carolina and Pennsylvania. A range of estimated demand for use of the proposed Southwest Trail is presented following a brief description of the most relevant of these trails and a comparison of their use.

Razorback Geional Greenway

The 36-mile long Razorback Regional Greenway, built between 2010-2015, is a very similar trail to the proposed Southwest Trail. The Razorback Regional Greenway extends through a rural section of south Northwest Arkansas, as well as the Cities of Fayetteville, Johnson, Springdale, Lowell, Rogers and Bentonville, the latter of which is slightly larger than Hot Springs. The outdoor recreational draw of this region bears resemblance to Garland, Saline and Pulaski Counties, which currently draw tourists to significant recreational amenities. While the regional population surrounding the Razorback Regional Greenway is less than half that of the Southwest Trail corridor, the median income and age of the region reflects that of Garland, Saline and Pulaski Counties.

Similarities - Regional Population; Demographics; Several outdoor recreational attractions

Differences - Southwest Trail: Transition from hill country to river floodplain; Trail Length

Activities - Biking, Fishing, Mountain Biking, Walking, Jogging

Arkansas River Trail

This 88-mile loop occurs along the Arkansas River including connections to Little Rock, North Little Rock, Maumelle and Conway. Community efforts were made to connect across the entire metropolitan area, connecting 38 parks, six museums and 5,000+ acres of federal, state and local parkland. Thousands of hikers, cyclists, skaters, joggers and other outdoor recreation enthusiasts flock to the trail to explore its diversity of habitats, landscapes and activities. Expansive and of primarily flat-terrain, the trail offers recreational opportunities for people of all ages, fitness levels, interests and health conditions.

Because the Southwest Trail and the Arkansas River Trail are located in the same metropolitan area, many similarities can be drawn. The populations benefiting from the Arkansas River Trail can benefit to the Southwest Trail. The regional population, median age, and median income are similar to the Southwest Trail corridor as well.

Similarities - Regional Population; Regional location; Demographics

Differences - River focused: major activities are fishing/boating; Trail length

Activities - Biking, Fishing, Mountain Biking, Walking, Boating

Swamp Rabbit Tram Trail

The 13-mile Swamp Rabbit Tram Trail follows the Reedy River from Greenville to Traveler's Rest in South Carolina. This trail was completed in 2009, connecting the North Greenville Medical Campus to the City of Greenville, and has become extremely popular in the short period since then.

TABEL 5.5 - EXISTING TRAILS AND THEIR DEMOGRAPHICS

Trail	Anchor Location	Population	Regional Location	Total Population	Median Income	Median Age	Legth (miles)
Razorback Regional Greenway	Fayetteville/Bentonville, AR	78,960/ 40,167	Washington/Benton Co, AR	453,707	\$47,882	32	37
Arkansas River Trail	Little Rock/North Little Rock, AR	197,357/ 66,075	Pulaski Co, AR	391,284	\$46,013	36	34
Swamp Rabbit Tram Trail	Greenville/Travelers Rest, SC	85,409/ 4,576	Greenville Co, SC	451,225	\$46,025	37	14
American Tobacco Trail	Durham/Cary, NC	228,330/ 33,090	Durham/Wake/Chatham Co, NC	1,232,085	\$60,044	35	22
Atlantic & Yadkin Greenway	Greensboro/Summerfield, NC	269,666/ 10,232	Guilford Co, NC	488,406	\$44,950	36	8
Heritage Rail-Trail	York, PA	43,718	York Co, PA	434,972	\$57,283	40	21
Washington & Old Dominion Trail	Arlington/Purcellville, VA	207,627/ 7,727	Arlington/Fairfax/Transylvania Co, NC	1,601,664	\$106,031	36	45
Southwest Trail	Hot Springs/Little Rock, AR	35,680/ 197,357	Garland/Saline/Pulaski Co, AR	602,861	\$46,841	39	65

Source: U.S. Census Bureau, 2010, 2010 Census, 2010 ACS 3- and 5-year estimates

Local officials estimate 1,000 daily users on the Swamp Rabbit Trail. The trail’s traffic has generated many new local businesses along its corridor, such as Swamp Rabbit Grocery, TTR Bikes, the Leopard Forest Coffee House, and the Café at Williams Hardware. Greenville’s public transportation system has supported the trail by providing bus service equipped for bicycles between Greenville and Traveler’s Rest, allowing users to make use of the full length of the trail without having to make it back on bicycle or foot.

Similarities - Regional location

Differences - Anchor in mid-size city

Activities - Biking, Inline Skating, Walking

Other Trails

Several other rail trails share characteristics with the proposed Southwest Trail. The American Tobacco Trail (ATT) is similar in length and located in the Research Triangle region of North Carolina. Annual usage estimates were not available for the ATT.

The Atlantic & Yadkin Greenway is located in Greensboro, NC. It connects several local trails that have been constructed at different times. While this trail is more similar in demographics to the Swamp Rabbit Tram Trail than the proposed Southwest Trail, it offers another example of a successful rail-to-trail conversion of significant length, at 7.5 miles.

The Heritage Rail-Trail in York, PA lies in a region similar to that of the Atlantic & Yadkin, but it was constructed in 1999. Usage data has been collected over a period of many years. Given the scarcity of such data, it is a useful comparison.

Finally, the Washington & Old Dominion Trail and Silver Comet Trail each run through the suburbs of significant urban areas - Washington D.C. and Atlanta, GA, respectively - and are thus significantly different from the Southwest Trail corridor in terms of the population distribution along their corridors. They were included in this comparison, nevertheless, in order to further examine the connection between trail use and population density.

Anticipated Usage of the Southwest Trail

Beyond the potential number of visitors, the types of visitors expected to visit the proposed Southwest Trail are of interest. Given the similarity of the Southwest Trail region’s demographics and population density to both the Razorback Regional Greenway and the Arkansas River Trail, visitor profiles of those two trails provide the most insight into potential Southwest Trail visitors.

Trail visitors are typically middle-aged and still employed, with incomes higher than those of local trail users or regional median income. This income gap is significant because it increases the likelihood that trail visitors have the disposable income to spend money in the local economy during their visit. Average travel distances on the rural trails indicate that visitors could be drawn from several hours away to visit the proposed Southwest Trail. Greensboro, Winston-Salem, Charlotte, and Asheville in North Carolina; Columbia and Augusta in South Carolina; Knoxville, Tennessee; and Atlanta, Georgia are all within four hours driving distance of the potential trail, indicating a significant geographic market reach.

The high percentage of non-local visitors biking on the Razorback Regional Greenway indicates that the primary activity expected on the proposed Southwest Trail is bicycling. The majority of users of the Washington & Old Dominion trail are bicyclists, and the most common use of the Arkansas Trail - after river-related activities - is bicycling. Given the existing bicycling infrastructure in the Little Rock Metropolitan Area, it is likely that one of the major activities on

the proposed Southwest Trail would be bicycling. Based on the users observed on other trails, inline skating, jogging, and skateboarding may also be expected, to the extent that these uses are allowed.

Finally, seasonal variation is expected on the proposed Southwest Trail. Both the Razorback Regional Greenway and Arkansas River Trail receive the majority of their use between April and October. The climate around Hendersonville and Brevard is similar to that of the Virginia Creeper area, so it is likely that the Southwest Trail would see similar variation in seasonal use.

SUMMARY AND COST-BENEFIT ANALYSIS

In summary, the Southwest Trail provides a variety of benefits to a variety of audiences, all of which can be compared against the upfront investment of \$33 million to construct the trail, to provide a sense of impact on a “per \$1 million invested” basis (see Table 5.12). These impact estimates are based on conservative assumptions; a retrospective look, upon completion and implementation of this recreational amenity, may very well yield much higher impact results. Furthermore, the estimates do not include the trail’s role in attracting and retaining employees and employers, which may prove to be significant. Whether these “returns” – to the local economy, property owners, users, and local government – warrant that initial investment is for policymakers to decide. It is hoped that this report has provided some of the framework, categories, and estimates to inform that decision.

TABEL 5.11 - SUMMARY OF BENEFITS GENERATED BY IMPLEMENTATION OF THE SOUTHWEST TRAIL

IMPACT CATEGORY	BENEFICIARY(IES)	ESTIMATED RESULT
Economic impact from upfront construction	Local economy, particularly the construction industry	\$33.3 million in total expenditures, supporting 450 jobs
Property value impact	Property owners, local municipalities and school districts	\$13.7 million in total property value increases
Tourism impact	Local economy, particularly the hospitality industry	65,000 new visitors injecting \$3 million into the local economy, resulting in \$4.8 million in total expenditures each year supporting 68 jobs
Direct use impact	Trail users	
Health care cost reduction impact	Trail users and their health care coverage groups	6,380 new exercisers and \$18.3 million per year in health care cost reductions
Ecological services rendered	Region as a whole	Minimal value generated per year

Source: Costanza et al (2006). Ecoconsult Corporation (2011).

REFERENCES / NOTES

1. These results are not intended to be precise since they necessarily involve estimates that are rough in nature; results are therefore rounded accordingly. Also, it is important to note that impacts accrue to various audiences: individuals, government jurisdictions, or society as a whole. Finally, impact estimates represent different kinds of amounts. For example, an estimate of the value of a particular ecological service rendered may represent the cost of replacing it in the private markets, a larger value inclusive of spillover effects, or a “willingness to pay” amount determined through survey and research. Therefore, impact amounts are properly described so the reader understands what those amounts mean.
2. This does not include approximately \$4 million in land acquisition costs, which are typically not included in input-output modeling because they do not represent the purchase of goods and services.
3. The economic impact model takes multiplier data from the US Department of Commerce’s Regional Input-Output Modeling Systems (RIMS II) to produce estimates of the distribution of economic impact at the county and state level. See Appendix A for a summary of Econsult’s economic and fiscal impact methodology.
4. Since construction activity has a finite time period, resulting impacts are one-time and not ongoing in nature. This is contrasted against impacts from ongoing activities, which generate impacts that are ongoing and not one-time in nature.
5. See Appendix B for a more detailed version of this table.
6. What is meant by this assumption is that, all else equal, properties located within a quarter mile of the Southwest Trail will increase in value by four percent more than other, similar properties not located within a quarter mile of the trail. Thus, if properties in the area increase in value by three percent, then properties located within a quarter mile of the trail will increase by seven percent (3 percent + 4 percent), while if properties in the area decrease in value by three percent, then properties located within a quarter mile of the trail will increase by one percent (-3 percent + 4 percent). This may turn out to be conservative on one or more of three fronts. First, the one-time property value increase may be larger than four percent, as may be suggested by the body of literature. Second, there may be a difference in the ongoing appreciation rate over time between properties located within a quarter mile of the Southwest Trail and properties not located within a quarter mile of the trail, such that the property value increase resulting from the implementation of the trail is not just the upfront four percent difference but also some ongoing difference that grows over time. Third, some upfront and/or ongoing difference in property value may apply to properties that are not located within a quarter mile of the Southwest Trail but are still reasonably close to the trail; for example, properties located between a quarter mile and a half mile of the trail may sell for a premium, since such a distance from the trail may still be considered easily covered on foot.
7. Actual annual increases in property tax revenues will depend on the extent to which assessments adjust to changes in house values. If assessments lag, so will property tax revenue increases; if they only partially adjust, property tax revenue increases will not be as large as estimated.
8. Property tax rates equal the sum of the county property tax rate and the average of all municipality property tax rates. Since a large proportion of the houses located within a quarter-mile of the Southwest Trail are located in either Hot Springs or Little Rock, which have higher property tax rates, this approach yields an artificially low estimate of additional annual property tax revenues generated, and it can therefore be considered to be conservatively low.
9. See Appendix C for additional details on tourism impacts.
10. “2009 Rudy Bruner Award: Silver Medal Winner – Millennium Park,” Rudy Bruner Foundation (2010).
11. The National Park Service requires that states prepare a SCORP every five years. The State of Arkansas’s most recent SCORP is from 2013. Data on percentages of residents who partake in various recreational activities is available for the state as a whole as well as for regions within the state.
12. These figures are estimated by determining the number of households located within a quarter mile of the trail and those that are not, and then multiplying by the average household size in Garland, Saline and Pulaski Counties.
13. By way of comparison, a study of the increase in recreational activity resulting from the implementation of a beltway trail in Atlanta found that residents who lived within a half mile of the new open space increased their outdoor recreation by 50 percent. To be conservative, 25 percent is assumed and only for residents who live within a quarter mile, not a half mile.
14. See Appendix E for a partial bibliography of relevant sources.
15. In the previous section, it was estimated that existing recreational activity participants living within a quarter mile of the trail will increase their activity by 25 percent (five percent for those not living within a quarter mile of the trail). Here, it is conservatively estimated that the trail will increase the number of recreational activity participants by five percent among residents living within a quarter mile of the trail (one percent for those not living within a quarter mile of the trail).
16. See Appendix F for more detailed information on estimated health care cost reduction impacts.
17. Estimates are based on the addition of pervious surface and tree cover represented by the implementation of the Southwest Trail. Figures were adjusted downward in many cases to account for the particular nature of the Southwest Trail (e.g. it is a long, skinny shape - rather than a square or rectangle - and it is not always next to water). See Appendix G for a partial bibliography of sources used in determining the approach and assumptions used to estimate the environmental impact.
18. Minimum impact estimates were used to be conservative. See Appendix H for additional detail on the value of ecological services rendered by the Southwest Trail.
19. Preliminary plans suggest a range in widths between 10 and 50 feet, with much more of the trail being closer to 10 feet wide than 50 feet wide.
20. Economics 13 (2007): 241-260. 23. Activities for each of the trails came from TrailLink.com, Rails-to-Trails Conservancy



The proposed Southwest Trail can connect to existing trail infrastructure to create the ultimate experience in Central Arkansas.



The proposed Southwest Trail can feature a variety of trail types and aesthetics.

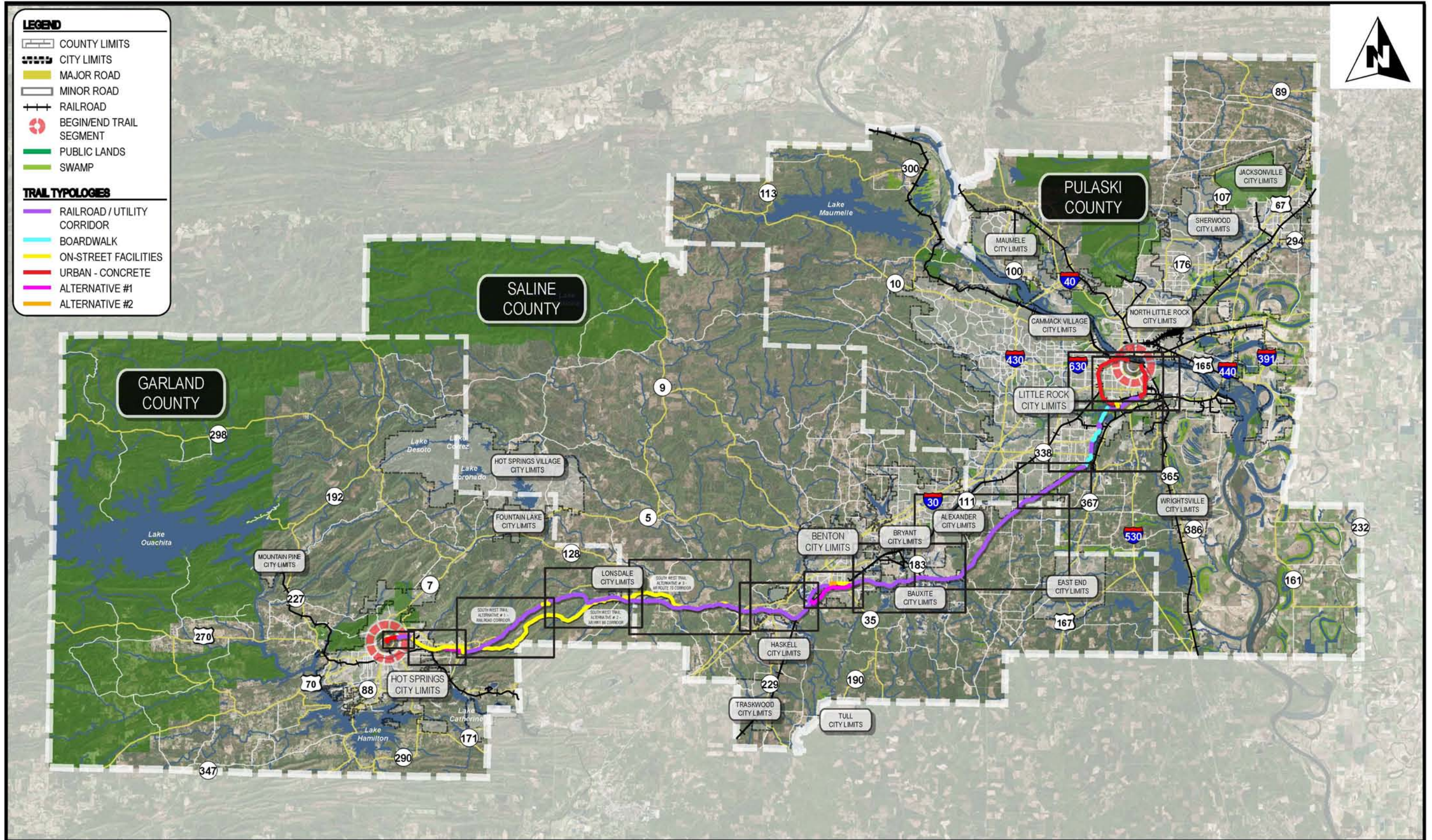
TRAIL RECOMMENDATIONS

PRELIMINARY SOUTHWEST TRAIL ROUTE

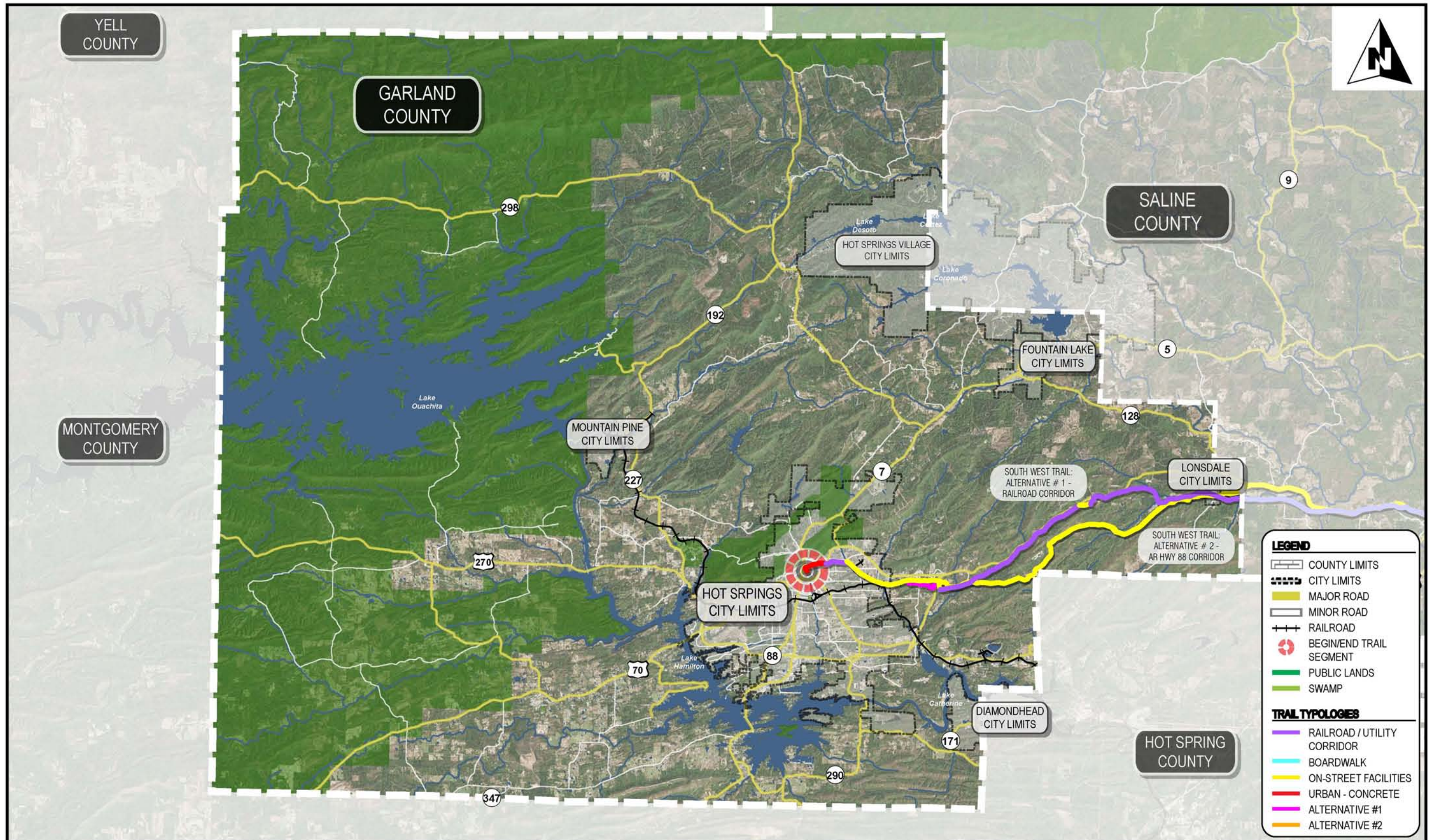
The Southwest Trail corridor analysis is separated into multiple segments with each segment of the trail inventoried, assess, and analyzed. This trail network plans for the incorporation of new recreational facilities and future points of interest, and identifies potential trailhead locations for trail accessibility. The following maps highlight the various trail categories, connections to existing and future points of interest, and identify optimal trailhead locations. There are multiple trail typologies featured on the Southwest Trail, which was explained in the *Definition of Trails and Greenways (Trail Typologies)* section in **Chapter 1: Introduction**.

**Note: The proposed trail alignments depicted in this series of plans are for general planning purposes only and are subject to change during actual design phases for specific trails. Exact trail alignment, feasibility, and typology are to be further evaluated in the design process for each trail.*

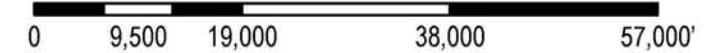
SOUTHWEST TRAIL OVERALL ROUTE

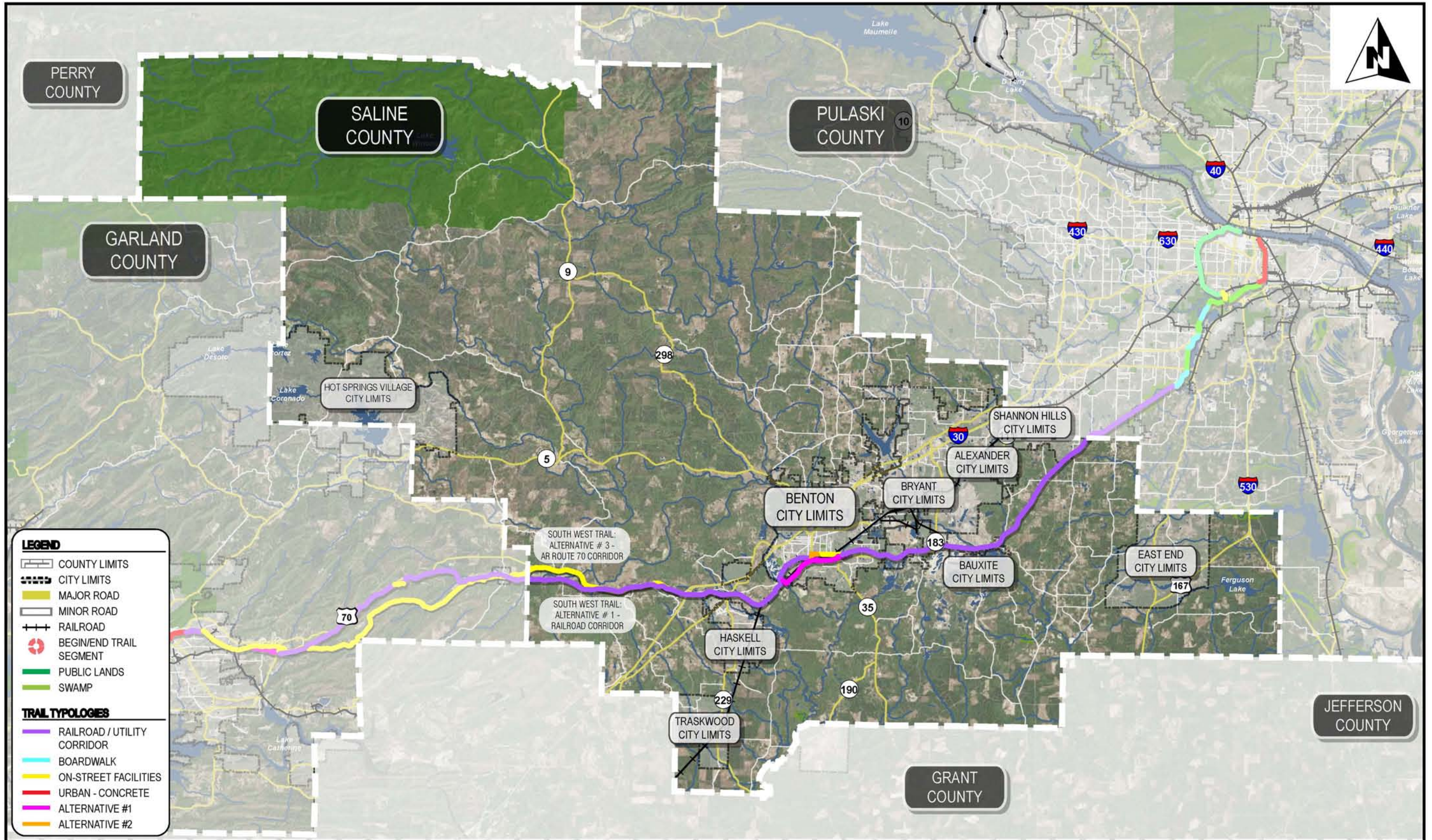


SOUTH WEST TRAIL - HOT SPRINGS TO LITTLE ROCK
 OVERALL SOUTH WEST TRAIL ROUTE - GARLAND, SALINE & PULASKI COUNTIES



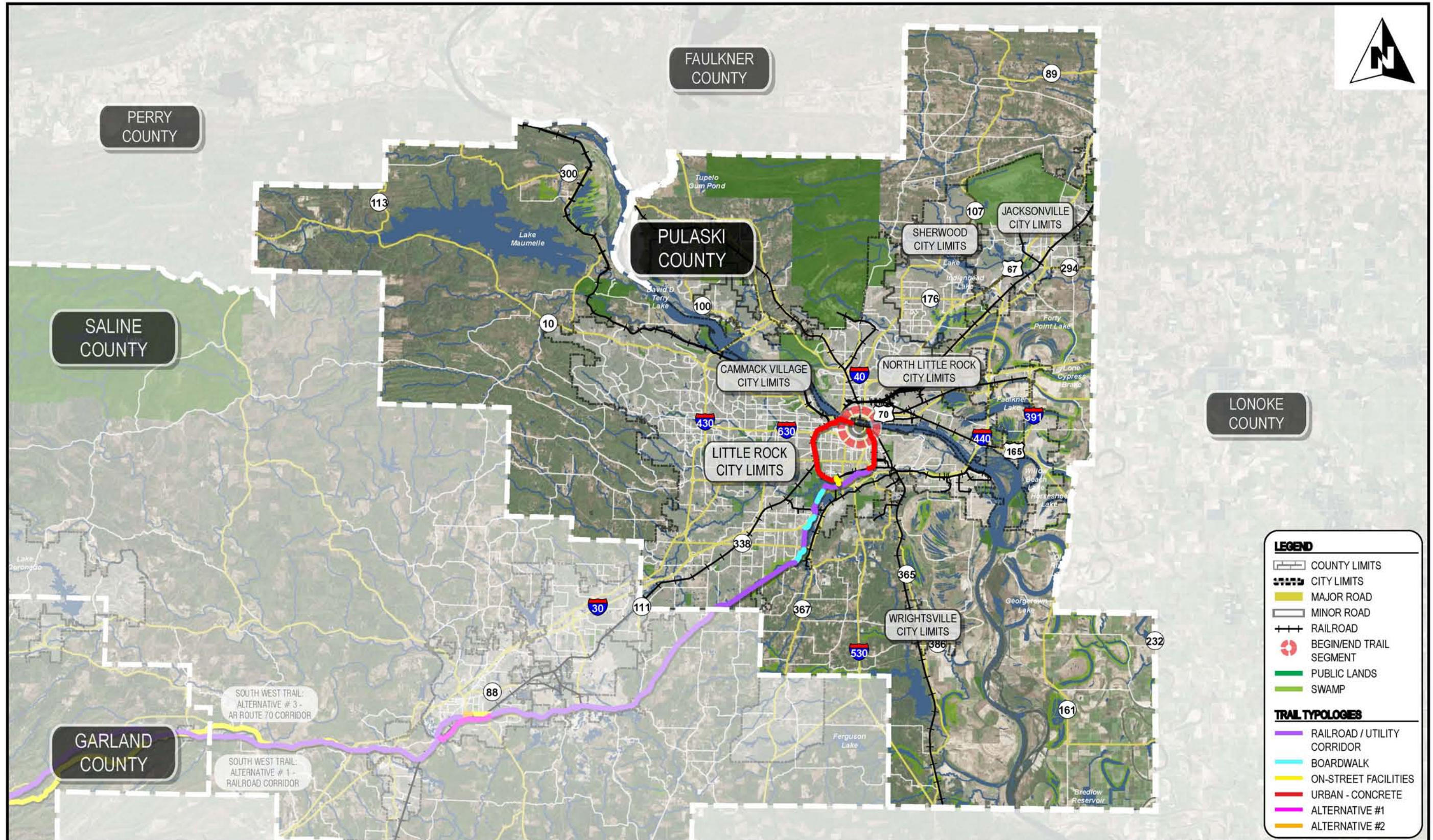
SOUTH WEST TRAIL - HOT SPRINGS TO LITTLE ROCK
 SOUTH WEST TRAIL ROUTE THROUGH GARLAND COUNTY



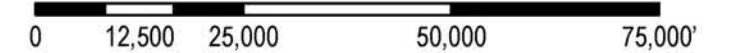


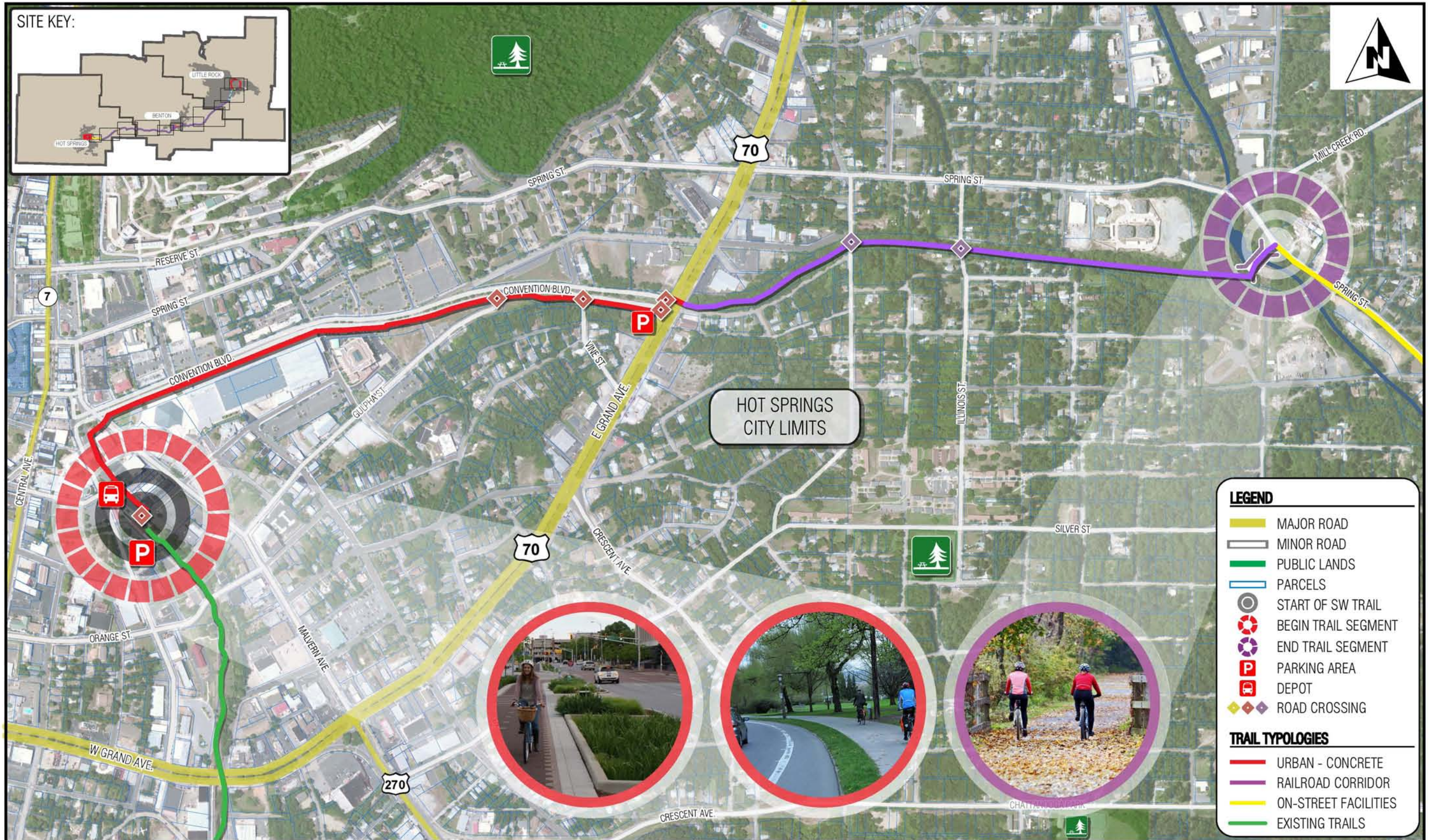
SOUTH WEST TRAIL - HOT SPRINGS TO LITTLE ROCK
 SOUTH WEST TRAIL ROUTE THROUGH SALINE COUNTY





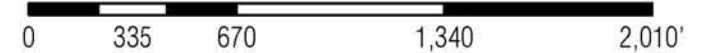
SOUTH WEST TRAIL - HOT SPRINGS TO LITTLE ROCK
 SOUTH WEST TRAIL ROUTE THROUGH PULASKI COUNTY

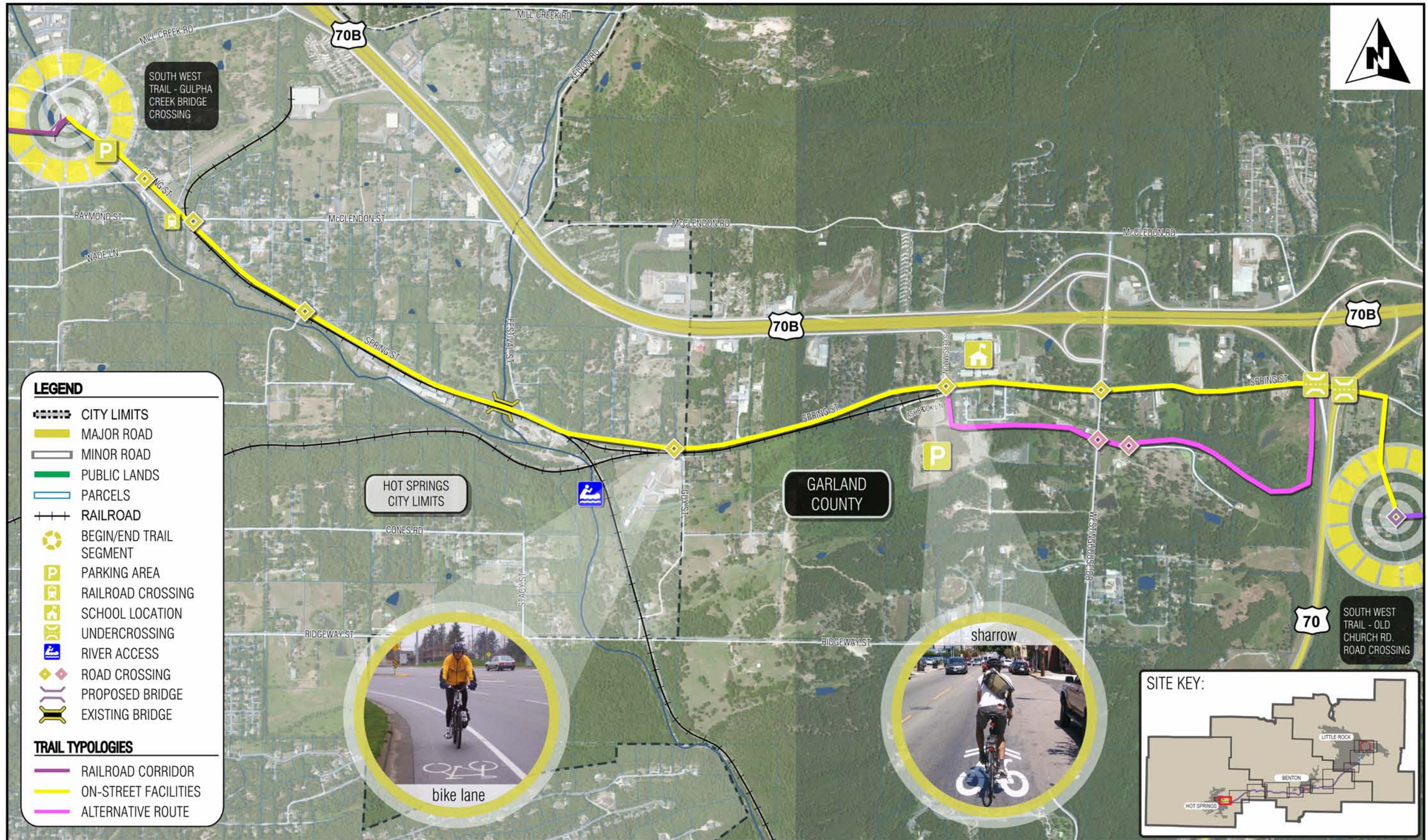




SOUTH WEST TRAIL - HOT SPRINGS TO LITTLE ROCK
HOT SPRINGS CONVENTION CENTER TO SPRING ST.

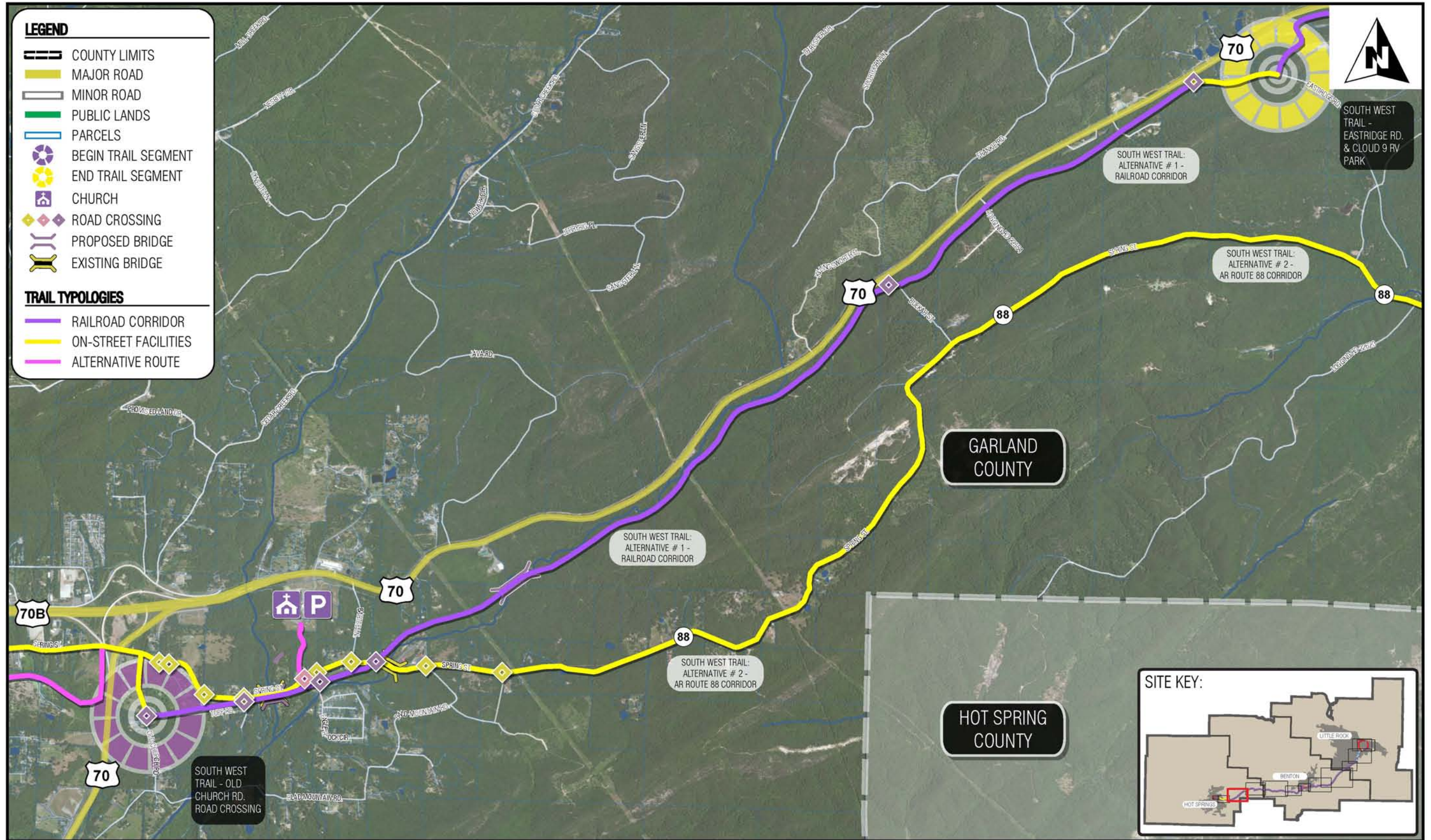
FIGURE 1. MAP OF SEGMENT 1
SEGMENT 1 MEASURES TO 1.64 MILES





SOUTH WEST TRAIL - HOT SPRINGS TO LITTLE ROCK
ALONG SPRING ST. TO US HIGHWAY 70 OVERPASS

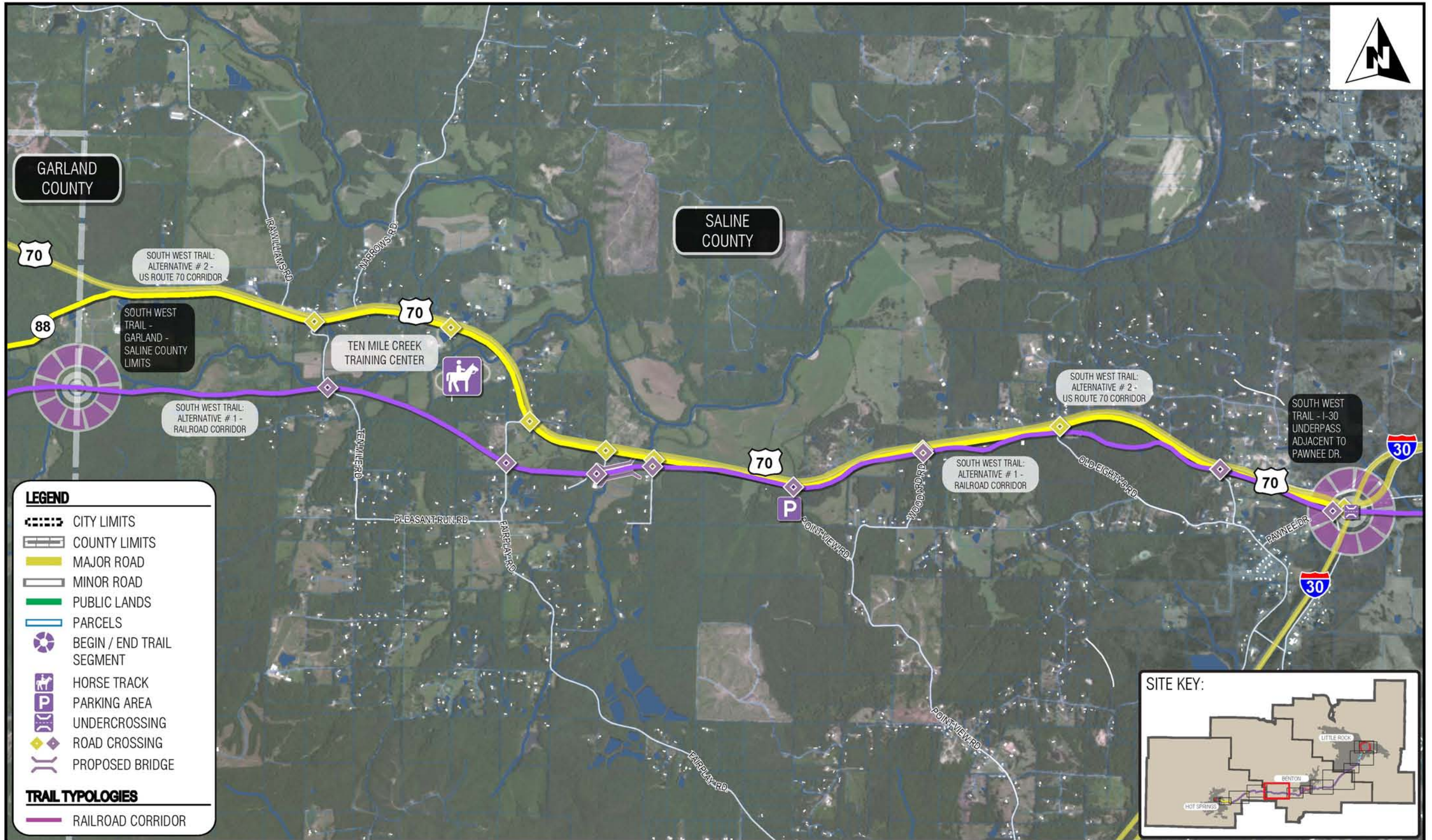
FIGURE 2. MAP OF SEGMENT 2
SEGMENT 2 MEASURES TO 3.72 MILES





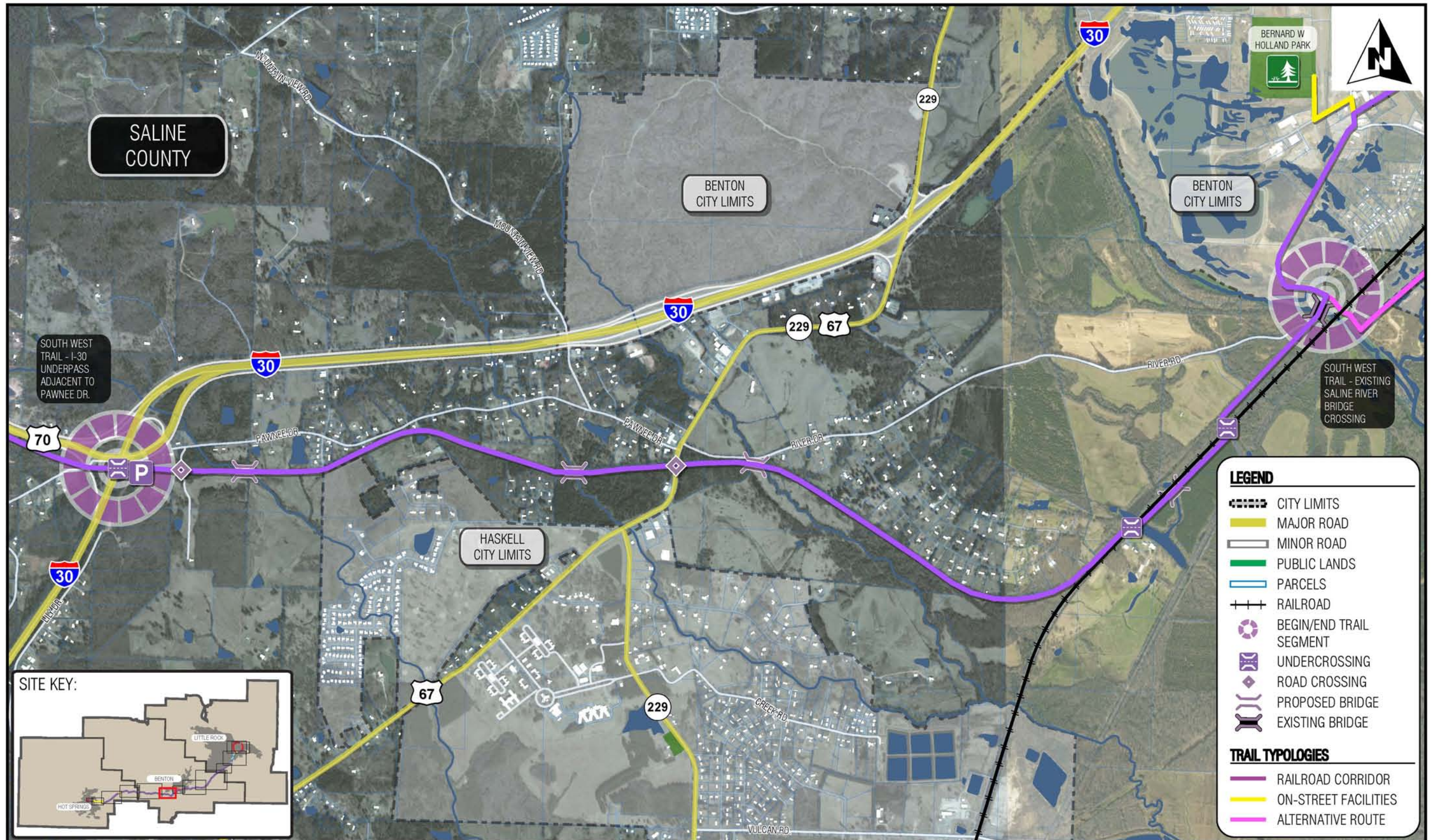
SOUTH WEST TRAIL - HOT SPRINGS TO LITTLE ROCK
EASTRIDGE RD. TO GARLAND-SALINE COUNTY LINE

FIGURE 4. MAP OF SEGMENT 4
SEGMENT 4 MEASURES TO 5.86 MILES



SOUTH WEST TRAIL - HOT SPRINGS TO LITTLE ROCK
GARLAND-SALINE COUNTY LINE TO INTERSTATE 30 OVERPASS

FIGURE 5. MAP OF SEGMENT 5
SEGMENT 5 MEASURES TO 6.83 MILES

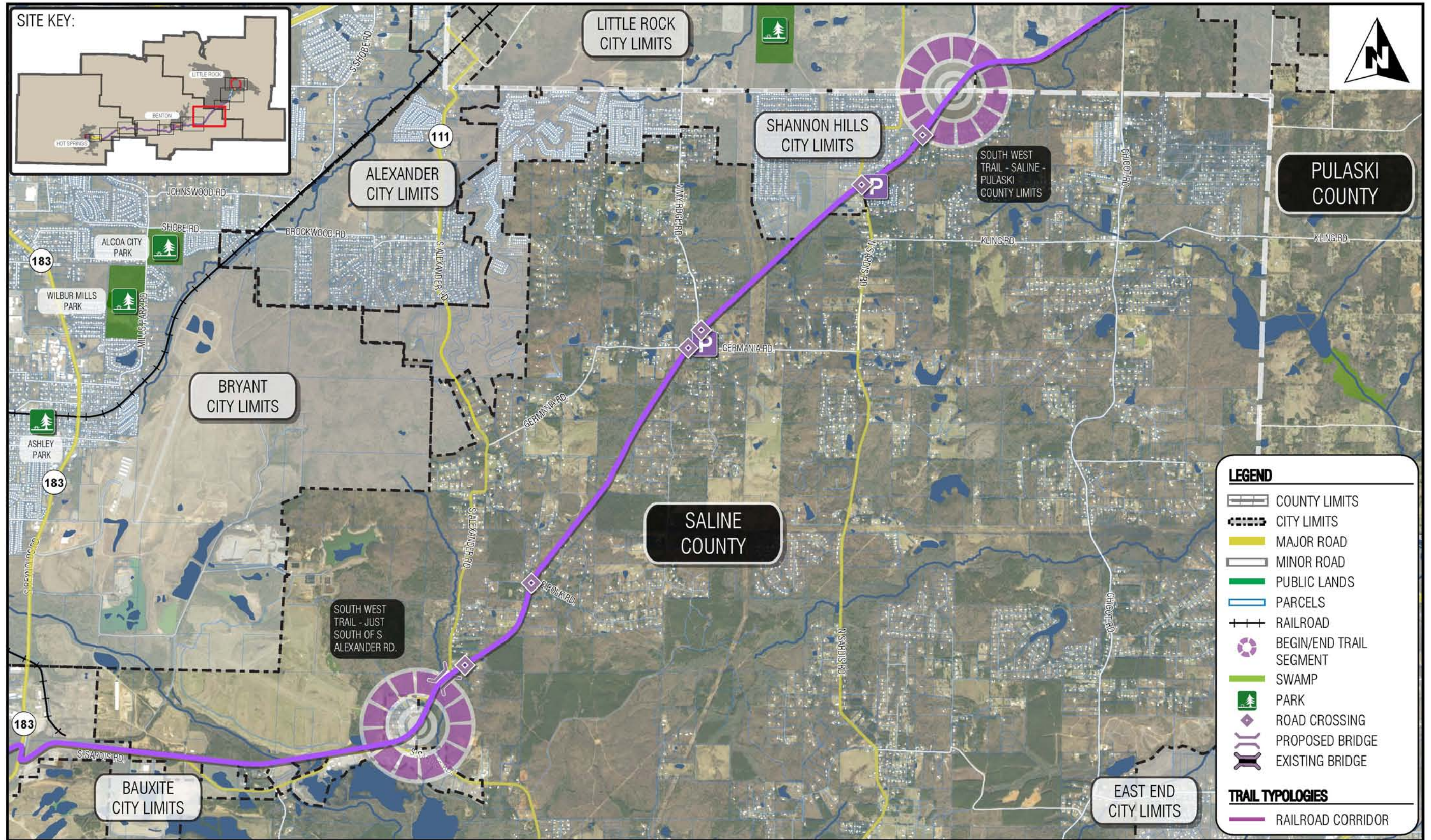


SOUTH WEST TRAIL - HOT SPRINGS TO LITTLE ROCK
INTERSTATE 30 OVERPASS TO BENTON CITY LIMITS



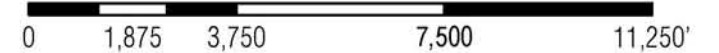
SOUTH WEST TRAIL - HOT SPRINGS TO LITTLE ROCK
TRAILS THROUGH CITY OF BENTON TO EAST BAUXITE CITY LIMITS

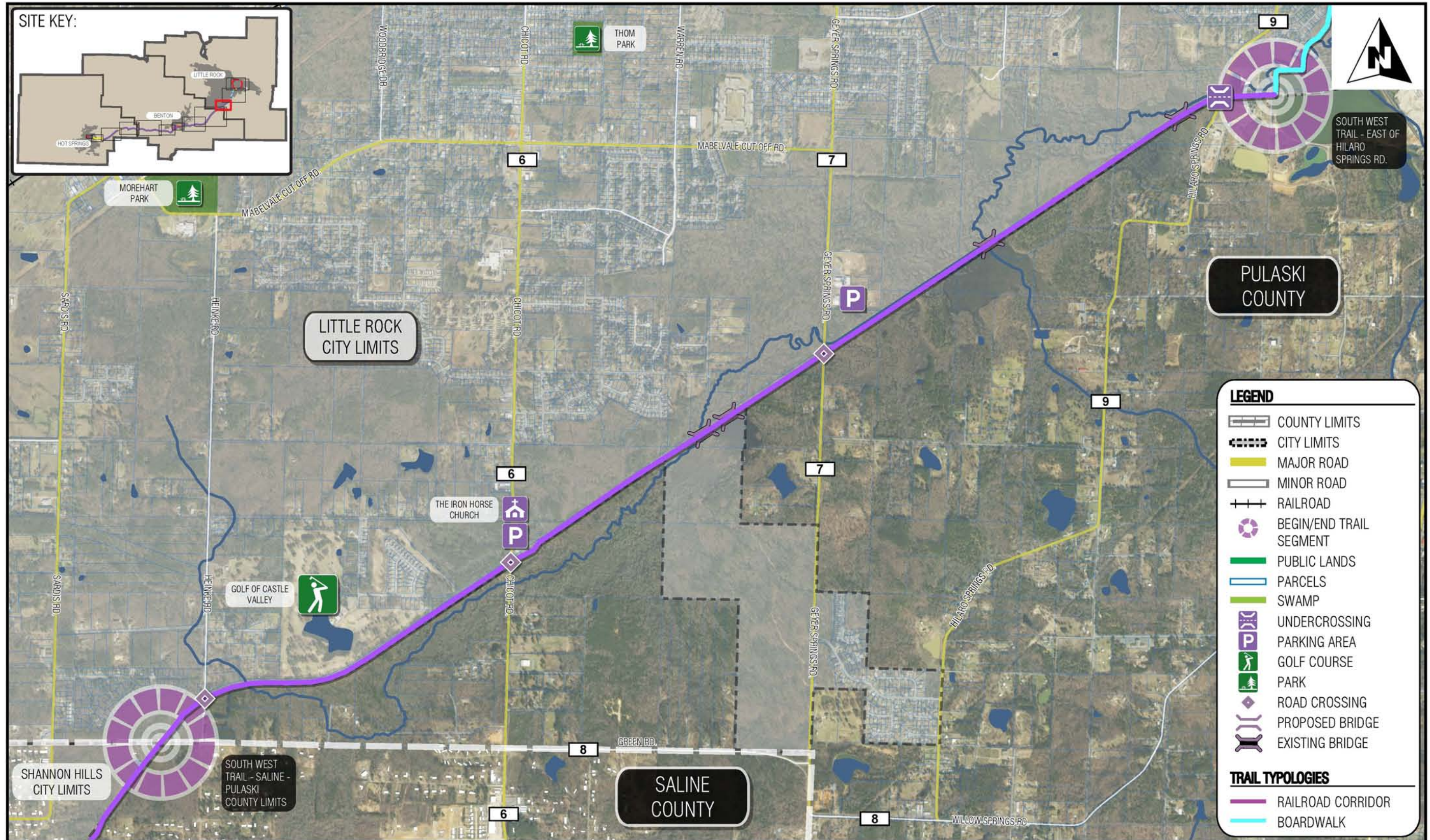
FIGURE 8. MAP OF SEGMENT 8
SEGMENT 8 MEASURES TO 6.71 MILES



SOUTH WEST TRAIL - HOT SPRINGS TO LITTLE ROCK
 EAST BAUXITE CITY LIMITS TO SALINE-PULASKI COUNTY LIMITS

FIGURE 9. MAP OF SEGMENT 9
 SEGMENT 9 MEASURES TO 5.77 MILES





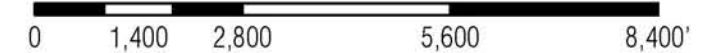
SOUTH WEST TRAIL - HOT SPRINGS TO LITTLE ROCK
 SALINE-PULASKI COUNTY LIMITS TO LITTLE ROCK CITY LIMITS

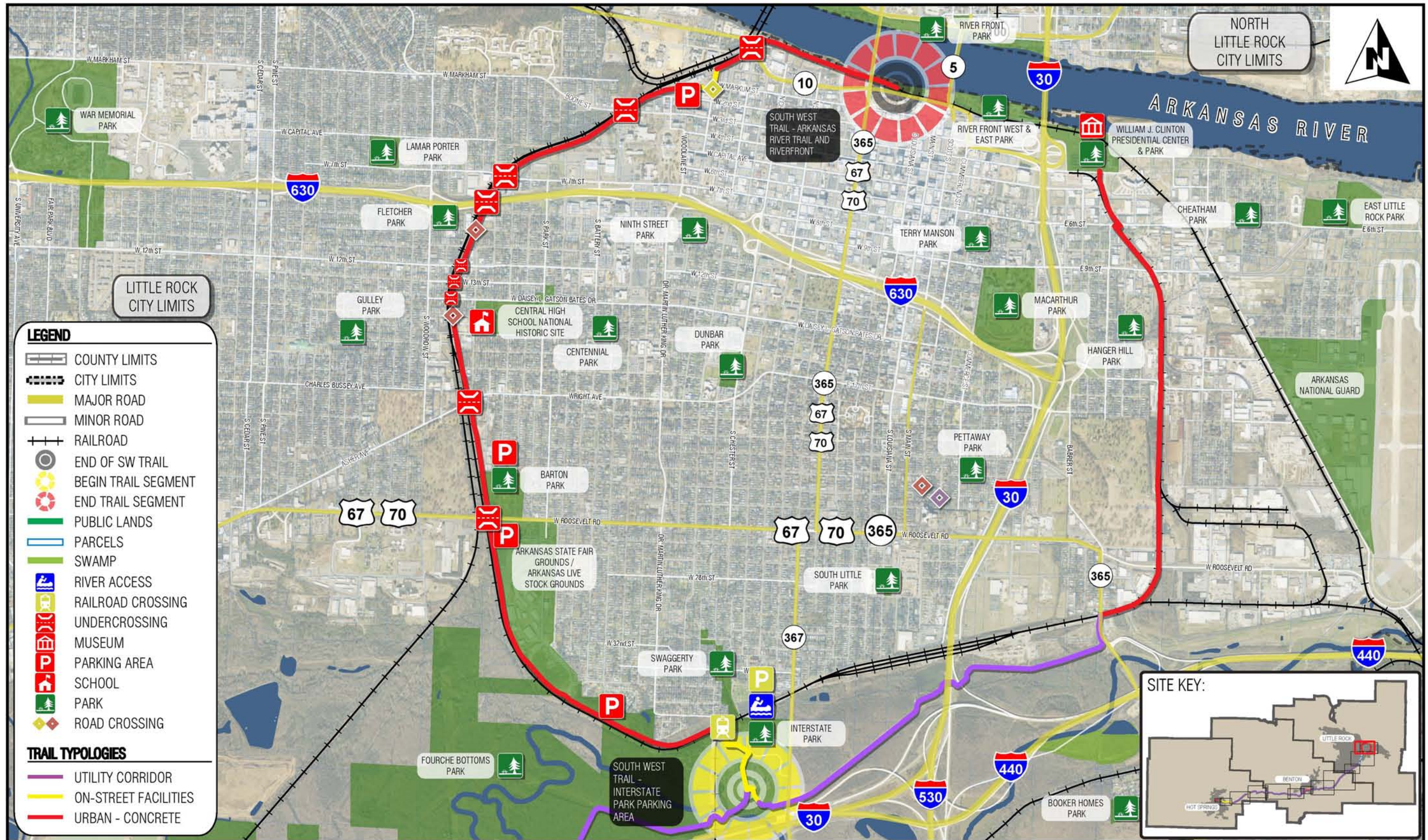
FIGURE 10. MAP OF SEGMENT 10
 SEGMENT 10 MEASURES TO 4.35 MILES



SOUTH WEST TRAIL - HOT SPRINGS TO LITTLE ROCK
LITTLE ROCK CITY LIMITS TO INTERSTATE PARK

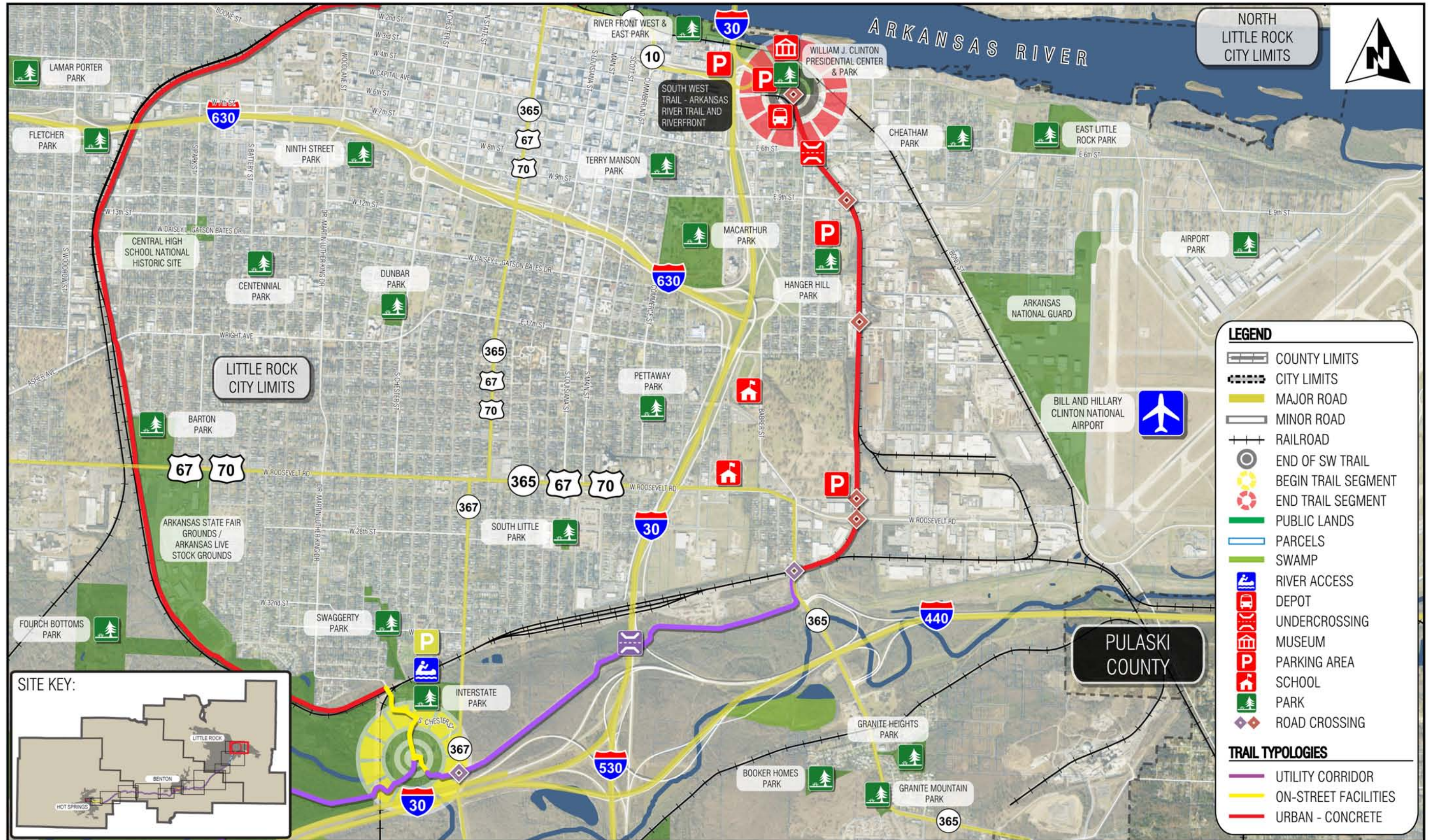
FIGURE 11. MAP OF SEGMENT 11
SEGMENT 11 MEASURES TO 5.00 MILES





SOUTH WEST TRAIL - HOT SPRINGS TO LITTLE ROCK
 LITTLE ROCK TRAIL ALTERNATIVE #1 FROM INTERSTATE PARK

FIGURE 12. MAP OF SEGMENT 12
 SEGMENT 12 MEASURES TO 3.80 MILES



SOUTH WEST TRAIL - HOT SPRINGS TO LITTLE ROCK
 LITTLE ROCK TRAIL ALTERNATIVE #2 FROM INTERSTATE PARK

FIGURE 13. MAP OF SEGMENT 13
 SEGMENT 13 MEASURES TO 5.00 MILES





Multi-use trail running through a natural area.

CHAPTER IMPLEMENTATION

4

Chapter Contents:

- Overview*
- Establish Administrative Structure for Implementation*
- Build Broad-Based Regional Support*
- Infrastructure Action Steps*
- Regional Coordination*

OVERVIEW

This chapter defines the structure for managing the implementation of the Southwest Trail program. Implementing the recommendations contained in this plan will require steadfast leadership and dedication to trail development on the part of the communities of Garland, Saline & Pulaski Counties. Equally critical, and perhaps more challenging, will be meeting the need for a recurring source of revenue. State and local resources for trails and greenways have grown scarce and more competitive. Communities can better position themselves to compete for these and other funding sources by developing long-range plans like this, partnering with regional agencies and organizations, and utilizing local private funding as leverage or match.

In addition to investment in physical infrastructure, there are still important actions the community can take to increase trail usage and establish the Southwest Trail as the premier destination for trail and greenway-users throughout the state of Arkansas. Organizational and procedural steps, education and safety programs, outreach and marketing efforts, and strategic lower-cost trail projects can maintain momentum and support from the community while larger, more time-consuming trail and greenway projects are funded, designed and constructed.

Key Action Steps described in this implementation chapter fall into three categories: policies, programs, and infrastructure. More detailed action steps tied to each of these categories are found in the table at the end of this chapter along with the responsible agency and expected time frame for completion.

ESTABLISH ADMINISTRATIVE STRUCTURE FOR IMPLEMENTATION

Identify Lead and Supporting Agencies

While the responsibilities for building the Southwest Trail will be shared by agencies and organizations throughout the study area, it is imperative that a single entity take on the role as project lead and coordinating agency. This will ensure consistency in facility design, branding, marketing, and other important aspects of the trail throughout the implementation process.

Determine Roles and Responsibilities

In order for each stakeholder to contribute to the Southwest Trail, it will be necessary to determine their capabilities, their capacities, and the resources that each can bring to the implementation process.

Regional Agencies

Regional agencies like Metroplan and the Tri-Lakes MPO have a successful track record of coordinating region-wide planning initiatives and administering federal funds to local agencies for projects that benefit a broad base of constituents while supporting the goals and objectives of long-range planning documents. While these regional agencies have their own staff, each MPO's board of directors consists of elected and appointed officials from local municipalities and agencies. It is within the power of the board of directors and the MPO staff to identify priorities for future projects and funding, including multi-modal transportation, trails, and bikeways.

Local Government Agencies

A number of local government agencies in the region have experience developing trails, bikeways and other facilities for active transportation and recreation. Local governments that



Left: Inviting regional agency and local government staff on regional group rides provides them with a better understanding of trail design and the key takeaways to implementing a greenway system.



Right: Bicycle parking at trailheads and other destinations can help to encourage bicycle activity.

bring previous experience to the project can share their strategies and insight with other municipalities, providing guidance and leadership as active participants in the development of the Southwest Trail. As the stakeholder group assigns responsibilities to involved parties, local government agencies may be responsible for trail construction and maintenance within their jurisdictions. As such, this sharing of information will be essential to successful trail construction and the provision of a consistent facility type across jurisdictional boundaries.

State Agencies

State agencies like the Arkansas Highway and Transportation Department, the Department of Parks & Tourism, and the Arkansas Natural and Cultural Resources Council can play an active role in trail funding, promoting, and building. Their state-wide perspective separates them from other stakeholders who, while concerned with regional goals and issues, primarily focus their efforts and resources on local matters.

Non-Profit and Citizen Groups

Community groups and non-profit organizations will be important stakeholders through the implementation process, serving as a conduit for information and dialogue between public agencies and the public at-large. If these groups are provided with supporting information to actively market the trail to their audiences, they can generate invaluable public support for the trail and communicate the needs and desires of the public to participating agencies. The following groups should be engaged throughout the course of trail implementation:

- Bicycle Advocacy of Central Arkansas
- Saline Crossing Regional Park & Recreation Area, Inc.

- Audubon Society of Central Arkansas
- Arkansas Bicycle Club
- Central Arkansas Trail Alliance
- Central Arkansas Group of the Sierra Club
- Bike/Walk Arkansas
- Hot Springs Bicycle Association
- The Clinton Foundation

Private Sector, Higher Education Entities and Business Community Leaders

Private sector organizations are playing an increasingly important role in trail building projects throughout the United States. These valuable stakeholders understand the value and impact of quality of life factors, such as educational opportunities, quality housing, cultural institutions, and recreation amenities, on recruitment and retention of skilled workers. Residential and commercial developers are incorporating parks, trails, and pedestrian-friendly design principles into their projects with the knowledge that these amenities add value to their projects and generate a greater return on their investments. Corporate foundations can play a role in sharing their support by taking the initiative as a leader in the implementation of the Southwest Trail through means of their leadership and even as funding partner. Through these financial contributions, sponsorships, and the creation of business coalitions to advance specific quality of life agendas like parks, trails and open spaces, the business community can actively support the building of the Southwest Trail and the enhancement of quality of life for residents throughout the region. Higher Education Entities, such as the University of Arkansas system (i.e. UALR), can also help in the support and advocacy of the proposed Southwest Trail.



Left: Plan adoption is critical to implementation success.

Right: Bicycle parking at trailheads and other destinations can help to encourage bicycle activity.



Adopt the Plan

All local agencies should adopt the plan as a guiding document for investments in the Southwest Trail. This act of adoption will transform the plan into a policy document that expresses the will and commitment of the adopting agency to the completion of the trail. Once adopted, the plan can also be used to procure funding from outside agencies, many of whom favor communities whose projects are consistent with adopted regional and local plans.

Form Trail Advisory Commission

Leadership from individuals in the communities of the study area during the adoption and implementation campaign is essential to move the Southwest Trail from concept to reality. These individuals, as representatives of key stakeholder agencies or groups, or as passionate, committed individuals, will help advocate for the plan and seek opportunities to develop synergies with other projects, individuals and organizations in order to maintain momentum and support for the Southwest Trail.

This trail advisory commission should consist of Garland, Saline and Pulaski County government staff, local city staff within the study area, and representatives of key community groups and other stakeholders including local businesses and local-interest groups. The role of the commission would be to:

- Champion the implementation of the Southwest Trail
- Serve as a conduit to the community, responding to community questions and concerns and promoting trails and greenways as a valuable community asset
- Facilitate cooperation among jurisdictions to support regional connections
- Define and recommend sources of funding
- Ensure uniform standards for trail and greenway facilities

BUILD BROAD-BASED REGIONAL SUPPORT

The next steps and recommendations included in this section of the study are essential to building necessary community support for trails and greenways, fostering a community culture that values walking and bicycling for transportation and recreation, and establishing the communities of Garland, Saline and Pulaski Counties' reputation as a regional destination for walking, biking, and outdoor recreation.

Identify a Project Champion(s)

A Project Champion can also be identified as a Project Advocate, but for the purposes of the Southwest Trail, the Project Champion's role will be identified as:

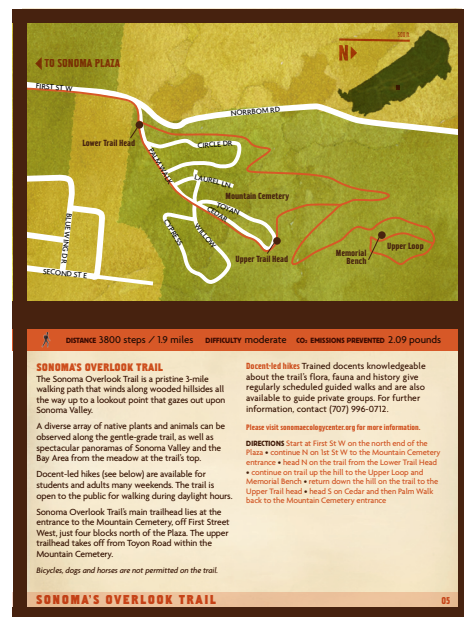
- Advocating for the project by constantly praising the benefits to the stakeholders
- Being a fierce supporter of the project
- Providing support for both the Project Manager and the Project Team by liaising with upper management to address their worries and/or obstacles in the project.

Develop and Execute a Strategic Marketing Program

The growth of the Southwest trail over time will allow communities in the study area to position themselves as a regional destination for walking, bicycling, trail-related activities, and outdoor recreation. In order to capitalize on this significant multiple-county asset, local communities of Garland, Saline and Pulaski Counties should develop a comprehensive marketing program to draw both local residents and visitors from across and beyond the region to use trails and greenways. The creation of promotional materials like online and print trail maps and informational brochures about the Southwest Trail and supporting amenities and attractions can attract new trail users and encourage participation in trail and greenway recreation.

Create and Carry Out a Comprehensive Education Program

Promoting the safe and responsible use of the Southwest Trail will require a concerted effort on behalf of the community partners. Educational content like trail etiquette, rules and responsibilities, and personal safety precautions can be incorporated into community trail maps and



Left: Sonoma Valley, CA promotes recreational tourism with its hike and bike guide



Right: volunteers work to clear an overgrown trail

provided at trailheads, community recreation centers, City Hall, schools, and other popular destinations throughout the communities of Garland, Saline and Pulaski Counties.

Hosting bicycle skills, safety, and maintenance classes for youth, adults and even families can provide a positive environment to teach bicycling basics to area residents. These educational lessons can also be incorporated into group rides, providing a fun environment for learning. Similar classes can also be incorporated into elementary and middle school curricula, ensuring that local youth in Garland, Saline and Pulaski Counties have the skills to utilize the trails and greenways in the community.

Host Frequent Biking, Walking and Hiking Events

From weekly walking groups to large-scale events like 5K/10K trail runs and bike races, organized walking and biking events can draw residents and visitors onto the trail system and highlight the Southwest Trail as a valuable community amenity. While some of these activities can be incorporated into the local cities' recreational offerings, others will require additional support and coordination with relevant community stakeholders and groups to develop and host larger events.

Trail Stewardship Program

The growing Southwest Trail is an amenity provided by the counties and cities for the enjoyment of residents and visitors. While maintenance responsibilities typically fall to these agencies, trail users can play an active role in preserving these trails for others. A Trail Stewardship program should be created in order to increase community ownership of the trail system and encourage residents to actively participate in the maintenance and preservation of these trails.

Trail Enforcement

In order to ensure that the trails remain safe and welcoming amenities for all members of the community, the local cities' Police Departments and counties' Sheriff Office should maintain an active presence on the trail system in order to reduce user conflicts and collisions and foster an environment of personal responsibility and courtesy towards other trail users.

INFRASTRUCTURE ACTION STEPS

In addition to the policy and program action steps already described, agencies should move forward on infrastructure development by proceeding with the design and construction of priority projects. They should also work to identify funding for longer-term, higher-cost projects.

Complete Priority Trail Projects

By moving forward quickly on priority trail projects, the communities of Garland, Saline and Pulaski Counties, the County Governments and its implementation partners will demonstrate their commitment to carrying out this plan and will better sustain the momentum generated during the public outreach stages of the planning process. These priority trail projects are discussed in greater detail in Chapter 3.



Left: typical trail development process



Right: work crews use light-impact equipment to avoid damage to the environment

Identify and Pursue Diverse Funding Sources

The Southwest Trail is a significant investment for the Central Arkansas Region. Building the trail will require considerable financial resources; however, by utilizing a variety of funding sources and constructing the project over time as funding sources become available, the cost of the project can be distributed so as to lessen the impact to local agencies and tax payers. Potential funding sources for trail and greenway projects can come from a variety of sources, including matching grants, sales tax or other taxes, bond measures, or public/private partnerships. A comprehensive list of potential funding sources is included in Appendix A.

Acquire Property and Easements

While some of the trail alignment is already in public ownership, additional property and easements along the abandoned rail corridor must still be acquired before construction can begin.

Design, Construct and Maintain Trails

The design, construction and maintenance of trails follows a linear pattern from conception to realization. The diagram to the left provides an overview of the typical steps of the trail development process. For this plan, many trail segments may not require design or construction documents. It will be essential for City and County staff with the help from the recommended Trails Advisory Commission to verify the intended uses of a particular segment and to design and construct with those uses in mind. Intended uses of a trail will dictate the ideal trail surface and will have a direct bearing on the construction and maintenance costs. This study designates a trail type for each recommended trail segment and provides design guidance that can help to determine the applicability and necessity of design and construction documents.

Preliminary design plans should be reviewed by multiple stakeholders, including emergency service personnel, so they can offer suggestions and have their voices heard from the very beginning. There is sometimes a disconnect between the designer and operating staff. Designs that are pleasing to the eye are not always conducive to good and inexpensive maintenance. Therefore, it is imperative that cost savings should be a part of any design, with a thorough review of the plans while they are still in a preliminary stage.

Security starts in the design phase as well. There is much that can be done in designing a trail system that greatly reduces the risk of crime. Local police and sheriff departments should be consulted early on in order to seek their advice and to alert them that the trail will be built and that they need to plan for it as well. Security tips and procedures can be conveyed on bulletin boards, on brochures, and in informal gatherings led by park staff along the trail.

Annual operations and maintenance costs vary, depending upon the facility to be maintained, level of use, location, and standard of maintenance. Operations and maintenance budgets should take into account routine and remedial maintenance over the life cycle of the improvements and on-going administrative costs for the operations and maintenance program.

REGIONAL COORDINATION

Throughout the project area, local government agencies and community stakeholders have exhibited a history of cooperation and partnerships that bodes well for the Southwest Trail. Through regional planning organizations and development districts, communities have come together to undertake regional projects and pursue shared goals and objectives. Actual roles will likely vary depending on how this study is implemented over time, as well as the continued level of interest and involvement by specific stakeholders.

Tri-Lakes MPO

The Tri-Lakes Metropolitan Planning Organization (MPO) coordinates regional transportation planning and allocates federal funding for transportation projects in Garland County, Hot Springs, Hot Springs Village, Mountain Pine, and part of Hot Spring County. Through the organization's 2040 Metropolitan Transportation Plan (also known as MTP, and is a revised document based on significant input from the Hot Springs Parks and Trails Department), Transportation Improvement Program (TIP), Regional Trails Plan, and other guiding documents, the Tri-Lakes MPO plays a significant role in directing federal resources to support positive growth and development for the communities it serves. The Regional Trails Plan, which will be adopted in September 2015, will provide a framework for the development of a trail network that "encourages and provides for a safe alternative transportation system that promotes connectivity, mobility, economical transportation, tourism, health, and an improved quality of life." The Regional Trails Plan includes a recommended trail facility connecting Hot Springs to Lonsdale that roughly follows the proposed Southwest Trail.



Left: Ribbon cuttings and grand openings help publicize new trails

Right: organized rides like the Bentonville's Slaughter Pen Jam draw large crowds to an area



Metroplan

Metroplan was created in 1955 by local political and business leaders, acting out of necessity and inspired by the principle that the metropolitan area was one community and that the problems and opportunities of each entity were common to all. Today, Metroplan is a voluntary membership organization open to any local government in the metropolitan area and supported by member dues and federal and state grants.

Metroplan has served as the area's designated Metropolitan Planning Organization (MPO) since 1972. Its function as an MPO is to work with local governments, the state department of transportation, and local transit providers to determine transportation needs and funding priorities for federal transportation investments. Metroplan also provides general planning, mapping, and technical assistance to local governments.

Over the years, Metroplan helped plan such signature projects as Burns Park in North Little Rock, the open space design for the Pulaski County banks of the Arkansas River – which would become Riverfront Park, and recently helped incorporate the Mid-Arkansas Water Alliance to secure long-term sources of high quality drinking water for the region

West Central Arkansas Planning & Development District (WCAPDD) and Central Arkansas Planning & Development District (CAPDD)

West Central Arkansas Planning and Development District, Inc. (WCAPDD) and the Central Arkansas Planning & Development District (CAPDD) are sister economic development organizations that cover Garland (WCAPDD), Saline and Pulaski (CAPDD) Counties. These organizations exist for the purpose of improving and enhancing the social and economic well-being of the people in its 10-county service area. As a not-for-profit economic development corporations, the WCAPDD and CAPDD provide its member cities and counties with technical assistance to obtain funding for public improvement projects, including infrastructure such as water, wastewater and industrial park improvements, that will directly create jobs in the ten-county region. WCAPDD and CAPDD also assist with community development projects, such as parks and senior citizen's centers, to improve the quality of life for citizens in our service area.



Existing Hot Springs Creek Greenway Trail, in Downtown Hot Springs.

CHAPTER DESIGN GUIDELINES

5

Chapter Contents:

Introduction

Design Needs for Cyclists

Trail Guidelines

Path/Roadway Crossings

Crossing Beacons and Signals

Shared Roadways

Trail Support Facilities

Wayfinding

INTRODUCTION

The following chapter pulls together best practices by facility type from public agencies and municipalities nationwide. Existing standards are referenced throughout and should be the first source of information when seeking to implement any of the treatments featured here. These design guidelines are flexible and should be applied using professional judgment. The guidelines are not, however, a substitute for a more thorough evaluation by a landscape architect or engineer upon implementation of facility improvements. This document references specific national guidelines for bicycle and pedestrian facility design, as well as a number of design treatments not specifically covered under current guidelines. Some improvements may also require cooperation with the Arkansas State Highway and Transportation Department for specific design solutions. The following standards and guidelines are referred to in this guide:

- The Federal Highway Administration's **Manual on Uniform Traffic Control Devices** (MUTCD) is the primary source for guidance on lane striping requirements, signal warrants, and recommended signage and pavement markings.
- American Association of State Highway and Transportation Officials (AASHTO) **Guide for the Development of Bicycle Facilities**, updated in June 2012 provides guidance on dimensions, use, and layout of specific bicycle facilities.
- The National Association of City Transportation Officials' (NACTO) 2012 **Urban Bikeway Design Guide** is the newest publication of nationally recognized bicycle-specific design standards, and offers guidance on the current state of the practice designs. Most NACTO treatments are compatible within AASHTO/MUTCD guidance, though some NACTO endorsed designs may not be permitted on state roads at this time.
- Offering similar guidance for pedestrian design, the 2004 AASHTO **Guide for the Planning, Design and Operation of Pedestrian Facilities** provides comprehensive guidance on planning and designing for people on foot.
- Meeting the requirements of the Americans with Disabilities Act (ADA) is an important part of any bicycle facility project. The United States Access Board's proposed Public Rights-of-Way Accessibility Guidelines (PROWAG) and the 2010 ADA Standards for Accessible Design (2010 Standards) contain standards and guidance for the construction of accessible facilities.
- Trail Solutions is the International Mountain Bicycling Association's (known as IMBA) premier trailbuilding resource. This book combines cutting-edge trailbuilding techniques with proven fundamentals in a colorful, easy-to-read format. **Trail Solutions: IMBA's Guide to Building Sweet Singletrack** is complimented by **Managing Mountain Biking: IMBA's Guide to Providing Great Riding**, a 256-page resource that focuses on solutions to mountain biking management issues. Together, the two documents provide a complete resource for better mountain bike trail recreation.

Should the national standards be revised in the future and result in discrepancies with this chapter, the national standards should prevail for all design decisions. A qualified engineer or landscape architect should be consulted for the most up to date and accurate cost estimates.

Nationally recognized bikeway standards such as NACTO, AASHTO, the MUTCD, and IMBA's Trail Solutions along with guidance from the State of Arkansas have all informed the content of this chapter.

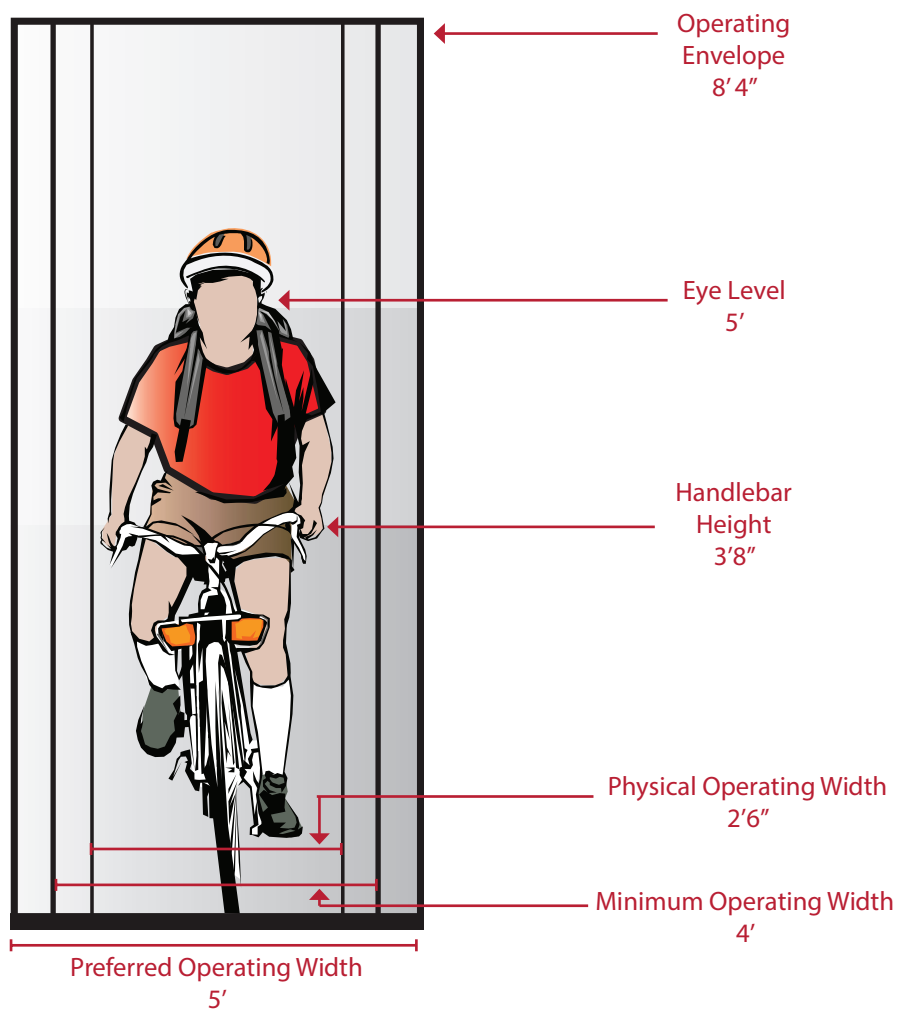
DESIGN NEEDS OF CYCLISTS

The purpose of this section is to provide the facility designer with an understanding of how bicyclists operate and how their bicycle influences that operation. Bicyclists, by nature, are much more affected by poor facility design, construction and maintenance practices than motor vehicle drivers. Bicyclists lack the protection from the elements and roadway hazards provided by an automobile's structure and safety features. By understanding the unique characteristics and needs of bicyclists, a facility designer can provide quality facilities and minimize user risk.

Bicycle as a Design Vehicle

Similar to motor vehicles, bicyclists and their bicycles exist in a variety of sizes and configurations. These variations occur in the types of vehicle (such as a conventional bicycle, a recumbent bicycle or a tricycle), and behavioral characteristics (such as the comfort level of the bicyclist). The design of a bikeway should consider reasonably expected bicycle types on the facility and utilize the appropriate dimensions.

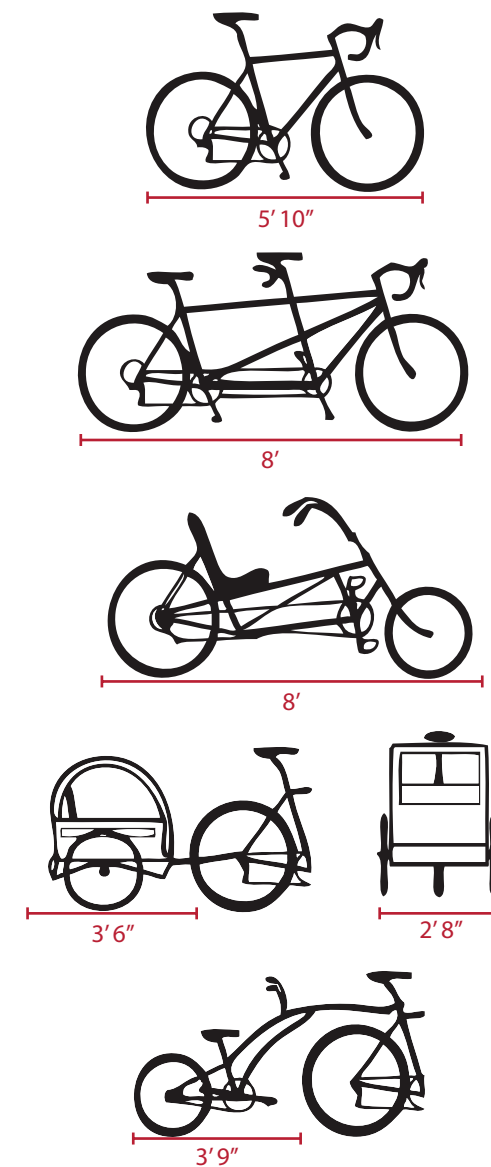
The figure below illustrates the operating space and physical dimensions of a typical adult bicyclist, which are the basis for typical facility design. Bicyclists require clear space to operate within a facility. This is why the minimum operating width is greater than the physical dimensions of the bicyclist. Bicyclists prefer five feet or more operating width, although four feet may be minimally acceptable.



Standard Bicycle Rider Dimensions

Source: AASHTO Guide for the Development of Bicycle Facilities, 3rd Edition

Left: Standard Bicycle Rider Dimensions. Source: AASHTO Guide for the Development of Bicycle Facilities, 3rd Edition



Bicycle as Design Vehicle - Typical Dimensions

Source: AASHTO Guide for the Development of Bicycle Facilities, 3rd Edition *AASHTO does not provide typical dimensions for tricycles.

Design Speed Expectations

The expected speed that different types of bicyclists can maintain under various conditions also influences the design of facilities such as shared use paths. The table to the right provides typical bicyclist speeds for a variety of conditions.

In addition to the design dimensions of a typical bicycle, there are many other commonly used pedal-driven cycles and accessories to consider when planning and designing bicycle facilities. The most common types include tandem bicycles, recumbent bicycles, and trailer accessories. The figure and table below summarize the typical dimensions for bicycle types.

Bicycle as Design Vehicle - Typical Dimensions

Bicycle Type	Feature	Typical Dimensions
Upright Adult Bicyclist	Physical width	2 ft 6 in
	Operating width (Minimum)	4 ft
	Operating width (Preferred)	5 ft
	Physical length	5 ft 10 in
	Physical height of handlebars	3 ft 8 in
	Operating height	8 ft 4 in
	Eye height	5 ft
Recumbent Bicyclist	Vertical clearance to obstructions (tunnel height, lighting, etc)	10 ft
	Approximate center of gravity	2 ft 9 in - 3 ft 4 in
	Physical length	8 ft
Tandem Bicyclist	Eye height	3 ft 10 in
	Physical length	8 ft
Bicyclist with child trailer	Physical length	10 ft
	Physical width	2 ft 8 in

Bicycle as Design Vehicle - Design Speed Expectations

Bicycle Type	Feature	Typical Speed
Upright Adult Bicyclist	Paved level surfacing	15 mph
	Crossing Intersections	10 mph
	Downhill	30 mph
	Uphill	5 -12 mph
Recumbent Bicyclist	Paved level surfacing	18 mph

*NCDOT Bicycle Facilities Planning and Design Guidelines, page 45, chapter "Design Speed", requires a 20 mph design speed. Utilizing a smaller radius may require a wider pavement width.

*Tandem bicycles and bicyclists with trailers have typical speeds equal to or less than upright adult bicyclists.

TRAIL GUIDELINES

Multi-Use Paths

Description:

Shared-use paths can provide a desirable facility, particularly for recreation, and users of all skill levels preferring separation from traffic. Bicycle paths should generally provide directional travel opportunities not provided by existing roadways.

Guidelines:

Width

- 8 feet is the minimum allowed for a two-way bicycle path and is only recommended for low traffic situations.
- 10 feet is recommended in most situations and will be adequate for moderate to heavy use.
- 12 feet is recommended for heavy use situations with high concentrations of multiple users. A separate track (5' minimum) can be provided for pedestrian use.

Lateral Clearance

- A 2 foot or greater shoulder on both sides of the path should be provided. An additional



Left: Breakdown for a typical multi-use path. For the purposes of this study, multi-use paths will typically be 10-12' wide.

Right: Shared-use trails can be made of concrete or asphalt.



foot of lateral clearance (total of 3') is required by the MUTCD for the installation of signage or other furnishings.

- If bollards are used at intersections and access points, they should be colored brightly and/or supplemented with reflective materials to be visible at night.

Overhead Clearance

- Clearance to overhead obstructions should be 8 feet minimum, with 10 feet recommended.

Striping

- When striping is required, use a 4 inch dashed yellow centerline stripe with 4 inch solid white edge lines.
- Solid centerlines can be provided on tight or blind corners, and on the approaches to roadway crossings.

Additional Considerations:

Terminate the path where it is easily accessible to and from the street system, preferably at a controlled intersection or at the beginning of a dead-end street.

Additional References and Guidelines:

AASHTO. (2012). Guide for the Development of Bicycle Facilities.

FHWA. (2009). Manual on Uniform Traffic Control Devices.

Flink, C. (1993). Greenways: A Guide To Planning Design And Development.

Materials and Maintenance:

Asphalt is the most common surface for bicycle paths. The use of concrete for paths has proven to be more durable over the long term. Saw cut concrete joints rather than troweled improve the experience of path users.

Paths in River and Utility Corridors

Description:

Utility and waterway corridors often offer excellent path development and bikeway gap closure opportunities. Utility corridors typically include powerline and sewer corridors, while waterway corridors include canals, drainage ditches, rivers, and beaches. These corridors offer excellent transportation and recreation opportunities for bicyclists of all ages and skills.

Guidelines:

Multi-use paths in utility corridors should meet or exceed general design practices. If additional width allows, wider paths and landscaping are desirable.

Access Points:

Any access point to the path should be well-defined with appropriate signage designating the pathway as a bicycle facility and prohibiting motor vehicles.

Path Closure:

Public access to the path may be prohibited during the following events:

- Canal/flood control channel or other utility maintenance activities
- Inclement weather or the prediction of storm conditions. If bollards are used at intersections and access points, they should be colored brightly and/or supplemented with reflective materials to be visible at night.

Right: Duke Energy/Progee Energy Transmission ROW trail in Mecklenburg County, NC.



Duke Energy/Progress Energy Transmission ROWs:

In 2012, Duke Energy/Progress Energy held a special workshop to address trails in transmission ROWs. A copy of the current Duke Energy Electric Transmission Rights-of-Way Guidelines/Restrictions for North Carolina is available at www.duke-energy.com/safety/right-of-way-management/transmission-restrictions.asp.

A summary of the workshop findings may be obtained from Mecklenburg County (who hosted the workshop): Mecklenburg County Park and Recreation, 5841 Brookshire Boulevard, Charlotte, NC 28216; (704) 432-1570; Gwen.Cook@MecklenburgCountyNC.gov.

Additional Considerations:

Similar to railroads, public access to flood control channels or canals is undesirable by all parties. Hazardous materials, deep water or swift current, steep, slippery slopes, and debris all constitute risks for public access. Appropriate fencing may be required to keep path users within the designated travel way. Creative design of fencing is encouraged to make the path facility feel welcoming to the user.

Additional References and Guidelines:

AASHTO. (2012). Guide for the Development of Bicycle Facilities.

FHWA. (2009). Manual on Uniform Traffic Control Devices.

Flink, C. (1993). Greenways: A Guide To Planning Design And Development.

Materials and Maintenance:

Asphalt is the most common surface for bicycle paths. The use of concrete for paths has proven to be more durable over the long term. Saw cut concrete joints rather than troweled improve the experience of path users.



Paths in Abandoned Rail Corridors

Description:

Commonly referred to as Rails-to-Trails or Rail-Trails, these projects convert vacated rail corridors into off-street paths. Rail corridors offer several advantages, including relatively direct routes between major destinations and generally flat terrain.

In some cases, rail owners may rail-bank their corridors as an alternative to a complete abandonment of the line, thus preserving the rail corridor for possible future use.

The railroad may form an agreement with any person, public or private, who would like to use the banked rail line as a trail or linear park until it is again needed for rail use. Municipalities should acquire abandoned rail rights-of-way whenever possible to preserve the opportunity for trail development.

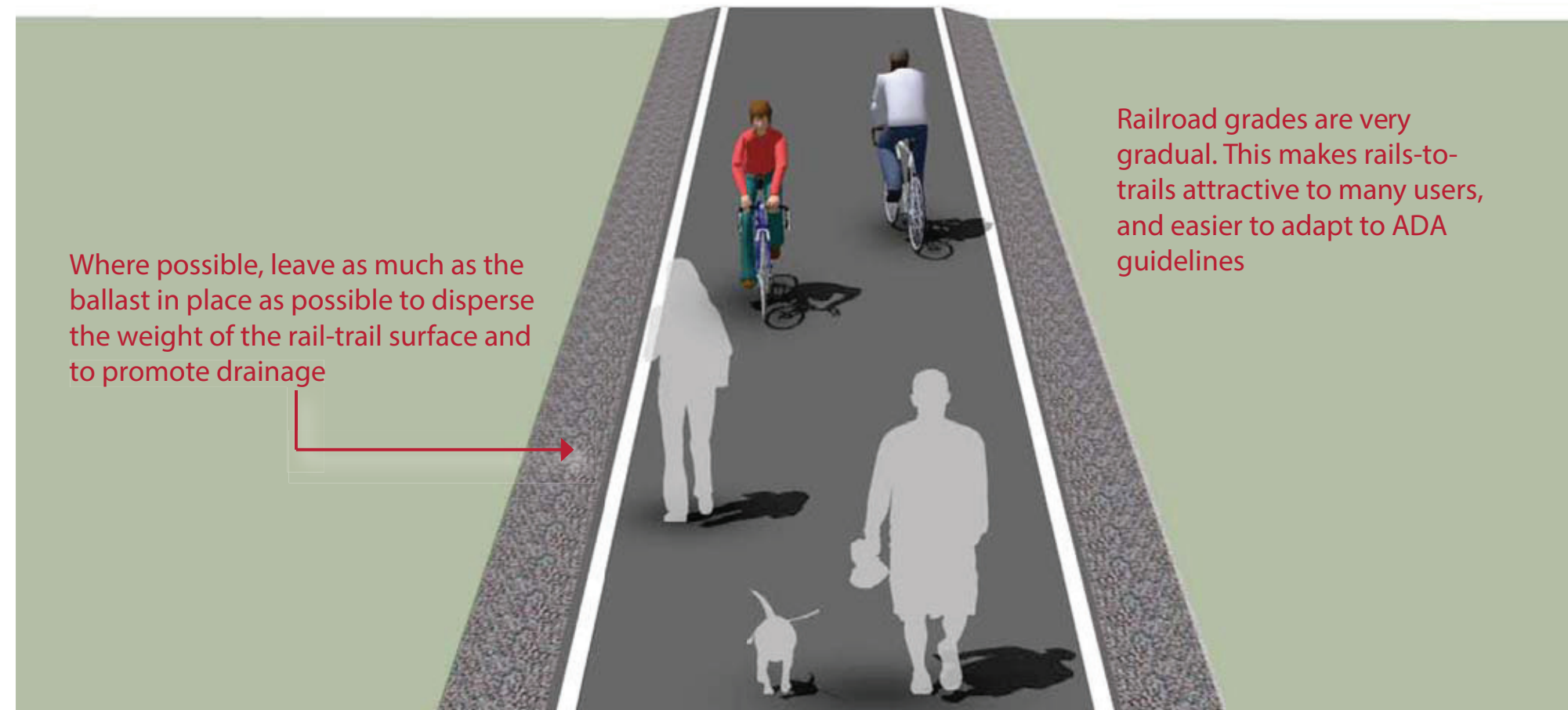
Guidelines:

Multi-use paths in abandoned rail corridors should meet or exceed general design practices. If additional width allows, wider paths, and landscaping are desirable.

In full conversions of abandoned rail corridors, the sub-base, superstructure, drainage, bridges, and crossings are already established. Design becomes a matter of working with the existing infrastructure to meet the needs of a rail-trail.

If converting a rail bed adjacent to an active rail line, see Paths in Existing Active Rail Corridors.

Right: Abandoned rail corridors are a perfect opportunity to re-use this infrastructure for purposes of active transportation.



Additional Considerations:

It is often impractical and costly to add material to existing railroad bed fill slopes. This results in trails that meet minimum path widths, but often lack preferred shoulder and lateral clearance widths.

Rail-to-trails can involve many challenges including the acquisition of the right of way, cleanup and removal of toxic substances, and rehabilitation of tunnels, trestles and culverts. A structural engineer should evaluate existing railroad bridges for structural integrity to ensure they are capable of carrying the appropriate design loads.

Additional References and Guidelines:

AASHTO. (2012). Guide for the Development of Bicycle Facilities.

FHWA. (2009). Manual on Uniform Traffic Control Devices.

FHWA. (2002). Rails-with-Trails: Lessons Learned.

Materials and Maintenance:

Asphalt is the most common surface for bicycle paths. The use of concrete for paths has proven to be more durable over the long term. Saw cut concrete joints rather than troweled improve the experience of path users.

Paths in Existing Active Rail Corridors

Description:

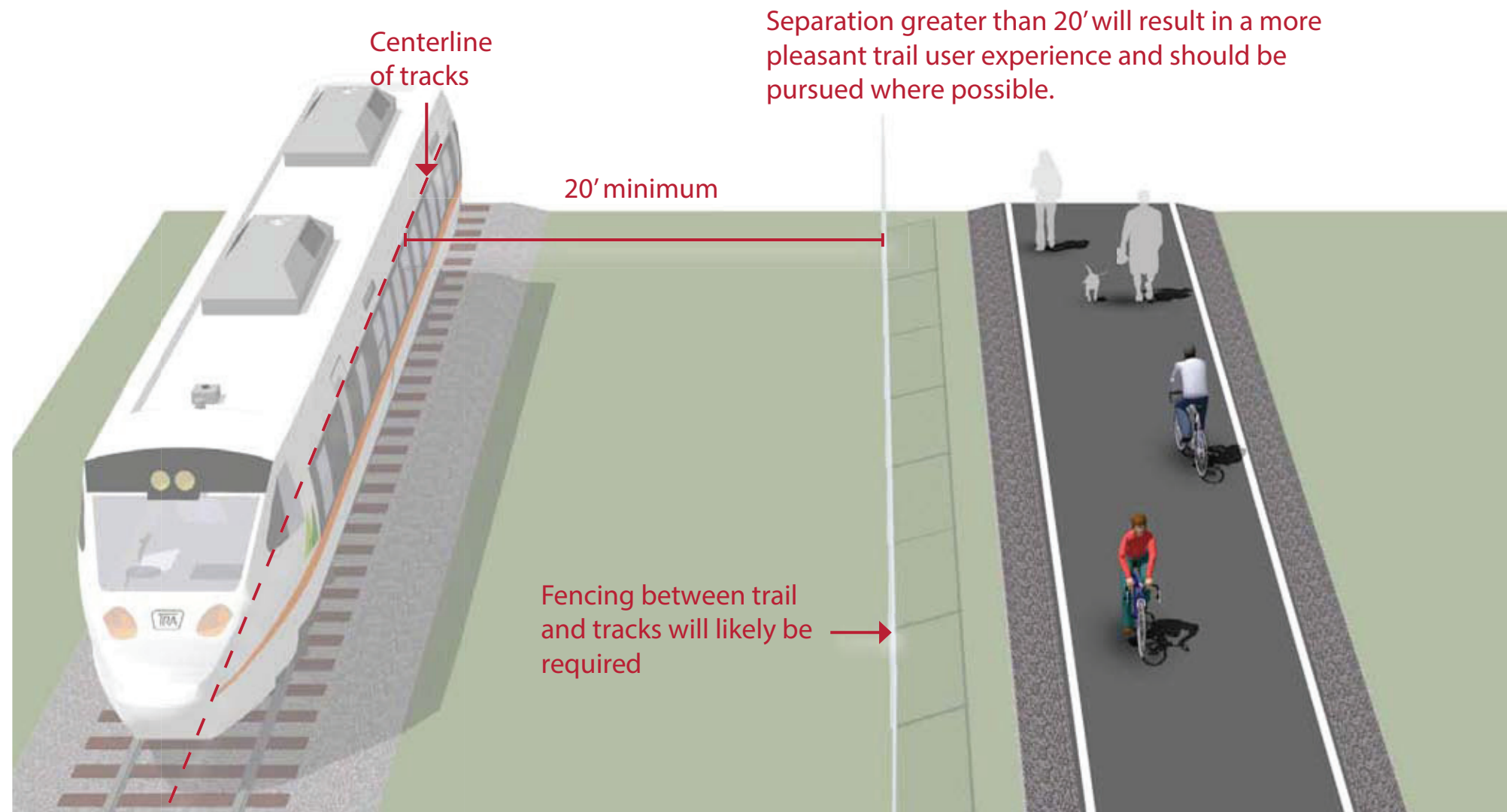
Rails-with-Trails projects typically consist of paths adjacent to active railroads. It should be noted that some constraints could impact the feasibility of rail-with-trail projects. In some cases, space needs to be preserved for future planned freight, transit or commuter rail service. In other cases, limited right-of-way width, inadequate setbacks, concerns about safety/trespassing, and numerous mid-block crossings may affect a project's feasibility.

Guidelines:

Multi-use paths in utility corridors should meet or exceed General Design Practices. If additional width allows, wider paths, and landscaping are desirable.

If required, fencing should be a minimum of 5 feet in height with higher fencing usual next to sensitive areas such as switching yards. Setbacks from the active rail line will vary depending on the speed and frequency of trains, and available right-of-way.

Right: Typically, land adjacent to existing active rail corridors is not developable, so this is another opportunity for trail development



Additional Considerations:

Railroads typically require fencing with all rail-with-trail projects. Concerns with trespassing and security can vary with the amount of train traffic on the adjacent rail line and the setting of the bicycle path, i.e. whether the section of track is in an urban or rural setting.

Additional References and Guidelines:

- AASHTO. (2012). Guide for the Development of Bicycle Facilities.
- FHWA. (2009). Manual on Uniform Traffic Control Devices.
- FHWA. (2002). Rails-with-Trails: Lessons Learned.

Materials and Maintenance:

Asphalt is the most common surface for bicycle paths. The use of concrete for paths has proven to be more durable over the long term. Saw cut concrete joints rather than troweled improve the experience of path users.

Shared Use Path Along Roadway

Description:

A shared use path allows for two-way, off-street bicycle use and also may be used by pedestrians, skaters, wheelchair users, joggers and other non-motorized users. These facilities are frequently found in parks, along rivers, beaches, and in greenbelts or utility corridors where there are few conflicts with motorized vehicles.

Along roadways, these facilities create a situation where a portion of the bicycle traffic rides against the normal flow of motor vehicle traffic and can result in wrong-way riding where bicyclists enter or leave the path.

The AASHTO Guide for the Development of Bicycle Facilities generally recommends against the development of shared-use paths directly adjacent to roadways.

Guidelines:

- 8 feet is the minimum allowed for a two-way bicycle path and is only recommended for low traffic situations or under certain design constraints.
- 10 feet is recommended in most situations and will be adequate for moderate to heavy use.
- 12 feet is recommended for heavy use situations with high concentrations of multiple users such as joggers, bicyclists, rollerbladers and pedestrians. A separate track (5' minimum) can be provided for pedestrian use.
- Bicycle lanes should be provided as an alternate (more transportation-oriented) facility whenever possible.

Additional Considerations:

When designing a bikeway network, the presence of a nearby or parallel path should not be used as a reason to not provide adequate shoulder or bicycle lane width on the roadway, as the on-street bicycle facility will generally be superior to the "sidepath" for experienced bicyclists and those who are cycling for transportation purposes.

Additional References and Guidelines:

AASHTO. (2012). Guide for the Development of Bicycle Facilities.

FHWA. (2009). Manual on Uniform Traffic Control Devices.

FHWA. (2002). Rails-with-Trails: Lessons Learned.

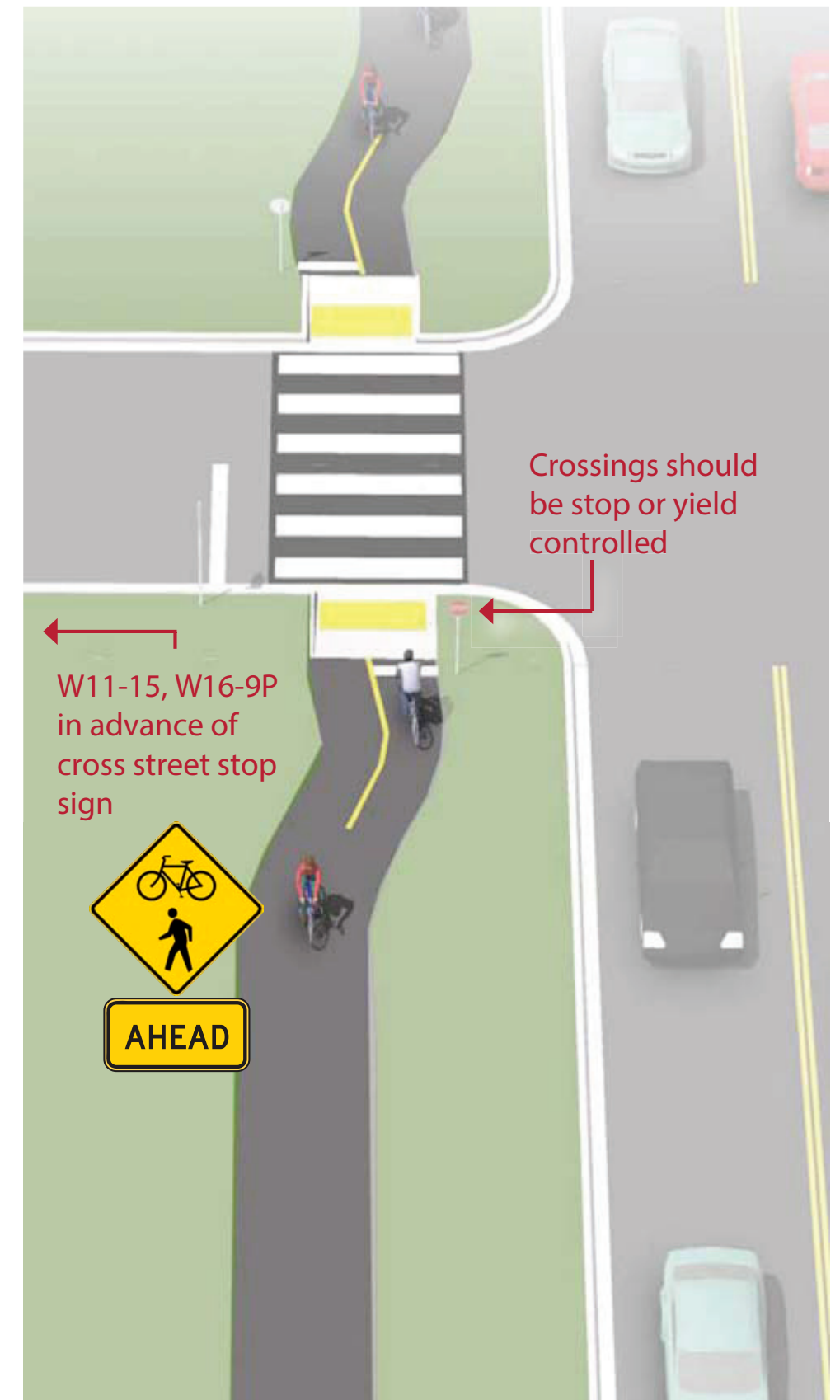
Materials and Maintenance:

Asphalt is the most common surface for bicycle paths. The use of concrete for paths has proven to be more durable over the long term. Saw cut concrete joints rather than troweled improve the experience of path users.



Right: Generally, trail designers would like to avoid this type of situation and give trail users an offroad experience, but sometimes connections can only be made along roadways. Some type of buffer between the two uses can have a positive effect for trail users.

Pay special attention to the entrance/exit of the path as bicyclist may continue to travel on the wrong side of the street.



Boardwalks

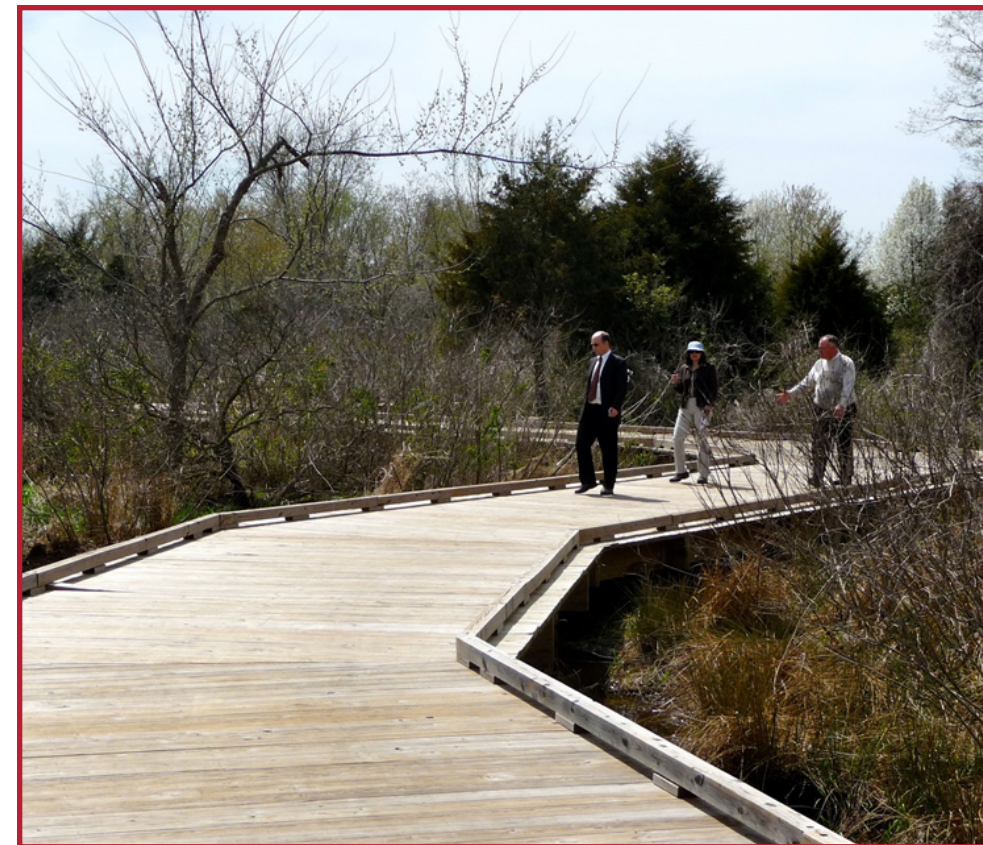
Description:

Boardwalks are typically required when crossing wetlands or other poorly drained areas. They are usually constructed of wooden planks or recycled material planks that form the top layer of the boardwalk. The recycled material has gained popularity in recent years since it lasts much longer than wood, especially in wet conditions. A number of low-impact support systems are also available that reduce the disturbance within wetland areas to the greatest extent possible.

Guidelines:

- Boardwalk width should be a minimum of 10 feet when no rail is used. A 12 foot width is preferred in areas with average anticipated use and whenever rails are used.
- When the height of a boardwalk exceeds 30", railings are required.
- If access by vehicles is desired, boardwalks should be designed to structurally support the weight of a small truck or a light-weight vehicle.

Right: Boardwalks offer the unique opportunity for trail users to interact with sensitive ecosystems, like meadows and wetlands.



Additional Considerations:

In general, building in wetlands is subject to regulations and should be avoided.

The foundation normally consists of wooden posts or auger piers (screw anchors). Screw anchors provide greater support and last much longer.

Additional References and Guidelines:

AASHTO. (2012). Guide for the Development of Bicycle Facilities.

FHWA. (2001). Wetland Trail Design and Construction.

Materials and Maintenance:

Decking should be either non-toxic treated wood or recycled plastic. Cable rails are attractive and more visually transparent but may require maintenance to tighten the cables if the trail has snow storage requirements.

Trail Bridges

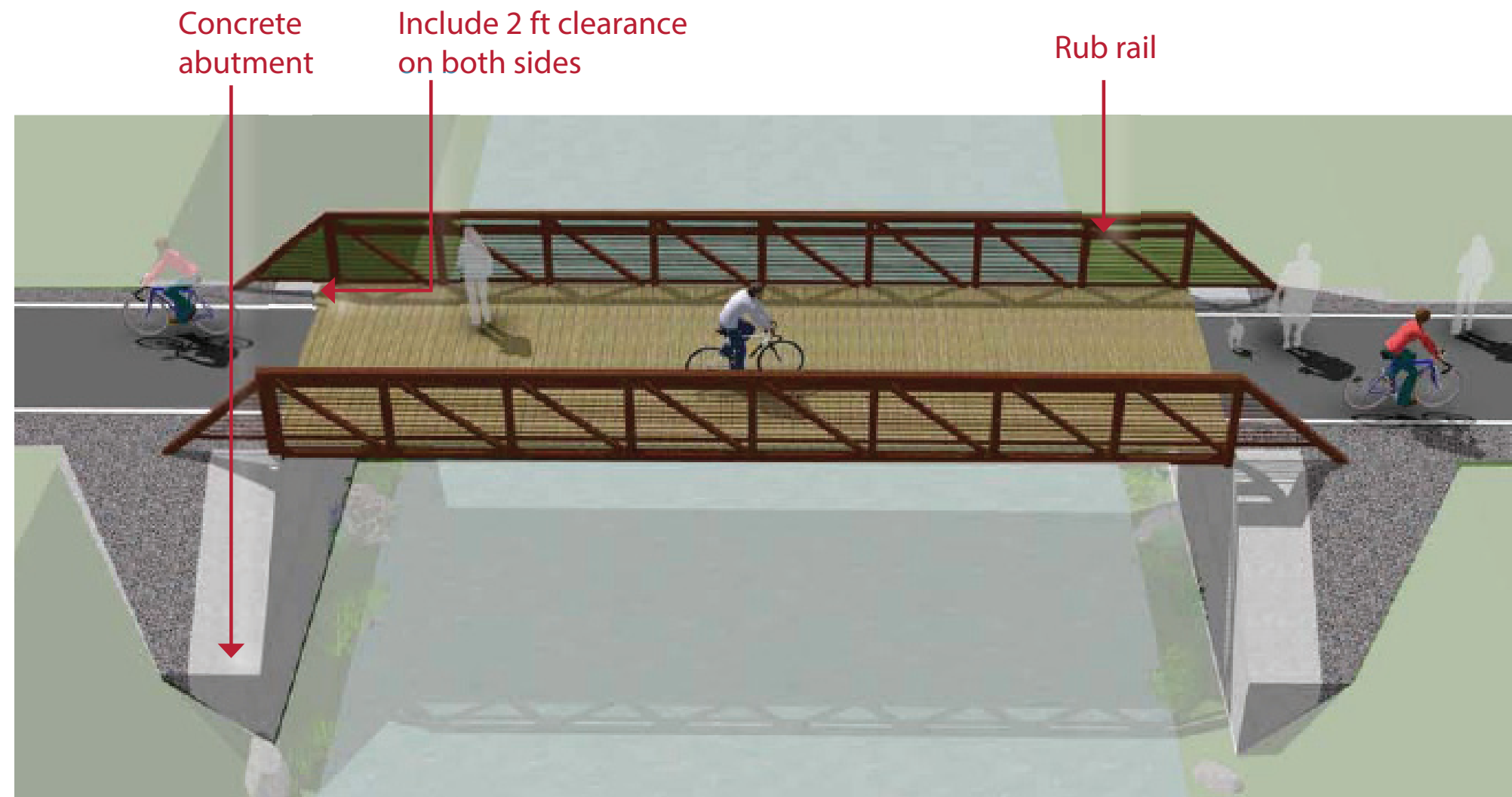
Description:

Multi-Use Trail bridges (also “bicycle/pedestrian bridges” or “footbridges”) are most often used to provide trail access over natural features such as streams and rivers, where a culvert is not an option. The type and size of bridges can vary widely depending on the trail type and specific site requirements. Some bridges often used for multi-use trails include suspension bridges, prefabricated span bridges and simple log bridges. When determining a bridge design for multi-use trails, it is important to consider emergency and maintenance vehicle access.

Guidelines:

- The clear width of the bridge should allow for 2 ft of clearance on each end of the pathway.
- Bridge deck height should match that of the path surface to provide a smooth transition.
- Bicycle and shared-use paths should include a 54” guard rail where hazardous conditions exist.
- A minimum vertical clearance of 10 ft is desirable for motor vehicle access. Minimum height is 42 inches.
- Maximum opening between railing posts is 6 inches.
- A trail bridge should support 6.25 tons if motor vehicle access is permitted. (AASHTO 2002)

Right: Trail bridges can define the character of a trail or greenway system in terms of aesthetics, functionality, and safety.



Additional Considerations:

If a corridor already contains a bridge such as an abandoned rail bridge, an engineer should be consulted to assess the structural integrity before deciding to remove or reuse it.

All abutment design should be sealed by a qualified structural engineer and all relevant permits should be filed.

Additional References and Guidelines:

- AASHTO. (2012). Guide for the Development of Bicycle Facilities.
- AASHTO. (2012). Bridge Design Specifications.
- AASHTO. (2009). Guide Specifications for Design of Pedestrian Bridges.
- AASHTO. (2002). Standard Specifications for Highway Bridges.

Materials and Maintenance:

High quality prefabricated pedestrian bridges available.

PATH/ROADWAY CROSSINGS

Marked/Unsignalized Crossings

Description:

A marked/unsignalized crossing typically consists of a marked crossing area, signage and other markings to slow or stop traffic. The approach to designing crossings at mid-block locations depends on an evaluation of vehicular traffic, line of sight, pathway traffic, use patterns, vehicle speed, road type, road width, and other safety issues such as proximity to major attractions.

When space is available, using a median refuge island can improve user safety by providing pedestrians and bicyclists space to perform the safe crossing of one side of the street at a time.

Guidelines:

Maximum traffic volumes

- ≤9,000-12,000 Average Daily Traffic (ADT) volume
- Up to 15,000 ADT on two-lane roads, preferably with a median
- Up to 12,000 ADT on four-lane roads with median

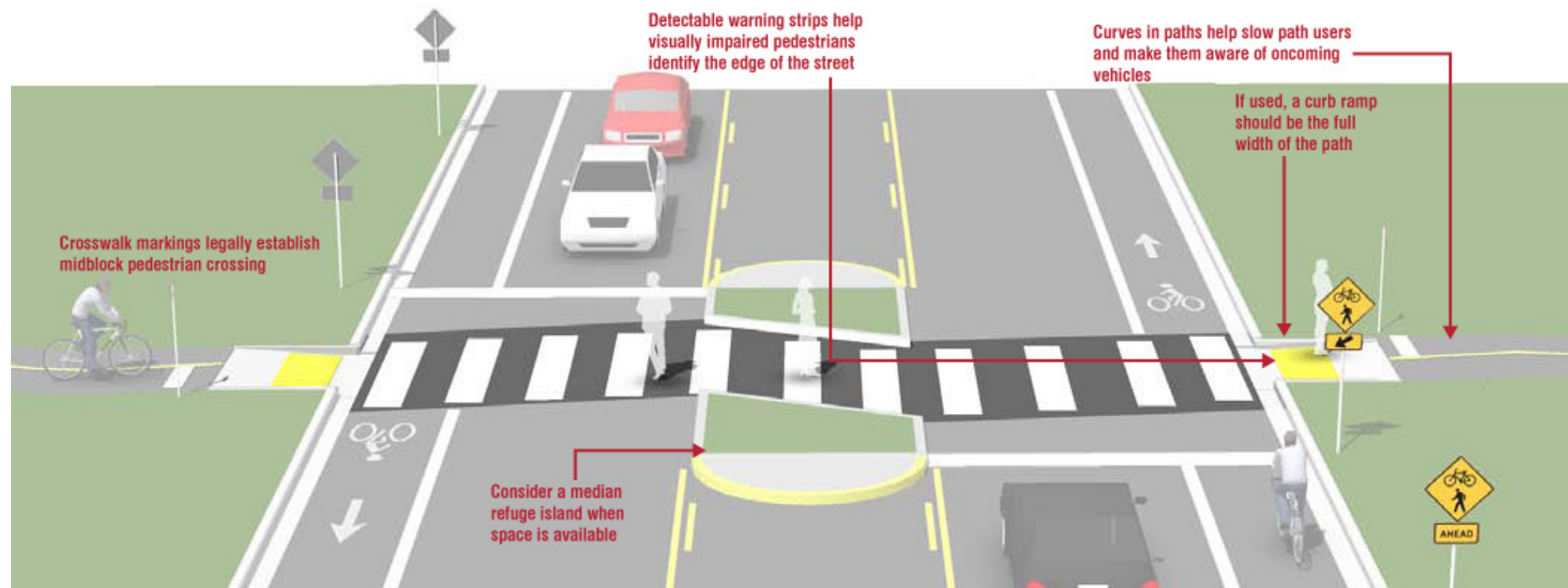
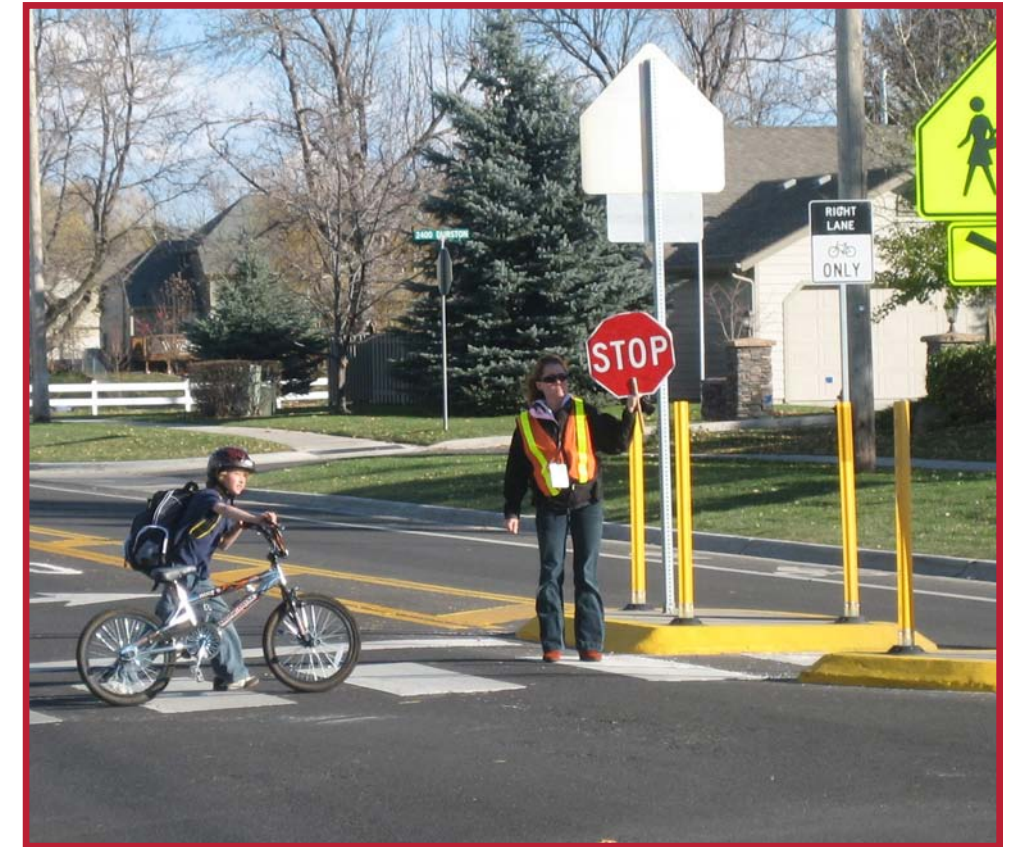
Maximum travel speed

- 35 MPH

Minimum line of sight

- 25 MPH zone: 155 feet
- 35 MPH zone: 250 feet
- 45 MPH zone: 360 feet

Right: Crosswalks tend to be the same width as the trail. Although sometimes, crosswalks are best when they are wider than the bikeway to further enforce the visibility of the crosswalk.



Additional Considerations:

Unsignalized crossings of multi-lane arterials over 15,000 ADT may be possible with features such as sufficient crossing gaps (more than 60 per hour), median refuges, and/or active warning devices like rectangular rapid flash beacons or in-pavement flashers, and excellent sight distance. For more information see the discussion of active warning beacons.

On roadways with low to moderate traffic volumes (<12,000 ADT) and a need to control traffic speeds, a raised crosswalk may be the most appropriate crossing design to improve pedestrian visibility and safety.

Additional References and Guidelines:

- AASHTO. (2012). Guide for the Development of Bicycle Facilities.
- FHWA. (2009). Manual on Uniform Traffic Control Devices.

Materials and Maintenance:

Locate markings out of wheel tread when possible to minimize wear and maintenance costs.

Undercrossings

Description:

Bicycle/pedestrian undercrossings provide critical non-motorized system links by joining areas separated by barriers such as railroads and highway corridors. In most cases, these structures are built in response to user demand for safe crossings where they previously did not exist.

There are no minimum roadway characteristics for considering grade separation. Depending on the type of facility or the desired user group grade separation may be considered in many types of projects.

Guidelines:

- 14 foot minimum width, greater widths preferred for lengths over 60 feet.
- 10 foot minimum height.
- The undercrossing should have a centerline stripe even if the rest of the path does not have one.
- Lighting should be considered during the design process for any undercrossing with high anticipated use or in culverts and tunnels.



Right: Undercrossings are the safest crossing, and can be the most decorative



Additional Considerations:

Safety is a major concern with undercrossings. Shared-use path users may be temporarily out of sight from public view and may experience poor visibility themselves. To mitigate safety concerns, an undercrossing should be designed to be spacious, well-lit, equipped with emergency cell phones at each end and completely visible for its entire length from end to end.

Additional References and Guidelines:

AASHTO. (2012). Guide for the Development of Bicycle Facilities.

AASHTO. (2004). Guide for the Planning, Design, and Operation of Pedestrian Facilities.

Materials and Maintenance:

14 foot width allows for maintenance vehicle access.

Potential problems include conflicts with utilities, drainage, flood control and vandalism.

CROSSING BEACONS AND SIGNALS

Active Warning Beacons

Description:

Enhanced marked crossings are unsignalized crossings with additional treatments designed to increase motor vehicle yielding compliance on multi-lane or high volume roadways.

These enhancements include pathway user or sensor actuated warning beacons, Rectangular Rapid Flash Beacons (RRFB) shown below, or in-roadway warning lights.

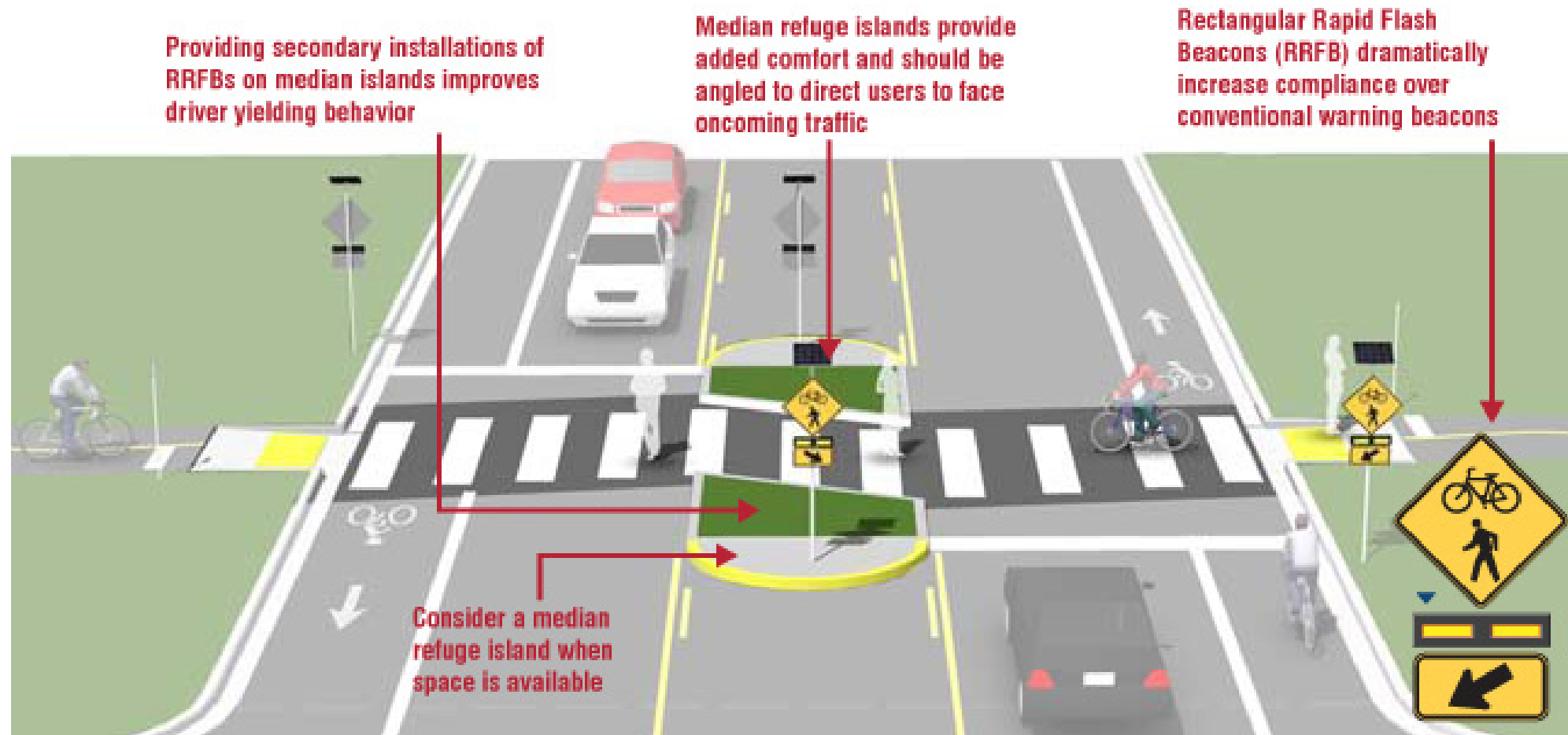
Rectangular rapid flash beacons show the most increased compliance of all the warning beacon enhancement options.

Guidelines:

Guidance for marked/unsignalized crossings applies.

- Warning beacons shall not be used at crosswalks controlled by YIELD signs, STOP signs, or traffic control signals.
- Warning beacons shall initiate operation based on user actuation and shall cease operation at a predetermined time after the user actuation or, with passive detection, after the user clears the crosswalk.

Right: This is an excellent crossing for lower traffic volumes roads



Additional Considerations:

An FHWA report presented study results showing the effectiveness of going from a no-beacon arrangement to a two-beacon RRFB installation increased yielding from 18 percent to 81 percent. A four-beacon arrangement raised compliance to 88%. Additional studies of long term installations show little to no decrease in yielding behavior over time. Additional studies in Oregon reported compliance rates as high as 99% when actuated.

Additional References and Guidelines:

- FHWA. (2009). Manual on Uniform Traffic Control Devices.
- FHWA. (2008). MUTCD - Interim Approval for Optional Use of Rectangular Rapid Flashing Beacons (IA-11).
- FHWA. (2010). Effects of Yellow Rectangular Rapid-Flashing Beacons on Yielding at Multilane Uncontrolled Crosswalks.
- Alhajri, F., Cariso, K., Foster, N., Georde, D. (2013). A Study on Driver's Compliance to Rectangular Rapid Flashing Beacons.

Materials and Maintenance:

Locate markings out of wheel tread when possible to minimize wear and maintenance costs. Signing and striping need to be maintained to help users understand any unfamiliar traffic control.

Route Users to Signalized Crossing

Description:

Path crossings within approximately 400 feet of an existing signalized intersection with pedestrian crosswalks are typically diverted to the signalized intersection to avoid traffic operation problems when located so close to an existing signal. For this restriction to be effective, barriers and signing may be needed to direct path users to the signalized crossing. If no pedestrian crossing exists at the signal, modifications should be made.

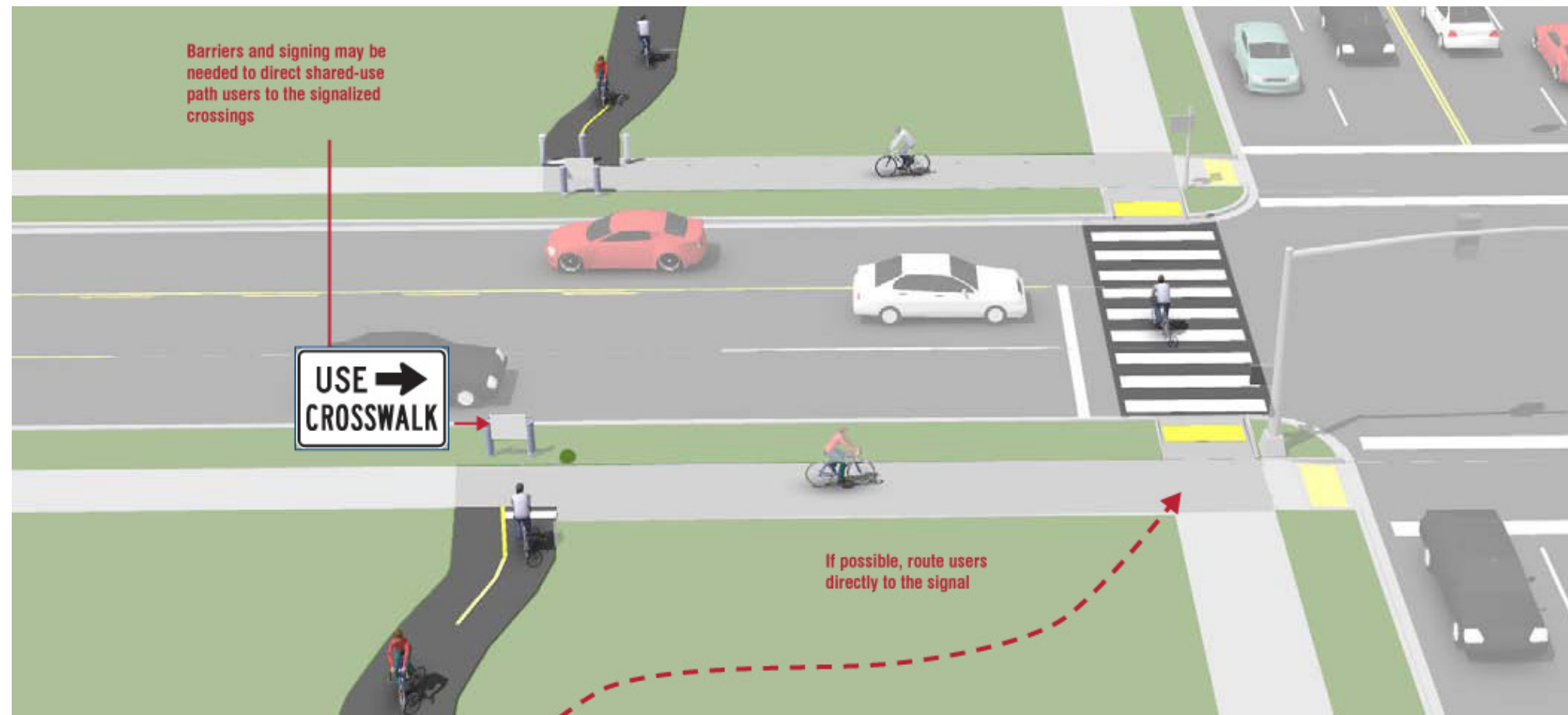
Guidelines:

- Path crossings should not be provided within approximately 400 feet of an existing signalized intersection. If possible, route path directly to the signal.

Additional Considerations:

In the US, the minimum distance a marked crossing can be from an existing signalized intersection varies from approximately 250 to 660 feet. Engineering judgment and the context of the location should be taken into account when choosing the appropriate allowable setback. Pedestrians are particularly sensitive to out of direction travel and jaywalking may become prevalent if the distance is too great.

Right: Routing trail users to signalized crossings will be a viable option for areas where trail facilities interact with existing infrastructure to allow for pedestrian/cycling traffic to cross.



Additional References and Guidelines:

AASHTO. (2012). *Guide for the Development of Bicycle Facilities*.

AASHTO. (2004). *Guide for the Planning, Design, and Operation of Pedestrian Facilities*.

Materials and Maintenance:

If a sidewalk is used for crossing access, it should be kept clear of snow and debris and the surface should be level for wheeled users.

Full Traffic Signals Crossings

Description:

Signalized crossings provide the most protection for crossing path users through the use of a red-signal indication to stop conflicting motor vehicle traffic.

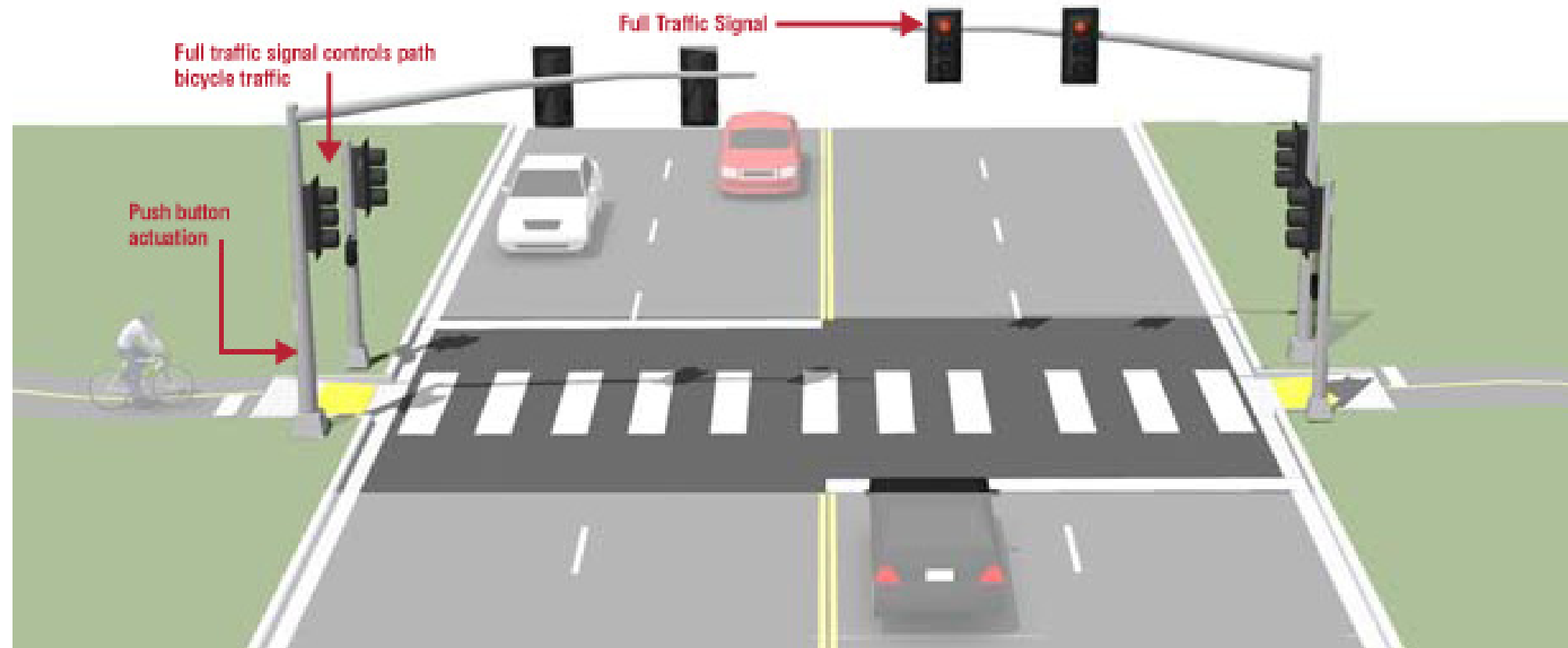
A full traffic signal installation treats the path crossing as a conventional 4-way intersection and provides standard red-yellow-green traffic signal heads for all legs of the intersection.

Guidelines:

Full traffic signal installations must meet MUTCD pedestrian, school or modified warrants. Additional guidance for signalized crossings:

- Located more than 300 feet from an existing signalized intersection
- Roadway travel speeds of 40 MPH and above
- Roadway ADT exceeds 15,000 vehicles

Right: Full traffic signals will force vehicular traffic to completely stop. This will be important to use in high-density urban areas, like Downtown Little Rock.



Additional Considerations:

Shared-use path signals are normally activated by push buttons but may also be triggered by embedded loop, infrared, microwave or video detectors. The maximum delay for activation of the signal should be two minutes, with minimum crossing times determined by the width of the street.

Each crossing, regardless of traffic speed or volume, requires additional review by a registered engineer to identify sight lines, potential impacts on traffic progression, timing with adjacent signals, capacity and safety.

Additional References and Guidelines:

- FHWA. (2009). *Manual on Uniform Traffic Control Devices*.
- NACTO. (2012). *Urban Bikeway Design Guide*.

Materials and Maintenance:

Traffic signals require routine maintenance. Signing and striping need to be maintained to help users understand any unfamiliar traffic control.

Signalized/Controlled Crossings

Description:

Signalized crossings provide the most protection for crossing path users through the use of a red-signal indication to stop conflicting motor vehicle traffic. The two types of path signalization are full traffic signal control and hybrid signals.

A full traffic signal installation treats the path crossing as a conventional 4-way intersection and provides standard red-yellow-green traffic signal heads for all legs of the intersection.

Hybrid beacon installation (shown below) faces only cross motor vehicle traffic, stays dark when inactive, and uses a unique 'wig-wag' signal phase to indicate activation. Vehicles have the option to proceed after stopping during the final flashing red phase, which can reduce motor vehicle delay when compared to a full signal installation.

Guidelines:

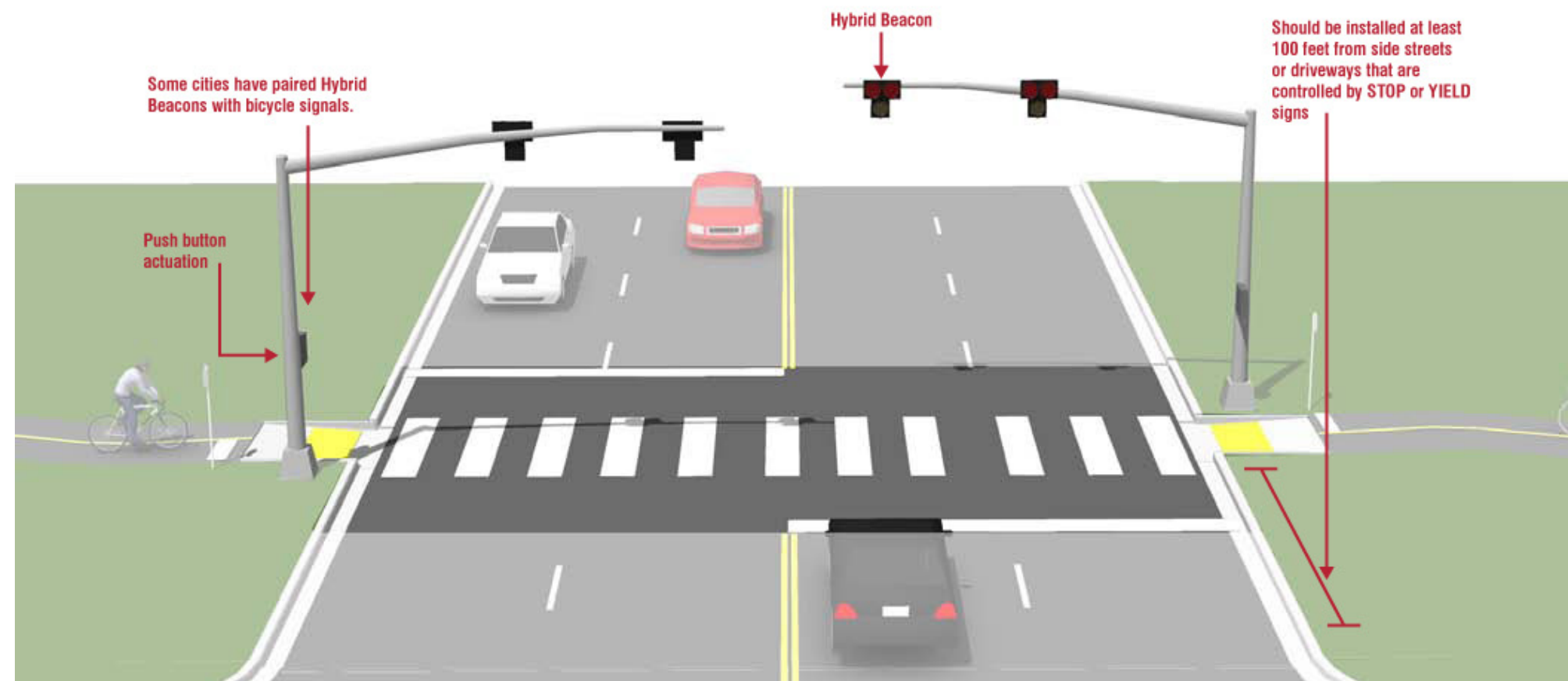
Hybrid beacons (illustrated here) may be installed without meeting traffic signal control warrants if roadway speed and volumes are excessive for comfortable path crossings.

Full traffic signal installations must meet MUTCD pedestrian, school or modified warrants.

Additional guidance for signalized crossings:

- Located more than 300 feet from an existing signalized intersection
- Roadway travel speeds of 40 MPH and above
- Roadway ADT exceeds 15,000 vehicles

Right: Signalized/controlled crossings slow traffic down in order to yield to pedestrian/cycling traffic. Traffic is still free to flow, but will yield to people.



Additional Considerations:

In the US, the minimum distance a marked crossing can be from an existing signalized intersection varies from approximately 250 to 660 feet. Engineering judgment and the context of the location should be taken into account when choosing the appropriate allowable setback. Pedestrians are particularly sensitive to out of direction travel and jaywalking may become prevalent if the distance is too great.

Additional References and Guidelines:

AASHTO. (2012). *Guide for the Development of Bicycle Facilities*.

AASHTO. (2004). *Guide for the Planning, Design, and Operation of Pedestrian Facilities*.

Materials and Maintenance:

If a sidewalk is used for crossing access, it should be kept clear of snow and debris and the surface should be level for wheeled users.

SHARED ROADWAYS

Signed Shared Roadway

Description:

Signed Shared Roadways are facilities shared with motor vehicles. They are typically used on roads with low speeds and traffic volumes, however can be used on higher volume roads with wide outside lanes or shoulders. A motor vehicle driver will usually have to cross over into the adjacent travel lane to pass a bicyclist, unless a wide outside lane or shoulder is provided.

Guidelines:

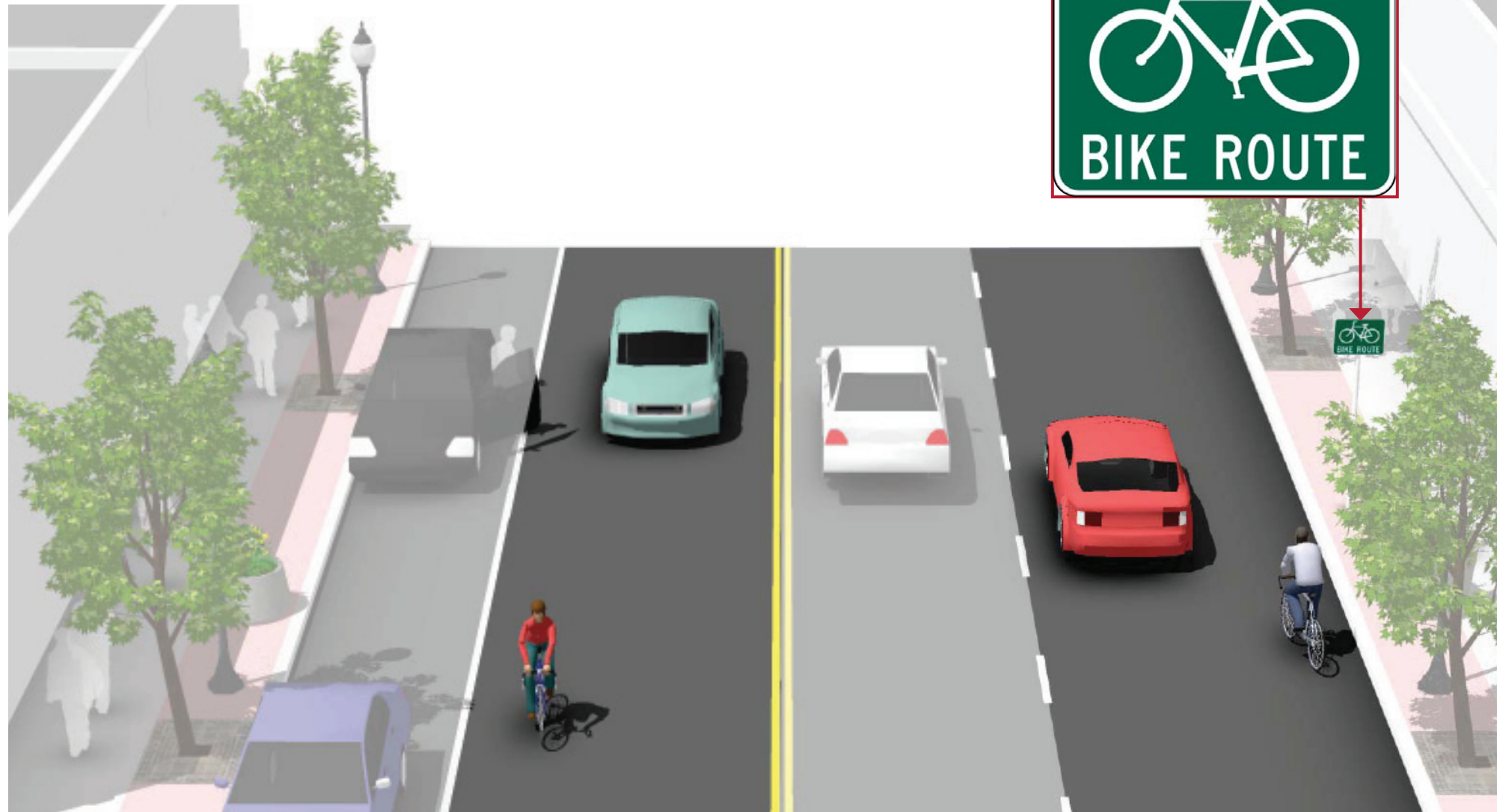
Lane width varies depending on roadway configuration.

Bicycle Route signage (D11-1) should be applied at intervals frequent enough to keep bicyclists informed of changes in route direction and to remind motorists of the presence of bicyclists. Commonly, this includes placement at:

- Beginning or end of Bicycle Route.
- At major changes in direction or at intersections with other bicycle routes.
- At intervals along bicycle routes not to exceed ½ mile.

Right: Typically, would like to see these bikeways signed and marked, but residential areas are perfect spots for including signed shared roadways.

MUTCD D11-1



Additional Considerations:

Signed Shared Roadways serve either to provide continuity with other bicycle facilities (usually bike lanes) or to designate preferred routes through high-demand corridors.

This configuration differs from a Bicycle Boulevard due to a lack of traffic calming, wayfinding, pavement markings and other enhancements designed to provide a higher level of comfort for a broad spectrum of users.

Additional References and Guidelines:

AASHTO. (2012). Guide for the Development of Bicycle Facilities.

FHWA. (2009). Manual on Uniform Traffic Control Devices.

NCDOT. (1994). North Carolina Bicycle Facilities Planning and Design Guidelines.

Materials and Maintenance:

Maintenance needs for bicycle wayfinding signs are similar to other signs, and will need periodic replacement due to wear.

Marked Shared Road

Description:

A marked shared roadway is a general purpose travel lane marked with shared lane markings (SLM) used to encourage bicycle travel and proper positioning within the lane.

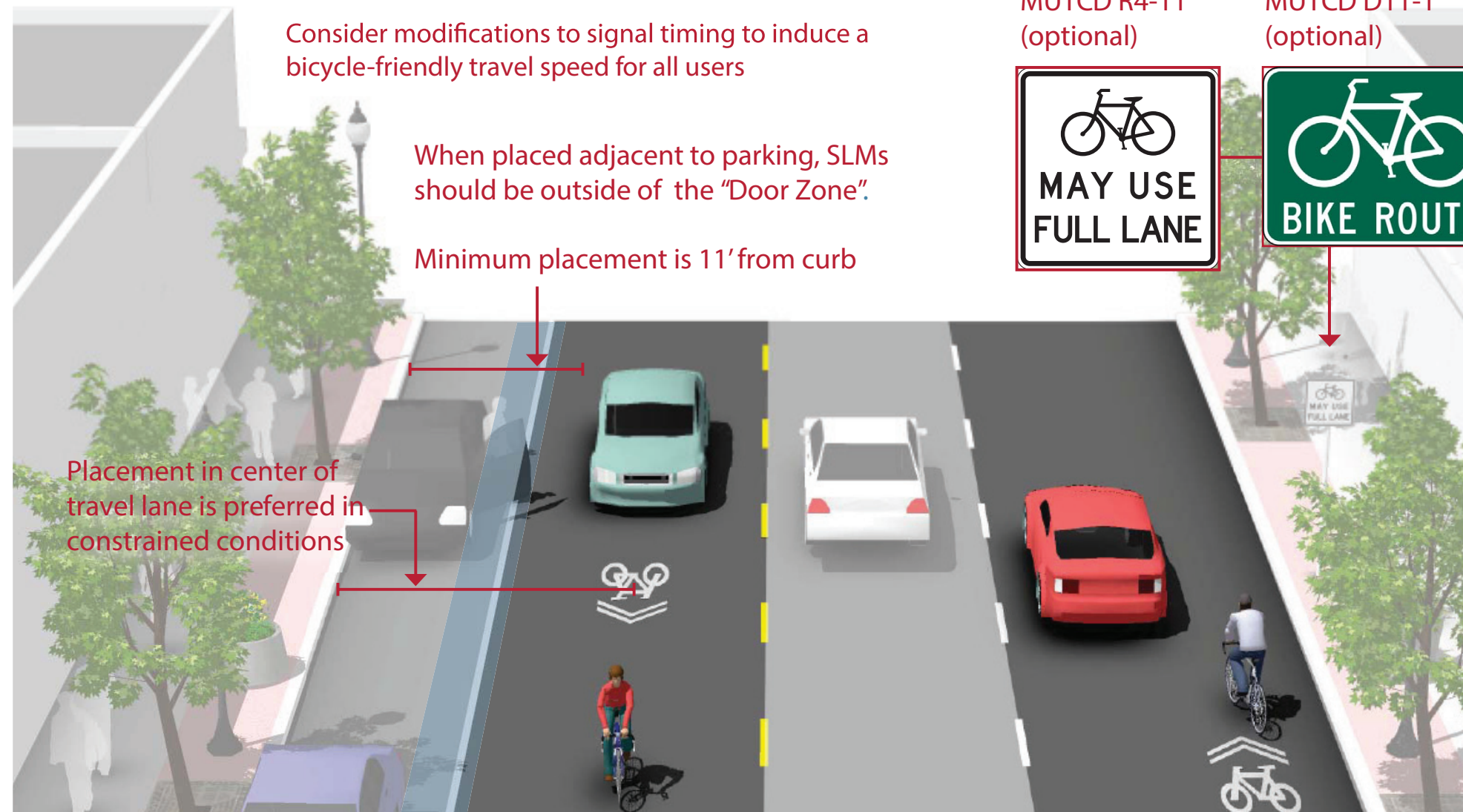
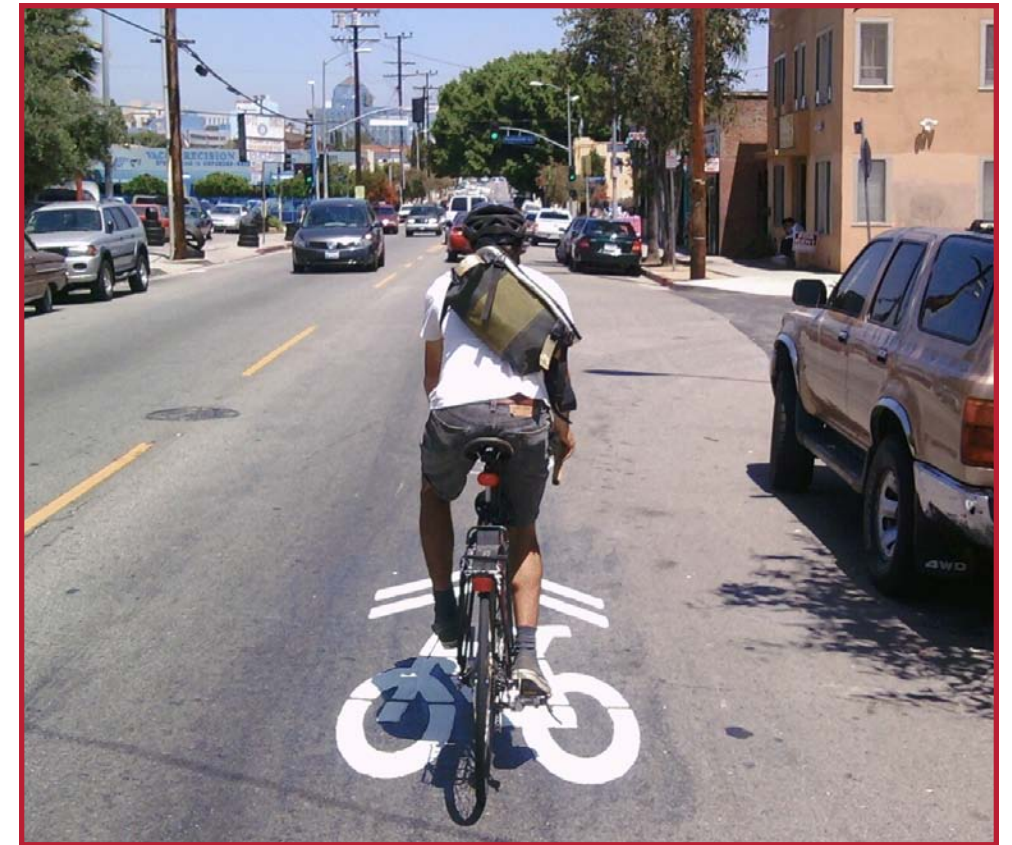
In constrained conditions, the SLMs are placed in the middle of the lane to discourage unsafe passing by motor vehicles. On a wide outside lane, the SLMs can be used to promote bicycle travel to the right of motor vehicles.

In all conditions, SLMs should be placed outside of the door zone of parked cars.

Guidelines:

- In constrained conditions, preferred placement is in the center of the travel lane to minimize wear and promote single file travel.
- Minimum placement of SLM marking centerline is 11 feet from edge of curb where on-street parking is present, 4 feet from edge of curb with no parking. If parking lane is wider than 7.5 feet, the SLM should be moved further out accordingly.

Right: Plausible solution for areas where the existing infrastructure dictates ability to add bicycle facilities, but a bikeway connection is needed.



Additional Considerations:

Bike Lanes should be considered on roadways with outside travel lanes wider than 15 feet, or where other lane narrowing or removal strategies may provide adequate road space. SLMs shall not be used on shoulders, in designated Bike Lanes, or to designate Bicycle Detection at signalized intersections. (MUTCD 9C.07)

This configuration differs from a Bicycle Boulevard due to a lack of traffic calming, wayfinding, and other enhancements designed to provide a higher level of comfort for a broad spectrum of users.

Additional References and Guidelines:

- AASHTO. (2012). Guide for the Development of Bicycle Facilities.
- FHWA. (2009). Manual on Uniform Traffic Control Devices.
- NACTO. (2012). Urban Bikeway Design Guide.

Materials and Maintenance:

Placing SLMs between vehicle tire tracks will increase the life of the markings and minimize the long-term cost of the treatment.

Buffered Bike Lane

Description:

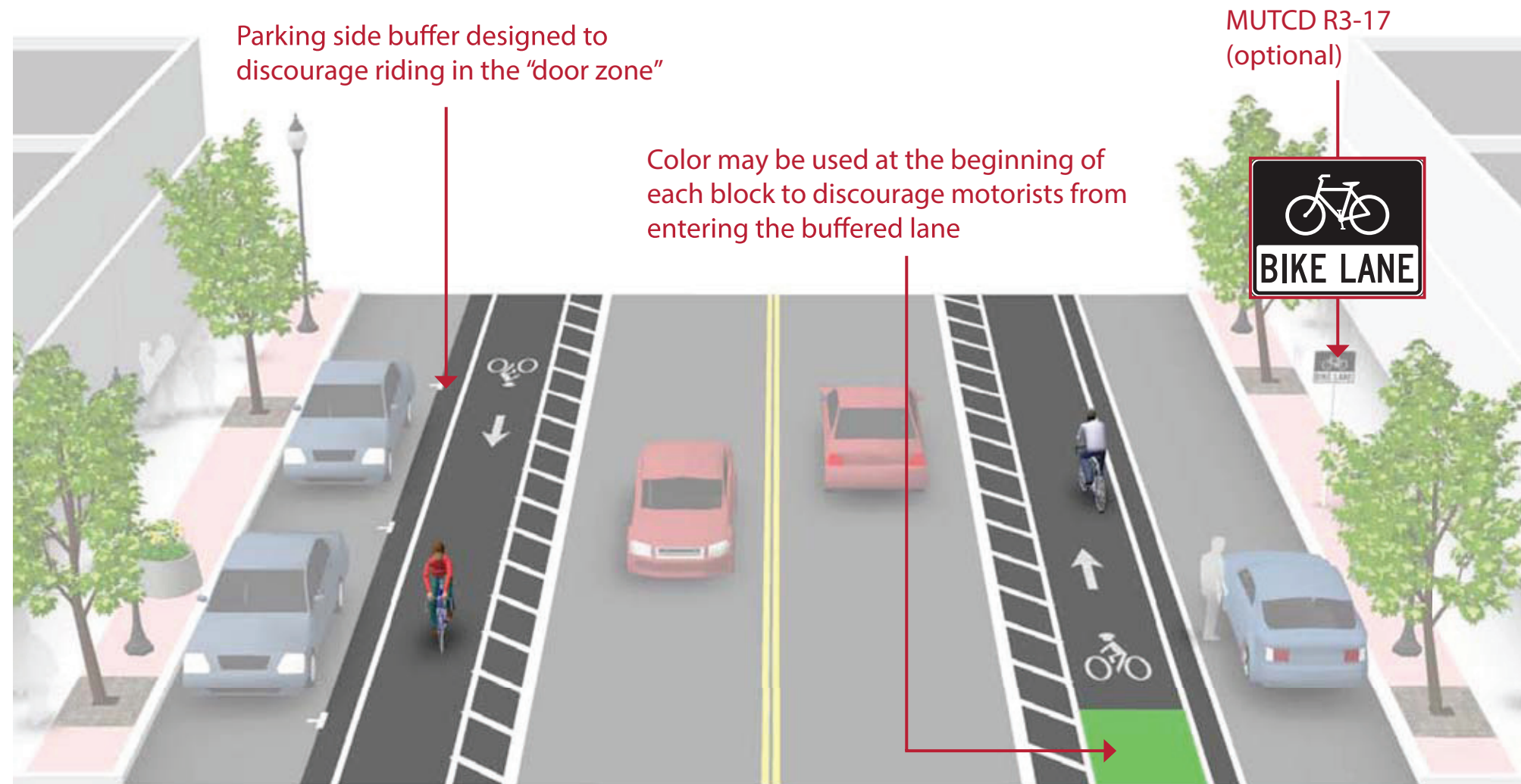
Buffered bike lanes are conventional bicycle lanes paired with a designated buffer space, separating the bicycle lane from the adjacent motor vehicle travel lane and/or parking lane. Buffered bike lanes are allowed as per MUTCD guidelines for buffered preferential lanes (section 3D-01).

Buffered bike lanes are designed to increase the space between the bike lane and the travel lane or parked cars. This treatment is appropriate for bike lanes on roadways with high motor vehicle traffic volumes and speed, adjacent to parking lanes, or a high volume of truck or oversized vehicle traffic.

Guidelines:

- Where bicyclist volumes are high or where bicyclist speed differentials are significant, the desired bicycle travel area width is 7 feet.
- Buffers should be at least 2 feet wide. If 3 feet or wider, mark with diagonal or chevron hatching. For clarity at driveways or minor street crossings, consider a dotted line for the inside buffer boundary where cars are expected to cross.

Right: Buffered bike lanes offer a sense of security and safety for cyclists, especially on busy roads.



Additional Considerations:

Frequency of right turns by motor vehicles at major intersections should determine whether continuous or truncated buffer striping should be used approaching the intersection. Commonly configured as a buffer between the bicycle lane and motor vehicle travel lane, a parking side buffer may also be provided to help bicyclists avoid the 'door zone' of parked cars.

Additional References and Guidelines:

FHWA. (2009). Manual on Uniform Traffic Control Devices. (3D-01)

NACTO. (2012). Urban Bikeway Design Guide.

AASHTO. (2012). Guide for the Development of Bicycle Facilities.

Materials and Maintenance:

Paint can wear more quickly in high traffic areas or in winter climates. Bicycle lanes should be cleared of snow through routine snow removal operations.

Shoulder Bikeways

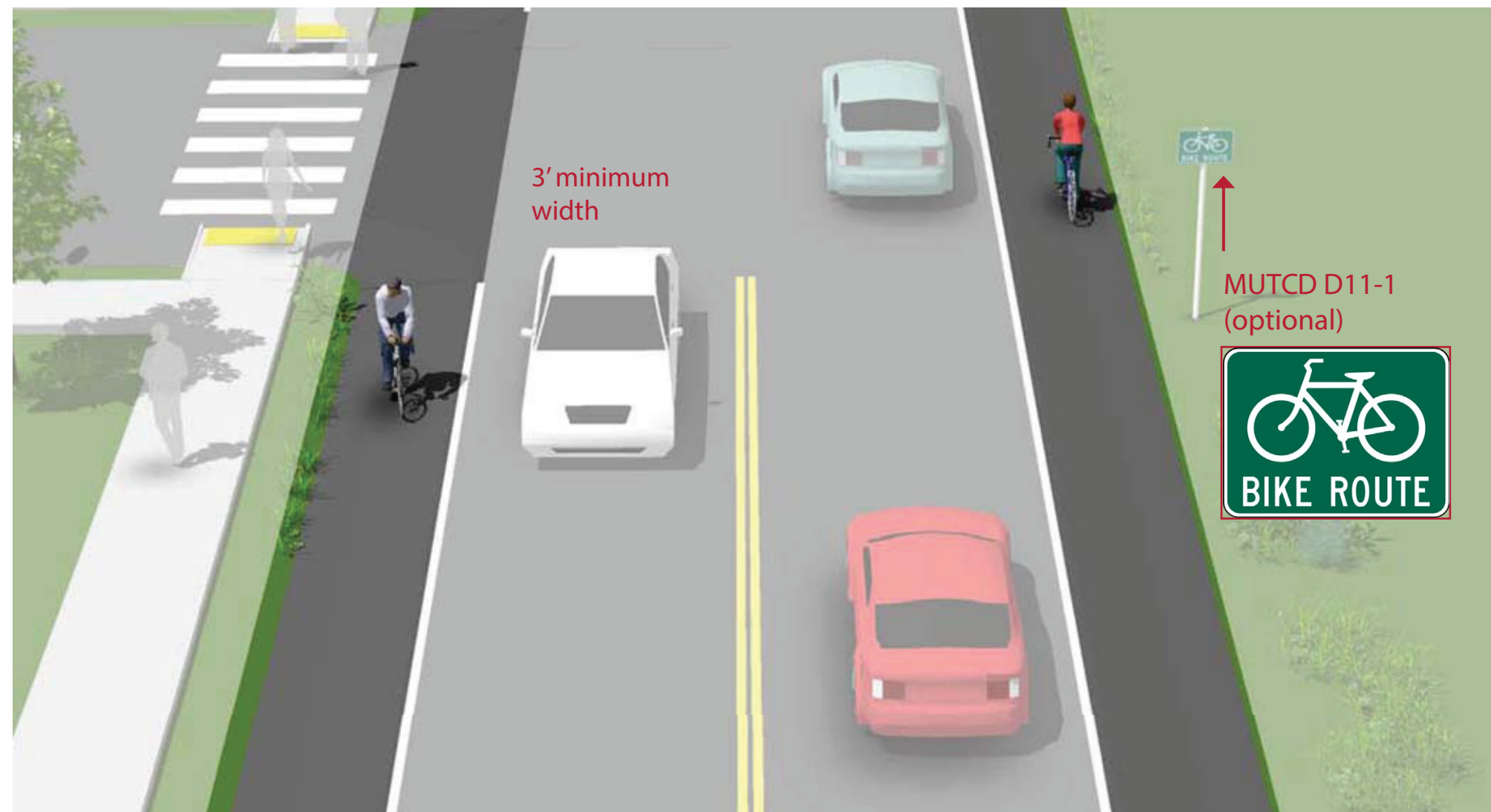
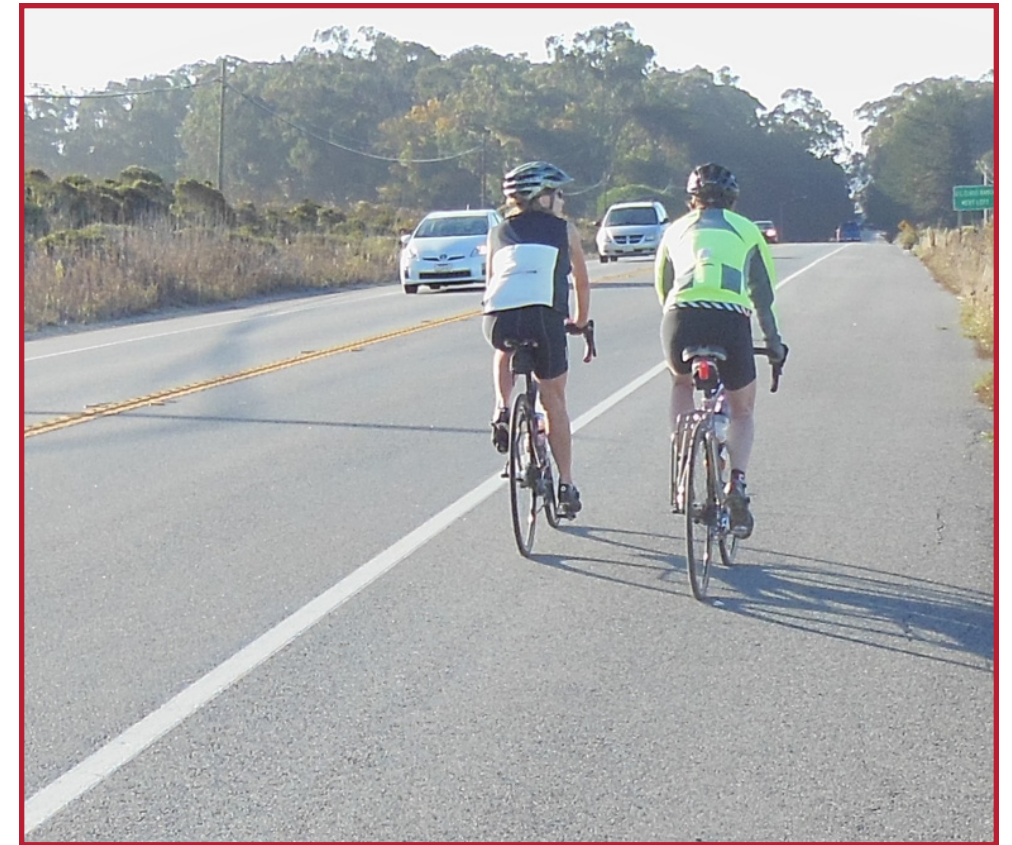
Description:

Typically found in less-dense areas, shoulder bikeways are paved roadways with striped shoulders (4'+) wide enough for bicycle travel. Shoulder bikeways often, but not always, include signage alerting motorists to expect bicycle travel along the roadway. Shoulder bikeways should be considered a temporary treatment, with full bike lanes planned for construction when the roadway is widened or completed with curb and gutter. This type of treatment is not typical in urban areas and should only be used where constraints exist.

Guidelines:

- If 4 feet or more is available for bicycle travel, the full bike lane treatment of signs, legends, and an 8" bike lane line would be provided.
- If it is not possible to meet minimum bicycle lane dimensions, a reduced width paved shoulder can still improve conditions for bicyclists on constrained roadways. In these situations, a minimum of 3 feet of operating space should be provided.

Right: Shoulder bikeways are a solid solution for greenways following lower traffic highways. Low cost; low maintenance option.



Additional Considerations:

A wide outside lane may be sufficient accommodation for bicyclists on streets with insufficient width for bike lanes but which do have space available to provide a wider (14'-16') outside travel lane. Consider configuring as a marked shared roadway in these locations.

Where feasible, roadway widening should be performed with pavement resurfacing jobs, but not exceeding desirable bike lane widths.

Additional References and Guidelines:

AASHTO. (2012). Guide for the Development of Bicycle Facilities.

FHWA. (2009). Manual on Uniform Traffic Control Devices.

NCDOT. (1994). North Carolina Bicycle Facilities Planning and Design Guidelines.

Materials and Maintenance:

Paint can wear more quickly in high traffic areas or in winter climates. Shoulder bikeways should be cleared of snow through routine snow removal operations.

Bike Lane with No On-Street Parking

Description:

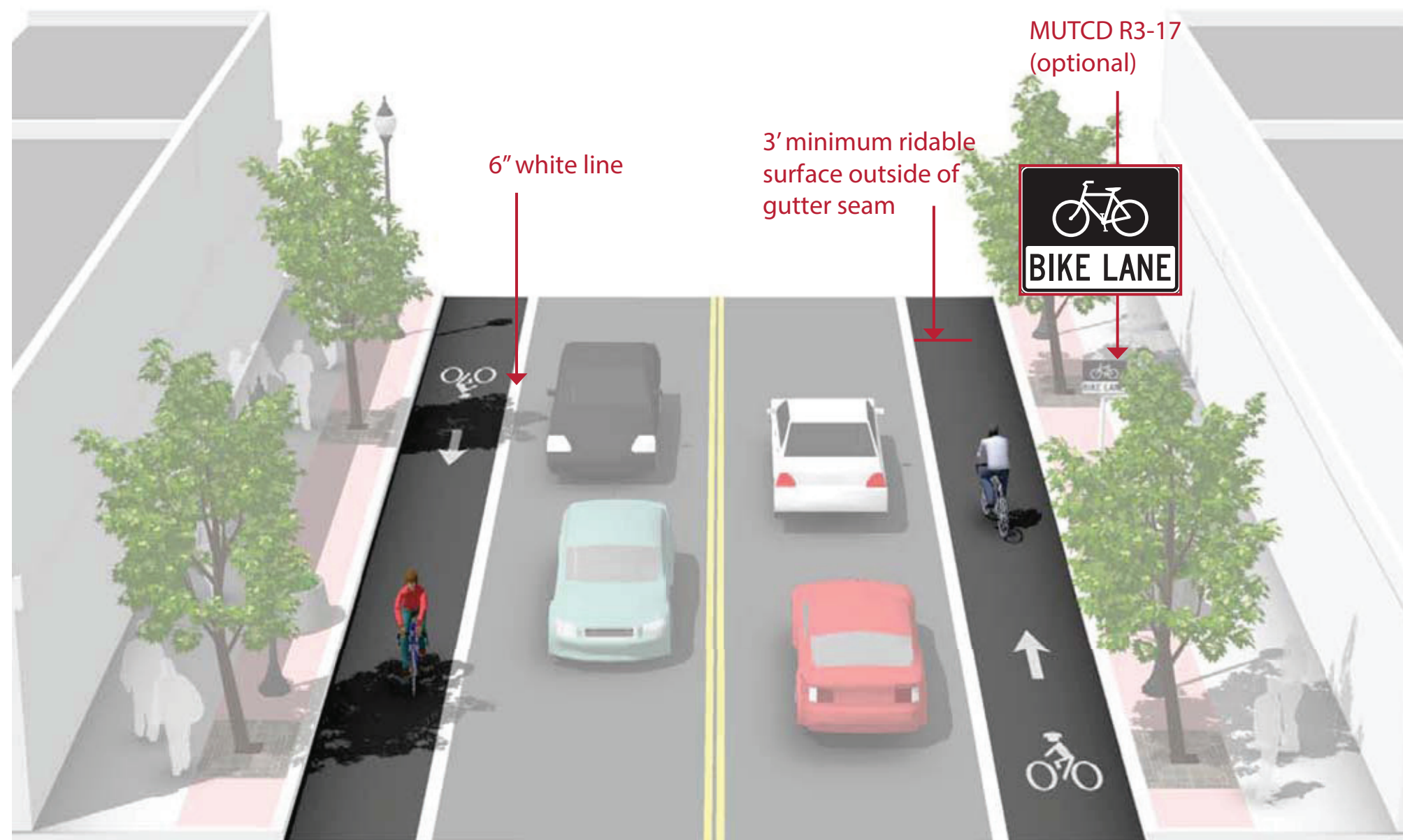
Bike lanes designate an exclusive space for bicyclists through the use of pavement markings and signage. The bike lane is typically located on the right side of the street, between the adjacent travel lane and curb, and is used in the same direction as motor vehicle traffic.

A bike lane width of 7 feet makes it possible for bicyclists to ride side-by-side or pass each other without leaving the bike lane, thereby increasing the capacity of the lane.

Guidelines:

- 4 foot minimum when no curb and gutter is present.
- 5 foot minimum when adjacent to curb and gutter or 3 feet more than the gutter pan width if the gutter pan is wider than 2 feet.
- 7 foot maximum width for use adjacent to arterials with high travel speeds. Greater widths may encourage motor vehicle use of bike lane. See buffered bicycle lanes when a wider facility is desired.

Right: Example of a bike lane with no on-street parking. Plausible with lower traffic roads, otherwise consider adding buffer to lane.



Additional Considerations:

Wider bicycle lanes are desirable in certain situations such as on higher speed arterials (45 mph+) where use of a wider bicycle lane would increase separation between passing vehicles and bicyclists. Appropriate signing and stenciling is important with wide bicycle lanes to ensure motorists do not mistake the lane for a vehicle lane or parking lane. Consider Buffered Bicycle Lanes when further separation is desired.

Additional References and Guidelines:

- AASHTO. (2012). Guide for the Development of Bicycle Facilities.
- FHWA. (2009). Manual on Uniform Traffic Control Devices.
- NACTO. (2012). Urban Bikeway Design Guide.
- NCDOT. (1994). North Carolina Bicycle Facilities Planning and Design Guidelines.

Materials and Maintenance:

Paint can wear more quickly in high traffic areas or in winter climates. Bicycle lanes should be cleared of snow through routine snow removal operations.

TRAIL SUPPORT FACILITIES

Trailheads

Description:

Major access points should be established near commercial developments and transportation nodes, making them highly accessible to the surrounding communities. Minor trailheads should be simple pedestrian and bicycle entrances at locally known spots, such as parks and residential developments.

Partnerships could also be sought with owners of existing parking lots near trails. Benefits are three fold: Business benefit from trail-user patronage; trail owners benefit from not having to buy more land and construct a parking facility; and the environment benefits from less development in the watershed.

Guidelines:

Minor Trailheads:

- Parking
- Drinking fountains
- Benches
- Bicycle rack
- Trash receptacles
- Information kiosk and/or signage

Major Trailheads could include all of the above, plus additional facilities, such as those listed below:

- Restrooms
- Shelters
- Picnic areas
- Fitness course
- Larger parking area



Left: A water fountain and pet-water fountain and trailhead near Crystal Bridges in Bentonville, AR.

Right: It is important to include facilities for trail users to congregate and sit, as well as provide opportunities for users to dispose of pet waste.



Benches / Seating

Description:

Seating areas along trails provide a place to rest, congregate, or contemplate for the user. There are a wide variety of options to choose from in terms of style and materials. Selections should be based on the desired trail theme as well as cost.

Guidelines:

- Locate seating a minimum of 3-feet from the edge of the trail.
- Locate benches in areas that provide interesting views, shade or shelter from seasonal winds, as well as those that are close to educational or cultural elements.
- Drainage should slope away from the trail.
- Benches should be securely anchored to the ground, and located at appropriate intervals along the trail.
- Seating depth should be 18-20-inches and the length should vary between 60-90-inches.
- Provide benches with back rests and arm rests on either side.

Trash-Free Greenway

Description:

Pack it In, Pack it Out (variably “Carry in, Carry out”) is a waste management philosophy that states, “What you bring into a natural area must be taken out of the area when you leave.” It may be formulated in other slogans like “Leave No Trace”, “Leave Only Footprints.” The idea is to remove all forms of litter and biodegradable waste from the area for proper disposal so that the materials will cause no harm to the resources of the ecosystem. Trail facilities still often used with this method are pet waste receptacles and signage.

Guidelines:

- Locate pet waste receptacles at trail heads and occasionally along trail; set back a minimum of 3-feet from the edge of the trail.
- Example signage language: “Trash Free Greenway – Trash cans are not provided on this trail. Please take your trash home when you leave.”
- Removal of trash by user maintains the cleanliness of the trail while increasing the operational (manpower/equipment) costs of maintaining the trail, thus allowing that savings to be utilized elsewhere.

Bicycle Racks / Bicycle Parking

Description:

Provide bicycle parking at trail heads, major trail access points, shopping areas, and bus route intersections.

Guidelines:

- Recommended bicycle parking are simple racks or hitch posts
- Custom bicycle racks or conventional options are available, depending on greenway theming and budget.
- Provide bicycle parking that supports the bicycle upright by its frame at two points of contact
- Allow for multiple bicycles to be parked at once

Public Art

Description:

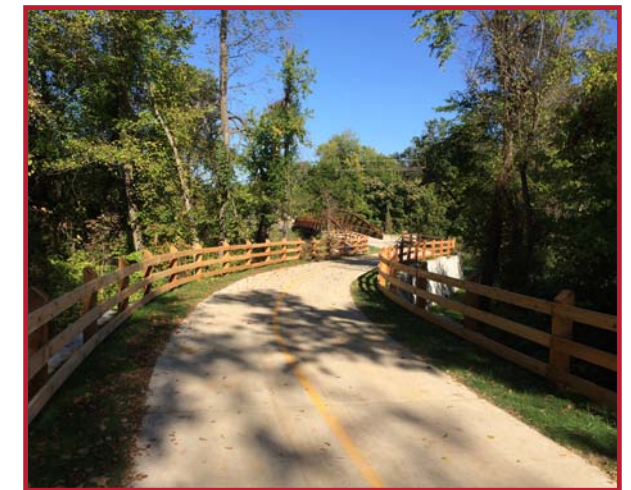
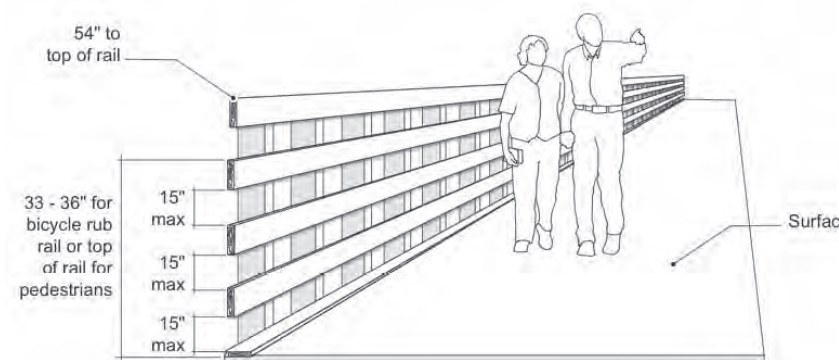
Explore opportunities to include public art within the overall design of the trail system. According to American Trails, “Art is one of the best ways to strengthen the connection between people and trails. Across America and elsewhere, artists are employing a remarkably wide range of creative strategies to support all phases of trail activities, from design and development to stewardship and interpretation. In particular, art can be an effective tool for telling a trail’s story compellingly and memorably.”



Left: Public art can add a new dimension to a trail.



Right: Railing and fencing can help set a tone for a trail user and provide property owners with a sense of safety.



Railings and Fencing

Description:

Railing and fences are important features on bridges, some boardwalks, or in areas where there may be a hazardous drop-off or hazardous adjacent land uses (such as active rail lines).

Guidelines:

- At a minimum, railings and fences should consist of a vertical top, bottom, and middle rail. Picket style fencing should be avoided as it presents a safety hazard for bicyclists.
- A pedestrian railing should be 42-inches above the surface.
- A bicyclist railing should be 48-inches above the surface.
- The middle railing functions as a “rub rail” for bicyclists and should be located 33 to 36 inches above the surface.
- Local, state, and/or federal regulations and building codes should be consulted to determine when it is appropriate to install a railing.

WAYFINDING

Description:

The signage/informational system includes: safety and regulatory signage; and interpretive elements including signs, displays, artifacts and artistic elements that address historic, ecological, cultural and other items of interest and understanding. A number of informational, educational, interpretive and way-finding devices are recommended for the trail corridor. These include:

Safety Signs—These signs address trail user and bicycle safety. For ease of understanding, these signs should follow standard formats for traffic control devices (See Manual of Uniform Traffic Control Devices). Signs address both bicycle and automobile traffic signage. The following sign types exist within the safety category:

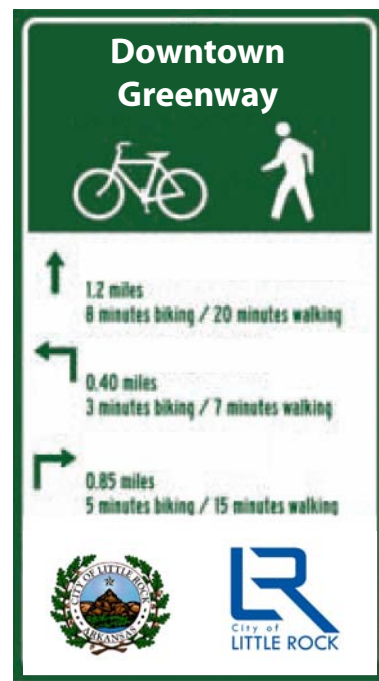
Traffic control—include stop, yield, and curve in trail. These address safety issues.

Warning signs—include, but may not be limited to: “slippery when wet”, “bicycles slow to walking speed”, “icy conditions may exist”, and hazard panels for possible trail obstructions or dangerous objects within the trail right of way. Surface texture may be another way to promote bicycle speed control in busy area.

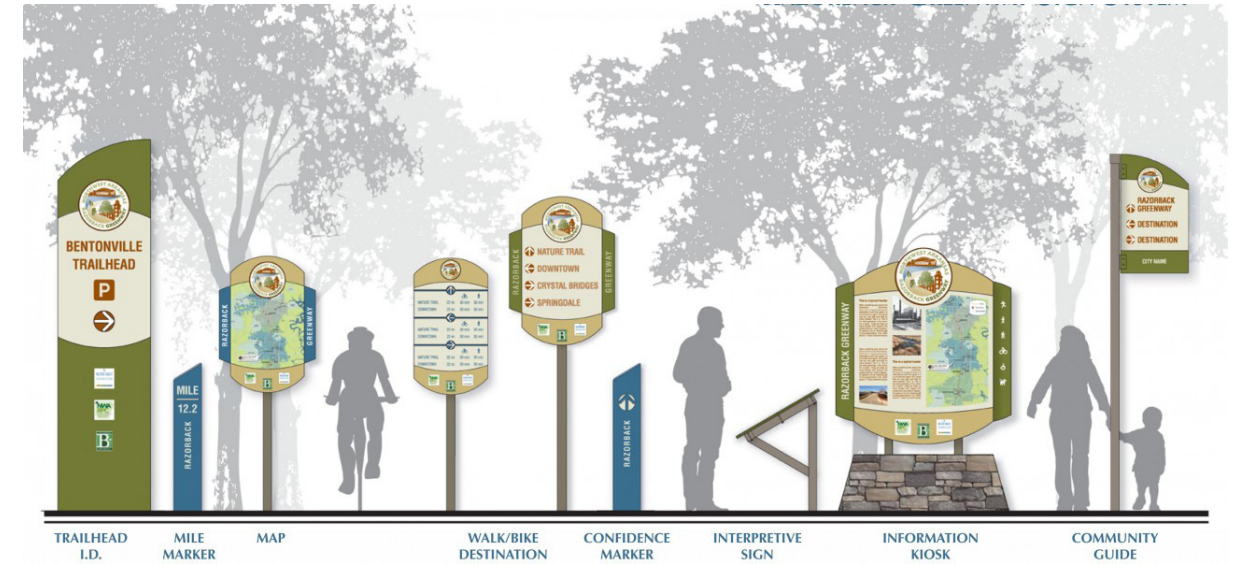
Miscellaneous safety signs—these include specialty safety signs such as hazard markers and signs near water features.

On-Street bicycle signs and pavement markings—including bike route signs, share the road caution signs, bike lane and bike turn lane marking and other necessary traffic control devices that integrate bicycle and motorist traffic. On-street signs and graphics must conform to the Manual of Uniform Traffic Control Devices (MUTCD) standards.

Information Signs—These signs provide travel information to trail users. The following signs are considered in the information sign category:



Left: Wayfinding signage can define a trail.



Right: Example of regional signage from the Razorback Regional Greenway in Northwest Arkansas.

Wayfinding/Directional signs—includes signs and markers, some with maps showing trail users how to reach their destinations, distance from a destination, and location signs such as mile markers, and street signs placed on bridges to identify cross streets.

System signs are used at major entry points of the particular trail and/or trail system. They address comprehensive issues such as system-wide trail maps, location of rest areas, degree of difficulty, accessibility and system trails rules and regulations. Due to the amount and importance of the information conveyed on system signs, it is best to place them in locations where users are encouraged to safely stop and review the information represented.

Credit signs—that provide information about those who contributed to the development of the trail and/or amenities along the trail.

Educational/Interpretive signs and displays—provides trail users with information about the greenway, native flora and fauna, history and culture, and significance of elements along the trail. There is a wide variety of interpretive signage styles and the amount/type of information they provide. Consider the character of the trail and surrounding elements when designing educational signage. Locate interpretive signage 3-feet from the edge of the trail.

Guidelines:

- The signage and way-finding system should have an attractive, distinct, uniform system of signs including displays and possibly artistic elements that guides and informs both local and out of town users with respect to the trail corridor and other amenities.
- Wherever possible, minimize signage to avoid “signage clutter” by consolidating signs, minimizing posting of rules and avoiding tight curves and other conditions that warrant signs.
- Use international symbols that are easily understood by most users.
- Bicycle and traffic signage should conform to the Federal Manual of Uniform Traffic Control Devices (MUTCD) guidelines.



- A consistent style and information system should be engaged along the entire length of the greenway.
- Key gateway signs should be provided at major entry points that include: a map of the system, accessibility information, estimated travel time, user safety guidelines, emergency contact and user feedback telephone numbers/Web sites, leave no trace information, code of conduct, and other pertinent information.

Additional Considerations:

There is no standard color for bicycle wayfinding signage. Section 1A.12 of the MUTCD establishes the general meaning for signage colors. Green is the color used for directional guidance and is the most common color of bicycle wayfinding signage in the US, including those in the MUTCD.

It can be useful to classify a list of destinations for inclusion on the signs based on their relative importance to users throughout the area. A particular destination's ranking in the hierarchy can be used to determine the physical distance from which the locations are signed. For example, primary destinations (such as the downtown area) may be included on signage up to 5 miles away. Secondary destinations (such as a transit station) may be included on signage up to two miles away. Tertiary destinations (such as a park) may be included on signage up to one mile away.

Additional References and Guidelines:

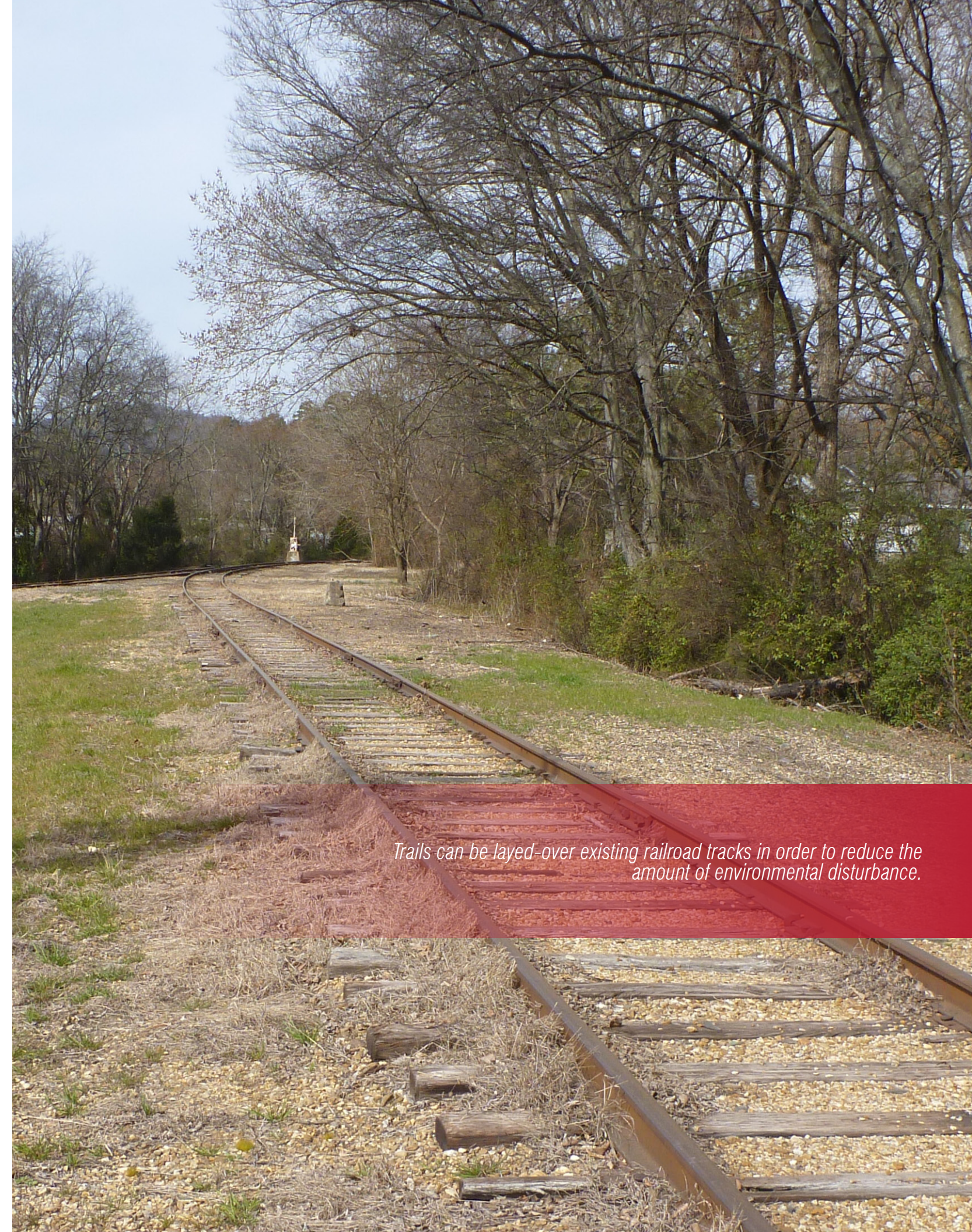
FHWA. (2009). *Manual on Uniform Traffic Control Devices*.

NACTO. (2012). *Urban Bikeway Design Guide*.

AASHTO. (2012). *Guide for the Development of Bicycle Facilities*.

Materials and Maintenance:

Maintenance needs for bicycle wayfinding signs are similar to other signs and will need periodic replacement due to wear.



Trails can be layed-over existing railroad tracks in order to reduce the amount of environmental disturbance.



Existing rail corridor, viewed from above, could create an excellent riding, walking experience.

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Trail Operations and Maintenance

Funding Sources

*Garland, Saline and Pulaski County
Southwest Trail Cost Estimates*

APPENDICES

APPENDIX ITEM 1: TRAIL OPERATIONS AND MAINTENANCE

Introduction

As the Southwest Trail network continues to grow, it will be imperative that the Counties and their community partners develop a clear, measurable, and achievable program for the ongoing operation and maintenance of the trail and greenway system. These tasks will be essential to the public's continued enjoyment of this recreation and transportation asset. An operations and maintenance plan supports these preservation and maintenance activities by defining maintenance tasks, assigning responsibilities to relevant agencies and groups, developing procedures and policies to identify and respond to maintenance issues and safety and security risks, and laying the foundation for long-term stewardship activities that protect the trail and greenway system's benefit for future generations.

The Southwest Trail is and will continue to be a valuable public resource, serving local residents, regional visitors, and tourists for years to come. The following guiding principles for an effective operations and maintenance program will help assure the preservation of a first class trail system:

- Good maintenance begins with sound planning and design.
- Foremost, protect life, property, and the environment.
- Promote and maintain a quality transportation and recreation experience.
- Develop a management plan that is reviewed and updated annually with tasks, operational policies, standards, and routine and remedial maintenance goals.
- Maintain quality control and conduct regular inspections.
- Include field crews, police, and fire/rescue personnel in both the design review and ongoing maintenance process.



Right: AmeriCorps volunteers help with greenway clean up activities in St. Louis, Missouri

- Maintain an effective, responsive public feedback system and promote public participation.
- Maintain the appropriate budget for implementing the maintenance plan.

These principles can guide the development of a maintenance and operations plan that incorporates user safety, routine and remedial maintenance, and long-term stewardship of the greenway as a unique, valued and high quality community resource.

User Safety and Risk Management

While user safety and risk management begin with the planning and design of trails and greenways, Garland, Saline and Pulaski Counties and their regional partners have experience through previous trail projects with operational activities to provide users with a safe and secure trail experience. We expect these activities will include the following, many of which have been applied to other trail projects in the area, in future agreements between partners:

- Development and implementation of an emergency response protocol with law enforcement and first responders.
- The creation and use of a database management system to track accidents, crime and risks and to identify solutions that mitigate those risks.
- Routine inspection for safety hazards.
- Definition and protection of the intended use for each trail.
- Promotion of proper trail usage and etiquette.
- Creation of a user feedback system to address user-identified issues or activities.



Left: While many trails look the same, they are often designed for a specific user in mind, and proper precautions are necessary to reduce conflict between different trail users

Maintenance

The quality and condition of trails, greenways and on-street bicycle facilities like bike lanes and cycle tracks is essential to the long-term success of the trail system and will require continual maintenance and care. Trail and greenway maintenance can be separated into two categories: routine maintenance and remedial maintenance. Routine maintenance refers to the regularly scheduled and day-to-day activities to keep the trail in a functional and orderly condition. These activities, which can be incorporated in normal routine maintenance by operations staff and volunteer organizations (like Friends of Arkansas Singletrack, or *FAST*), include trash and debris removal, landscaping, weed and dust control, trail sweeping, snow removal, shoulder mowing, and tree and shrub trimming. For paved trails, pot maintenance such as sealing cracks and filling potholes also fall under this category. Remedial maintenance refers to the correcting of significant trail defects and the repairing, replacing and restoring of major trail components. Remedial maintenance activities include periodic repairs like seal coating asphalt pavement, repainting, replacement of trail amenities and furnishings (benches, bike racks, lighting, etc.), as well as more substantial projects like hillside stabilization, bridge replacement, and trail surface repaving. Minor remedial maintenance can be completed on a five to ten-year cycle, while larger projects should be budgeted on an as-needed or anticipated basis.

Required maintenance will vary considerably depending on trail type and context. For example, a paved trail may need less annual surface maintenance, yet may require landscaping, mowing, and considerable remedial maintenance costs. Natural surface trails are more susceptible to degradation and erosion over time, as both heavy use and significant weather events can have a significant impact on trail quality and user experience. However, construction and maintenance costs for natural surface trails are usually considerably less. In order to ensure continued maintenance of the trail network over time, the Counties and Cities in the study area should develop an operations and maintenance plan, as mentioned above. This plan will create clear expectations for roles, responsibilities, and contributions to the long-term success of the trail network.

Resource Stewardship and Enhancement

Stewardship is the long-term care and oversight of the greenway as a resource that adds value to the community and enhances the quality of life for citizens of the region. The Southwest Trail network will require active stewardship by those who operate the facility, as well as those who benefit from it, to ensure this valuable piece of recreation and transportation infrastructure can provide a high level of service and a quality user experience for generations to come. This will require coordination among all agencies involved in the care and maintenance of the greenway and its surroundings, protection of the resource from external factors that may reduce its value and utility, and encouragement of community participation in the upkeep and enhancement of the greenway as a valuable community asset. The Counties and their community partners should identify stewardship activities and develop a timeframe or schedule for completion. Such activities may include identifying and managing trail steward volunteers to remove trash or monitor activities on the trail, annual trail cleanup events, coordinating the use of the trails for educational activities, and increasing public awareness of the trail system as a resource to diverse members of the community.



APPENDIX

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APPENDIX ITEM 2: FUNDING SOURCES

Funding for trail and greenway projects often comes from a variety of sources, including matching grants, sales tax or other taxes, bond measures, or public/private partnerships. This section of the Plan identifies federal, state, and non-profit foundation sources of funding for planning, design, implementation and maintenance of trails and greenways in Arkansas. The descriptions are intended to provide an overview of available options and do not represent a comprehensive list. It should be noted that information provided below reflects the funding available at the time of writing. The funding amounts, fund cycles, and even the programs themselves are susceptible to change without notice. In addition, not all funding sources apply to all trail typologies and recommended projects. For example, some funding sources are applicable only for trail projects that provide a transportation component/benefit and comply with ADA/PROWAG standards for accessibility.

Federal Funding Sources

Federal transportation funding is typically directed through state agencies to local governments either in the form of grants or direct appropriations, independent from state budgets. Federal funding typically requires a local match of 20 percent, although there are sometimes exceptions, such as the 2009 American Recovery and Reinvestment Act stimulus funds, which did not require a match.

The Arkansas Highway and Transportation Department (AHTD) and metropolitan planning organizations (MPOs), including Metroplan and Tri-Lakes, administer most federal monies. Federal funding is intended for capital improvements and safety and education programs, and projects must relate to the surface transportation system. Most, but not all, of these programs are oriented toward transportation versus recreation.

The following is a list of Federal funding sources that could be used to support construction of many pedestrian and bicycle improvements. Most of these are competitive, and involve the completion of extensive applications with clear documentation of the project need, costs, and benefits. However, it should be noted that, in addition to stand alone projects, the Federal Highway Administration (FHWA) encourages the construction of pedestrian and bicycle facilities as an incidental element of larger ongoing projects, consistent with its 2010 policy statement on bicycle and pedestrian accommodation. Examples include providing paved shoulders on new and reconstructed roads, or building sidewalks, on-street bikeways, trails and marked crosswalks as part of new highways.

Federal Aid Highway Program

The largest source of federal funding for bicycle and pedestrian projects is the United States Department of Transportation's (US DOT) Federal-Aid Highway Program, which Congress has reauthorized roughly every six years since the passage of the Federal-Aid Road Act of 1916. The latest act, Moving Ahead for Progress in the Twenty-First Century (MAP-21) was enacted in July 2012 as Public Law 112-141. The Act replaces the Safe, Accountable, Flexible, Efficient Transportation Equity Act – a Legacy for Users (SAFETEA-LU), which was valid from August 2005 - June 2012.

MAP-21 authorizes funding for federal surface transportation programs including highways and transit until September 2014. There are a number of programs identified within MAP-21 that are applicable to bicycle and pedestrian projects. These programs are discussed below.

More information: <http://www.fhwa.dot.gov/map21/summaryinfo.cfm>

Transportation Alternatives – (TAP)

Transportation Alternatives (TAP) is a new funding source under MAP-21 that consolidates three former SAFETEA-LU programs: Transportation Enhancements (TE), Safe Routes to School (SRTS), and the Recreational Trails Program (RTP). These funds may be used for a variety of pedestrian, bicycle, and streetscape projects including sidewalks, bikeways, multi-use paths, school safety, and rail-trails. TAP funds may also be used for selected education and encouragement programming such as Safe Routes to School.

Transportation Alternatives as defined by Section 1103 (a)(29). This category includes the construction, planning, and design of a range of bicycle and pedestrian infrastructure including “on-road and off-road trail facilities for pedestrians, bicyclists, and other non-motorized forms of transportation, including sidewalks, bicycle infrastructure, pedestrian and bicycle signals, traffic calming techniques, lighting and other safety-related infrastructure, and transportation projects to achieve compliance with the Americans with Disabilities Act of 1990.” Infrastructure projects and systems that provide “Safe Routes for Non-Drivers” is a new eligible activity. For the complete list of eligible activities, visit: http://www.fhwa.dot.gov/environment/transportation_enhancements/legislation/map21.cfm

Unless the Governor of a given state chooses to opt out of Recreational Trails Program funds, \$85 million in dedicated funds for recreational trails continues to be provided nationally as a subset of TAP. Governor Mike Bebee chose to opt in, which means that Arkansas receives \$1,493,969 in RTP funds per year through FY2014.

The types of projects that are eligible for TAP funding include:

Recreational Trails. TAP funds may be used to develop and maintain recreational trails and trail-related facilities for both non-motorized and motorized recreational trail uses. Examples of trail uses include hiking, bicycling, in-line skating, equestrian use, and other non-motorized and motorized uses. These funds are available for both paved and unpaved trails, but may not be used to improve roads for general passenger vehicle use or to provide shoulders or sidewalks along roads.

Recreational Trails Program funds may be used for:

- Maintenance and restoration of existing trails
- Purchase and lease of trail construction and maintenance equipment
- Construction of new trails, including unpaved trails
- Acquisition or easements of property for trails
- State administrative costs related to this program (limited to seven percent of a State’s funds)
- Operation of educational programs to promote safety and environmental protection related to trails (limited to five percent of a State’s funds)

Safe Routes to School. Safe Routes to School activities are eligible for the Transportation Alternatives Program. Both infrastructure and non-infrastructure projects are eligible, and the program elements described in SAFETEA-LU are still in effect. The purpose of the Safe Routes to Schools eligibility is to promote safe, healthy alternatives to riding the bus or being driven

to school. All projects must be within two miles of primary or middle schools (K-8). Eligible projects may include:

- Engineering improvements. These physical improvements are designed to reduce potential bicycle and pedestrian conflicts with motor vehicles. Eligible improvements include sidewalk improvements, traffic calming/speed reduction, pedestrian and bicycle crossing improvements, on-street bicycle facilities, off-street bicycle and pedestrian facilities, and secure bicycle parking facilities.
- Education and Encouragement Efforts. These programs are designed to teach children safe bicycling and walking skills while educating them about the health benefits and environmental impacts. Projects and programs may include creation, distribution and implementation of educational materials; safety based field trips; interactive bicycle/pedestrian safety video games; and promotional events and activities (e.g., assemblies, bicycle rodeos, walking school buses).
- Enforcement Efforts. These programs aim to ensure that traffic laws near schools are obeyed. Law enforcement activities apply to cyclists, pedestrians and motor vehicles alike. Projects may include development of a crossing guard program, enforcement equipment, photo enforcement, and pedestrian targeted enforcement operations.
- Planning, designing, or constructing roadways within the right-of-way of former Interstate routes or divided highways.

Average annual funds available through TAP over the life of MAP-21 equal \$814 million nationally, which is based on a two percent set-aside of total MAP-21 authorizations. Projected apportionments for Arkansas total \$10,984,845 for FY 2014. However, because MAP-21 allows state DOTs to transfer up to fifty percent of a given highway program’s funds to other highway programs, the final amount of TAP funding available in Arkansas may be more or less than the projected apportionments developed by FHWA. As of June 2014, AHTD does not plan to shift TAP funding to other highway programs, nor does it plan to supplement TAP with monies from other highway funding programs.

Surface Transportation Program (STP)

The Surface Transportation Program (STP) provides states with flexible funds which may be used for a variety of highway, road, bridge, and transit projects. Bicycle and pedestrian improvements are eligible, including on-street bicycle facilities, off-street trails, sidewalks, crosswalks, bicycle and pedestrian signals, parking, and other ancillary facilities. Modification of sidewalks to comply with the requirements of the Americans with Disabilities Act (ADA) is also an eligible activity. Unlike most highway projects, STP-funded bicycle and pedestrian facilities may be located on local and collector roads that are not part of the Federal-aid Highway System. Fifty percent of each state’s STP funds are sub-allocated geographically by population; the remaining fifty percent may be spent in any area of the state.

Highway Safety Improvement Program (HSIP)

MAP-21 doubled the amount of funding available through the Highway Safety Improvement Program (HSIP) relative to SAFETEA-LU. HSIP provides \$2.4 billion nationally for projects and programs that help communities achieve significant reductions in traffic fatalities and serious injuries on all public roads, bikeways, and walkways. MAP-21 requires each state to formulate a state safety plan, produced in consultation with non-motorized transportation representatives, in order to receive HSIP funds. Eligible projects will be evaluated on anticipated cost-effectiveness of reducing serious injuries and fatalities.

MAP-21 preserves the Railway-Highway Crossings Program within HSIP but discontinues the High-Risk Rural roads set-aside unless safety statistics demonstrate that fatalities are increasing on these roads. Bicycle and pedestrian safety improvements, enforcement activities, traffic calming projects, and crossing treatments for non-motorized users in school zones are eligible for these funds. AHTD estimates that it will receive an average of \$3.5 million annually for this program through the lifetime of MAP-21.

New Freedom Initiative

MAP-21 continues a formula grant program that provides capital and operating costs to provide transportation services and facility improvements that exceed those required by the Americans with Disabilities Act. Examples of pedestrian/accessibility projects funded in other communities through the New Freedom Initiative include installing Accessible Pedestrian Signals (APS), enhancing transit stops to improve accessibility, and establishing a mobility coordinator position.

Community Development Block Grants

The Community Development Block Grants (CDBG) program provides money for streetscape revitalization, which may be largely comprised of pedestrian improvements. Federal CDBG grantees may use the funds for real property, public facility improvements, and planning. Pedestrian and Bicycle Master Plan projects that enhance accessibility are a good fit for this funding source. CDBG funds could also be used to write an ADA Transition Plan for the city or support design and construction of projects.

Community Transformation Grants

Community Transformation Grants administered through the Center for Disease Control support community-level efforts to reduce chronic diseases such as heart disease, cancer, stroke, and diabetes. Active transportation infrastructure projects and programs that promote healthy lifestyles are a good fit for this program, particularly if the benefits of such improvements accrue to population groups experiencing the greatest burden of chronic disease.

Land and Water Conservation Fund

The Land and Water Conservation Fund (LWCF) provides grants for planning and acquiring outdoor recreation areas and facilities, including trails. Funds can be used for right-of-way acquisition and construction. Any Pedestrian and Bicycle Master Plan projects located in future parks could benefit from planning and land acquisition funding through the LWCF. Trail corridor acquisition can be funded with LWCF grants as well.

Rivers, Trails, and Conservation Assistance Program (RTCA)

The Rivers, Trails, and Conservation Assistance Program (RTCA) is a National Parks Service (NPS) program providing technical assistance via direct NPS staff involvement to establish and restore greenways, rivers, trails, watersheds and open space. The RTCA program provides only for planning assistance—there are no implementation monies available. Projects are prioritized for assistance based on criteria including conserving significant community resources, fostering cooperation between agencies, serving a large number of users, encouraging public involvement in planning and implementation, and focusing on lasting accomplishments. This program may benefit trail development throughout the region indirectly through technical assistance, particularly for community organizations, but should not be considered a future capital funding source.

Additional Federal Funding

The landscape of federal funding opportunities for bicycle and pedestrian programs and projects is always changing. A number of Federal agencies, including the Bureau of Land Management, the Department of Health and Human Services, the Department of Energy, and the Environmental Protection Agency have offered grant programs amenable to bicycle and pedestrian planning and implementation, and may do so again in the future. For up-to-date information about grant programs through all federal agencies, see <http://www.grants.gov/>.

State Funding

There are a variety of state funding sources that can be used to fund active transportation projects. State gasoline taxes and Arkansas Natural and Cultural Resources Council Grant and Trust Funds have been used in the past. Advocacy for use of other state funds is encouraged.

Arkansas Natural and Cultural Resources Council Grant and Trust Funds

Arkansas Natural and Cultural Resources Council grant funds can be used to develop bicycle and pedestrian facilities for outdoor recreation purposes. These funds are available through a grant program administered by the Arkansas Department of Parks and Tourism. These funds must be matched at the rate of 50% state to 50% applicant.

Conservation Sales Tax

A conservation sales tax that went into effect July 1, 1997 designates 1/8th of 1 percent of the state's general sales tax for Arkansas Game and Fish Commission (45 percent), Arkansas State Parks (45 percent), Arkansas Heritage Commission (9 percent) and Keep Arkansas Beautiful Commission (1 percent). Revenue from this tax has been used to implement a wide range of projects, including nature centers, fisheries, purchase of land for public use, enforcement efforts, creation of habitat for threatened and endangered species, conservation education, as well as barrier-free and multi-use trails.

Local Funding

Many communities use locally generated funds to support active transportation. NWA communities should consider tapping into existing revenue streams and proposing new fees. For example, Fayetteville's Scull Creek Trail was partially funded through sales taxes.

Development Impact Fees

In 2003, the State of Arkansas adopted an Impact Fee Enabling Act (Arkansas Code, § 14-56-103). This law empowers municipalities to collect one-time fees from developers to help cover the cost of growth-related public infrastructure needs, including roads and sidewalks. Local governments that do not currently have development impact fees in place to support active transportation should consider instituting such a fee or negotiating public improvements as part of the land development process.

Sales Taxes

Local sales tax increases to fund active transportation improvements have a history of success. For instance in 2006, when sections of the Razorback Regional Greenway were looking for funding, Fayetteville's residents approved a 1% sales tax increase that was used, in part, to construct the Scull Creek Trail, an integral piece to the entire Razorback greenway system. The ballot measure specifically related to trails (a sewer plant and roadway improvements were also parts of the proposed increase) passed by the widest margin, and provided \$2.1 million in dedicated trail construction funding.

Property Taxes

Property taxes are one of the most common local sources of bicycle and pedestrian infrastructure since they are typically the largest source of local revenue.

Business Improvement District Funds

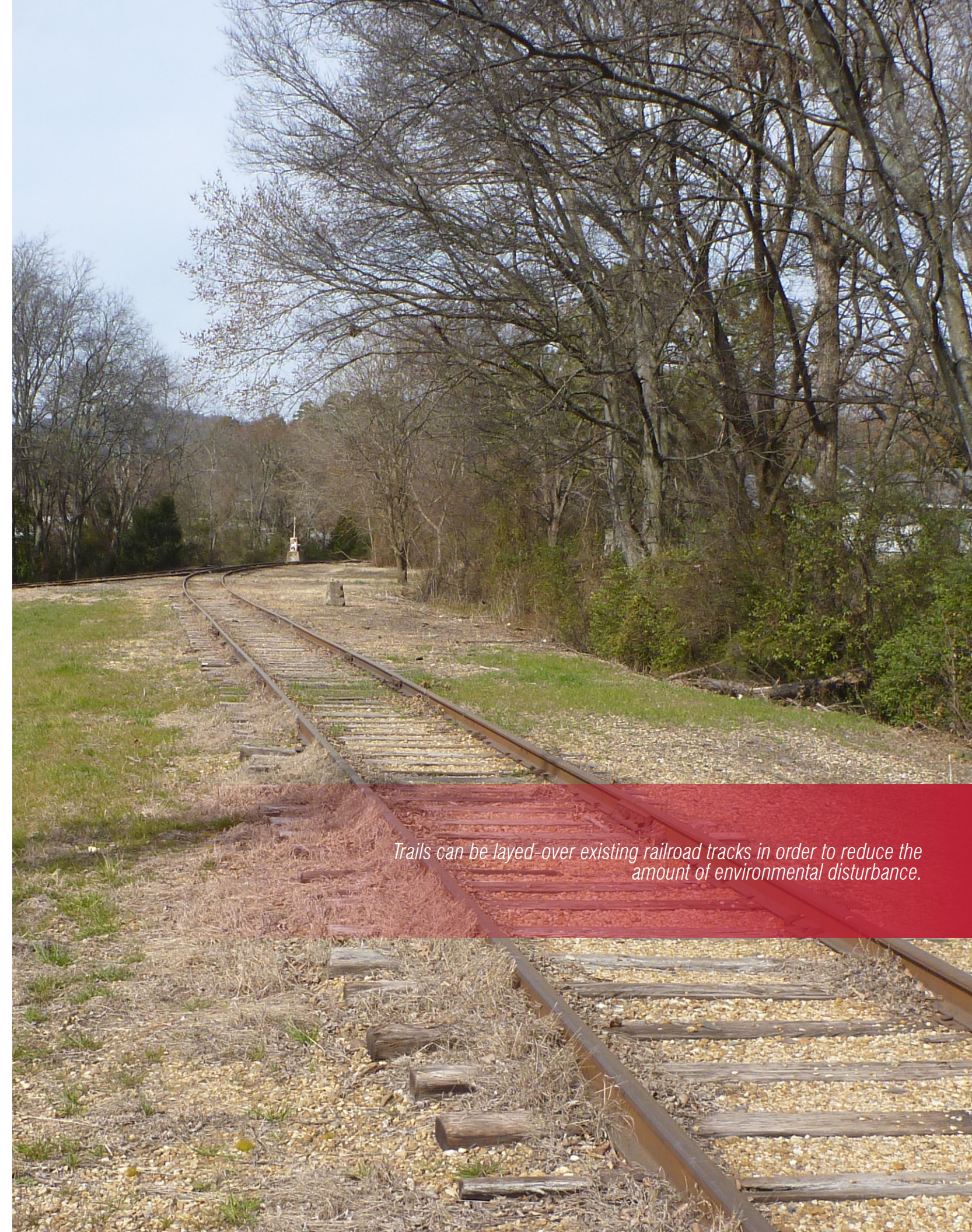
Business improvement districts are a type of public-private partnership that leverage public and private funds to increase the attractiveness of defined geographic areas to existing and potential customers. These entities often see value in making streetscape improvements that make walking and biking to the area safer and more comfortable. In Atlanta, the Midtown Community Improvement District is funding bikeway improvements after a survey revealed that over three quarters of commercial property owners in the district indicated a desire for the area to become more bikeable.

Bond Measures

Denver, Chicago, Nashville, and San Francisco have all recently used money from local bond measures to fund bikeway projects. They can be an effective tool to get quick results when a particular project is needed in the short term.

Private Foundations

Private foundations are an increasingly important source of funds for bicycle and pedestrian planning and implementation. The Walton Family Foundation has been the most important supporter of funding for greenway, trail, bicycle and pedestrian programs and projects in NW Arkansas. The Foundation has also worked with other partners, including Endeavor Foundation and Care Foundation to support initiatives such as Safe Routes to School and Energize NW Arkansas, which promote safe outdoor activities and transportation for children. Foundations, like the one found in Northwest Arkansas, play an integral part in the implementation of greenways systems. Finding this key funding partner in the Central Arkansas region will be a huge boost to the duration and aesthetic of the project. For more information on private foundations, including an extensive list of national foundations visit: <http://www.foundation-center.org/>



Trails can be layed-over existing railroad tracks in order to reduce the amount of environmental disturbance.



APPENDIX



Appendix Contents:

*Garland County - Southwest Trail
Cost Estimate*

*Saline County - Southwest Trail
Cost Estimate*

*Pulaski County - Southwest Trail
Cost Estimate*

APPENDIX ITEM 3: GARLAND, SALINE AND PULASKI COUNTY



PLANNING + DESIGN
210 N. Walton Blvd., Suite 26
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Phone: (479) 657-6885
R. Erin Rushing

6-May-15
Alta Project No: 2015-032

Itemized Conceptual Opinion of Probable Cost
South West Trail
From the Heart of Hot Springs to the Garland-Saline County Line
Garland County, AR

Length of Trail= 91912
17.41 miles

Item	Quantity	Unit	Unit Cost	Total
1 Mobilization Insurance & Staking & Bonding	1	LS	\$ 360,000.00	\$ 360,000.00
2 Erosion Control Maintenance	1	LS	\$ 67,500.00	\$ 67,500.00
3 Maintenance of Traffic	1	LS	\$ 54,000.00	\$ 54,000.00
4 General Demolition	1	LS	\$ 76,500.00	\$ 76,500.00
5 Clearing and Grubbing	1	LS	\$ 225,000.00	\$ 225,000.00
6 Strip and Stockpile Topsoil	1	LS	\$ 135,000.00	\$ 135,000.00
7 Utility Relocations (TBD)	1	LS	\$ 90,000.00	\$ 90,000.00
8 Earth Excavation	36000	CY	\$ 8.50	\$ 306,000.00
9 Earth Embankment	36000	CY	\$ 11.00	\$ 396,000.00
10 Vegetative Pruning	1	LS	\$ 45,000.00	\$ 45,000.00
11 Temporary re-vegetation	1	LS	\$ 18,000.00	\$ 18,000.00
12 General Drainage	1	LS	\$ 54,000.00	\$ 54,000.00
13 Retaining Walls	1	LS	\$ 200,000.00	\$ 200,000.00
14 4" Class 7 Base Rock	64403	LF	\$ 7.00	\$ 450,821.00
15 2" Asphalt on Railroad	64403	LF	\$ 12.00	\$ 772,836.00
16 4" Base for Concrete Trail	6251	SY	\$ 3.25	\$ 20,315.75
17 6" Concrete Trail	4700	LF	\$ 40.00	\$ 188,000.00
18 On-Street Bicycle Facilities - Striping and Signage	22059	LF	\$ 4.00	\$ 88,236.00
19 Boardwalk (12 wide)	750	LF	\$ 150.00	\$ 112,500.00
20 3-Rail Wood Fence	22978	LF	\$ 38.50	\$ 884,653.00
21 Crosswalk Striping and Signage	25	EA	\$ 750.00	\$ 18,750.00
22 Steel Bridges	1	LS	\$ 69,000.00	\$ 69,000.00
23 Abutments & Endwalls For Steel Bridge	1	LS	\$ 125,000.00	\$ 125,000.00
24 Trailheads w/ Parking	2	EA	\$ 400,000.00	\$ 800,000.00
25 Wayfinding Signage	1	LS	\$ 54,000.00	\$ 54,000.00
26 Topsoil Placement	9000	CY	\$ 20.00	\$ 180,000.00
27 Permanent Vegetation Seeding	81000	SY	\$ 1.00	\$ 81,000.00
28 Bermuda Grass Sod	22500	SY	\$ 3.00	\$ 67,500.00
29 Easement & Property Acquisition	1	LS	\$ 150,000.00	\$ 150,000.00

Project Subtotal \$ 6,089,611.75
Contingency @ 10% \$ 608,961.18
Soft Costs (Engineering, Permitting, Testing...) @ 15% \$ 913,441.76

Total Estimated Cost \$ 7,612,014.69

Cost Per Linear Foot \$82.82

Note:

This estimate of construction costs is based on recent local area bid tabulations, industry estimating manuals and other available data. This estimate is without the benefit of actual bidding, local contractor input, or Local City or State final design approval. The actual costs, at bid could vary substantially.



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R. Erin Rushing

6-May-15
Alta Project No: 2015-033

Itemized Conceptual Opinion of Probable Cost

South West Trail
From the Garland-Saline County Line to the Arkansas River Trail in Little Rock
Pulaski County, AR

Length of Trail= 95783
18.14 miles

Item	Quantity	Unit	Unit Cost	Total
1 Mobilization Insurance & Staking & Bonding	1	LS	\$ 380,000.00	\$ 380,000.00
2 Erosion Control Maintenance	1	LS	\$ 71,250.00	\$ 71,250.00
3 Maintenance of Traffic	1	LS	\$ 57,000.00	\$ 57,000.00
4 General Demolition	1	LS	\$ 80,750.00	\$ 80,750.00
5 Clearing and Grubbing	1	LS	\$ 237,500.00	\$ 237,500.00
6 Strip and Stockpile Topsoil	1	LS	\$ 142,500.00	\$ 142,500.00
7 Utility Relocations (TBD)	1	LS	\$ 95,000.00	\$ 95,000.00
8 Earth Excavation	38000	CY	\$ 8.50	\$ 323,000.00
9 Earth Embankment	38000	CY	\$ 11.00	\$ 418,000.00
10 Vegetative Pruning	1	LS	\$ 47,500.00	\$ 47,500.00
11 Temporary re-vegetation	1	LS	\$ 19,000.00	\$ 19,000.00
12 General Drainage	1	LS	\$ 57,000.00	\$ 57,000.00
13 Retaining Walls	1	LS	\$ 200,000.00	\$ 200,000.00
14 4" Class 7 Base Rock	42328	LF	\$ 7.00	\$ 296,296.00
15 2" Asphalt on Railroad	42328	LF	\$ 12.00	\$ 507,936.00
16 4" Base for Concrete Trail	51222	SY	\$ 3.25	\$ 166,472.44
17 6" Concrete on Railroad	38513	LF	\$ 40.00	\$ 1,540,520.00
18 On-Street Bicycle Facilities - Striping and Signage	2239	LF	\$ 4.00	\$ 8,956.00
19 Boardwalk (12' wide)	12703	LF	\$ 150.00	\$ 1,905,450.00
20 3-Rail Wood Fence	23946	LF	\$ 38.50	\$ 921,911.38
21 Crosswalk Striping and Signage	15	LS	\$ 750.00	\$ 11,250.00
22 Steel Bridges	1	LS	\$ 69,000.00	\$ 69,000.00
23 Abutments & Endwalls For Steel Bridge	1	LS	\$ 125,000.00	\$ 125,000.00
24 Trailheads w/ Parking	2	EA	\$ 400,000.00	\$ 800,000.00
25 Wayfinding Signage	1	LS	\$ 57,000.00	\$ 57,000.00
26 Topsoil Placement	9500	CY	\$ 20.00	\$ 190,000.00
27 Permanent Vegetation	85500	SY	\$ 1.00	\$ 85,500.00
28 Bermuda Grass Sod	23750	SY	\$ 3.00	\$ 71,250.00
29 Easement & Property Acquisition	1	LS	\$ 150,000.00	\$ 150,000.00

Project Subtotal	\$ 9,035,041.82
Contingency @ 10%	\$ 903,504.18
Soft Costs (Engineering, Permitting, Testing...) @ 15%	\$ 1,355,256.27

Total Estimated Cost \$ 11,293,802.27

Cost Per Linear Foot \$117.91

Note:

This estimate of construction costs is based on recent local area bid tabulations, industry estimating manuals and other available data. This estimate is without the benefit of actual bidding, local contractor input, or Local City or State final design approval. The actual costs, at bid could vary substantially.



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Phone: (479) 657-6885
R. Erin Rushing

15-May-15
Alta Project No: 2015-031

Itemized Conceptual Opinion of Probable Cost

South West Trail
From the Garland-Saline County Line to the Saline-Pulaski County Line
Saline County, AR

Length of Trail= 146378
27.72 miles

Item	Quantity	Unit	Unit Cost	Total
1 Mobilization Insurance & Staking & Bonding	1	LS	\$ 580,000.00	\$ 580,000.00
2 Erosion Control Maintenance	1	LS	\$ 108,750.00	\$ 108,750.00
3 Maintenance of Traffic	1	LS	\$ 87,000.00	\$ 87,000.00
4 General Demolition	1	LS	\$ 123,250.00	\$ 123,250.00
5 Clearing and Grubbing	1	LS	\$ 362,500.00	\$ 362,500.00
6 Strip and Stockpile Topsoil	1	LS	\$ 217,500.00	\$ 217,500.00
7 Utility Relocations (TBD)	1	LS	\$ 145,000.00	\$ 145,000.00
8 Earth Excavation	58000	CY	\$ 8.50	\$ 493,000.00
9 Earth Embankment	58000	CY	\$ 11.00	\$ 638,000.00
10 Vegetative Pruning	1	LS	\$ 72,500.00	\$ 72,500.00
11 Temporary re-vegetation	1	LS	\$ 29,000.00	\$ 29,000.00
12 General Drainage	1	LS	\$ 87,000.00	\$ 87,000.00
13 Retaining Walls	1	LS	\$ 300,000.00	\$ 300,000.00
14 4" Class 7 Base Rock	130008	LF	\$ 7.00	\$ 910,056.00
15 2" Asphalt in Railroad	130008	LF	\$ 12.00	\$ 1,560,096.00
16 4" Base for Concrete Trail	13481	SY	\$ 3.25	\$ 43,812.86
17 6" Concrete Trail	10136	LF	\$ 40.00	\$ 405,440.00
18 On-Street Bicycle Facilities - Striping and Signage	5634	LF	\$ 4.00	\$ 22,536.00
19 Boardwalk (12' wide)	600	LF	\$ 150.00	\$ 90,000.00
20 3-Rail Wood Fence	36595	LF	\$ 38.50	\$ 1,408,888.25
21 Crosswalk Striping and Signage	35	EA	\$ 750.00	\$ 26,250.00
22 Steel Bridges	1	LS	\$ 69,000.00	\$ 69,000.00
23 Saline River Crossing Bridge	1	LS	\$ 1,500,000.00	\$ 1,500,000.00
24 Abutments & Endwalls For Steel Bridge	1	LS	\$ 150,000.00	\$ 150,000.00
25 Trailheads w/ Parking	3	EA	\$ 400,000.00	\$ 1,200,000.00
26 Wayfinding Signage	1	LS	\$ 150,000.00	\$ 150,000.00
27 Topsoil Placement	14500	CY	\$ 20.00	\$ 290,000.00
28 Permanent Vegetation Seeding	130500	SY	\$ 1.00	\$ 130,500.00
29 Bermuda Grass Sod	36250	SY	\$ 3.00	\$ 108,750.00
30 Easement & Property Acquisition	1	LS	\$ 225,000.00	\$ 225,000.00

Project Subtotal	\$ 11,533,829.11
Contingency @ 10%	\$ 1,153,382.91
Soft Costs (Engineering, Permitting, Testing...) @ 15%	\$ 1,730,074.37

Total Estimated Cost \$ 14,417,286.39

Cost Per Linear Foot \$98.49

Note:

This estimate of construction costs is based on recent local area bid tabulations, industry estimating manuals and other available data. This estimate is without the benefit of actual bidding, local contractor input, or Local City or State final design approval. The actual costs, at bid could vary substantially.