



A Master Plan for the Mounds Heritage Trail



ACKNOWLEDGEMENTS

We wish to acknowledge everyone who assisted with the effort to complete the Mounds Heritage Trail Master Plan for both Missouri and Illinois. The Mounds Heritage Trail Committee, which met regularly for the past several years, for promoting the idea of a trail to link and interpret the archeological, cultural, historic, and natural resources of the region.

We especially want to thank our funders for this plan which include The National Park Service through a planning grant for connections to the Lewis and Clark National Historic Trail, The Norman J. Stupp Foundation, Confluence Greenway, and the Illinois Department of Natural Resources.

Special thanks also go to the Osage Nation, Congressman Carnahan, IHPA Cahokia Mounds State Historic Site, Great Rivers Greenway, Southwestern Illinois RC&D, and the many communities along the trail that have supported the effort.

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EXECUTIVE SUMMARY

The Mounds Heritage Trail Master Plan recognizes the culture that once existed in the region along with the largest Native American community on the North American Continent.

The Mounds Heritage Trail Master Plan analyzed various routes to connect Cahokia Mounds to the historic Mound Sites in Old North St. Louis and to Sugar Loaf Mound in South St. Louis, MO. The plan includes recommendations for on-road bike lane and separate bike path trail development and interpretation as well as an auto tour.

Significant sights along the route that are identified and suggested for interpretation include such iconic features as Chucalo Mound, The Majestic Theatre, Eads Bridge, the Gateway Arch, Soulard Market, Laclede Power Building and the National Road, just to name a few.

The Plan creates a framework for local communities and groups to begin implementation. Much will be done, early on, with on-road routing and signage along with a brochure to mark and interpret the route. Implementation of the more costly elements such as the spurs through the wetlands, the old stockyards and in E. St. Louis, IL will be as funding permits and opportunities arise.

The Mounds Heritage Trail Master Plan provides for a unique way to experience the significant resources of the region.

Experience, Learn, Explore and Enjoy!

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1. INTRODUCTION:

Background -

The metropolitan area now known as Greater St. Louis has been a center of population for, at least, the last 1000 years. There is evidence of villages, of varying size, located on both sides of the Mississippi River south of the confluence of the Mississippi and Missouri Rivers. (The largest of these communities, now identified as Cahokia Mounds, had a peak population estimated at 20,000 people.) Abundant water and wildlife, rich soil for agriculture, a central location, and proximity to the confluence of the rivers and other streams provided the inhabitants an ideal location to settle. We can surmise from some of the available evidence that the original indigenous inhabitants used both boats and trails to travel to these various communities for trade, ceremonies, and other functions. Routes that were, in all probability, used by later Native American cultures as the original inhabitants disappeared.

Monks Mound is the largest of the earthen structures found at Cahokia Mounds. The mound base covers approximately 14.4 acres. One estimate for the volume of soil needed to create the mound is 21,551,673 cubic feet or 2,160,000 pounds. Interestingly enough, previous excavations of the mound indicate that the soils are of varying composition and color, none of which is of a type found in the American Bottom floodplain of the Mississippi River.

One theory for its construction is that indigenous people from throughout the interior of North America brought soil in baskets to the site as a form of tribute. It is also believed that construction was continuous as there is no evidence of vegetative growth or signs of development between soil layers. Using a figure of fifty pounds per basket and averaging one basket per second it would still take 1 year and 4 months to construct the mound.

Over time, as European's migrated into North America, some of these same rivers and trails were used to reach the confluence area, establish European style settlements, and explore the "frontier" as they knew it. The first European community, aptly named Cahokia, was established in 1699 in Illinois. The settlement that became St. Louis was established sixty five years later in 1764. These communities, and others established later, have continued to grow into

a significant metropolitan area covering 8,649 square miles with a population of over 2,800,000. Yet after all this time the central core, the focus of the region, is the original main hub of transportation located near the confluence of the rivers and those original indigenous communities.

Today the area is crisscrossed by roadways and railways. The river is crossed by bridges instead of boats although the river is navigated by commercial barge lines and occasional pleasure boats. Several of these roadways have become scenic byways or have historical significance. Most converge on the "central core" in the East St. Louis-City of St. Louis area. These scenic byways are Route 66, The National Road, and Great River Road and each is visited by motorists for its natural, historical, and cultural significance.

By the 1960's automobiles had come to dominate transportation, a fact we cannot ignore. However, the concept of "intermodal" (that is using various methods of travel i.e. light rail, improved bus transportation, and bicycling) began to become more favorable again after the oil embargo of the 1970's, increased concern related to environmental issues, and a resurgence of bicycling for recreation and health. "Studies have shown that ... 43% of [bike] trail use is destination-based (League of Illinois Bicyclists, 2007) Many of the destinations that people travel by car in their day to day lives could be replaced by a bike trail, especially when 40% of all travel in town is less than two miles. (An anticipated bonus is that trails build a stronger, healthier community through daily interaction among the residence simply by encouraging people to be outside and active)". Today, the metropolitan region has over forty dedicated bikeways totaling some 200 miles.

While the counties and communities on both sides of the Mississippi River have bikeways, some within site of the river itself, there is no direct bikeway link across the river in that central core or original main hub. Furthermore, there is no link that connects or interprets the historic contributions of the original natives who built the communities and great mounds found at Cahokia Mounds and elsewhere in the region. The purpose of this master plan is to provide the documentation, analysis, and design elements in support of the development of such a bikeway and, in recognition of the automobiles dominant affect on our lives, a coinciding auto tour route titled the Mounds Heritage Trail.

Complimentary Planning Efforts -

Planning for the proposed Mounds Heritage Trail is an outgrowth of expressed interest in such an auto tour and bikeway as well as other past efforts related to bikeway and other recreational corridor development in the metropolitan

region. This section provides an overview of some of the more significant planning efforts and their relationship to the Mounds Heritage Trail.

The Confluence Master Plan:

The Confluence Project was originally conceived as a greenway where the people of St. Louis could acknowledge the importance of the region's place as a focal point of historical, cultural, and natural importance as the "symbolic, physical, and environmental heart of the region" and, to some extent, the nation. In 2001 a master plan was developed. Some of the goals outlined in the master plan are apropos to the Mounds Heritage Trail. These goals are:

- Develop a unique and authentic river and open space experience that builds upon the historical, cultural, and natural resources of the area
- Develop a linear system of parks and trails
- Connect communities, parks, natural areas, and historic sites.....
- Expand and enhance opportunities for interpretation, education, and recreation
- Foster local economic and community development
- Develop long-term partnerships and an ethic of stewardship to build, manage, and maintain [the parks and trail]

Specifically, the master plan recommends the development of a trail connecting downtown St. Louis to East St. Louis, Fairmont City, and Cahokia Mounds. Additionally, the plan indicated a trail connector from downtown St. Louis to neighborhoods to the north and south.



The Confluence Project and the Southwestern Illinois RC&D sponsored a bicycle ride from Cahokia Mounds (left) to Malcolm Martin Memorial Park (right) in East St. Louis to provide the Mounds Trail Advisory Committee and other interested stakeholders a sense of the cultural, historical, and natural features that could be enjoyed by users of the Mounds Heritage Trail. This has become an annual event.

Lewis and Clark National Historic Trail Comprehensive Management Plan

The LCNHT follows the historic route of Lewis and Clark from Hartford, Illinois to the Pacific Ocean. The National Park Service began the process of developing a Comprehensive Management Plan for the trail in 2009. The goal is to develop a plan “that will guide future administration and management of the Trail for the next 15-20 years. This plan will outline long range goals and issues, and will provide a vision for future opportunities and desired conditions along the Trail.” Preliminarily the NPS states that “ the purpose of Lewis and Clark National Historic Trail (LCNHT) is to commemorate the 1804-1806 Corps of Discovery expedition for the purposes of interpretation, identification, preservation, public use and enjoyment, and protection of historic, cultural and natural resources associated with the significance of this event and its place in American and Tribal history.”

Furthermore, “the Lewis and Clark National Historic Trail identifies the historic route where this event took place and provides opportunities for preservation, understanding, and further study of the expedition and its subsequent outcomes. The Lewis and Clark National Historic Trail links contemporary communities and tribes whose historic connections span countless generations to the places associated with the 1804-1806 expedition. The Trail provides the opportunity to demonstrate the continuum of human history in these same locations and the subsequent relationships that developed between multiple cultures as a direct result of this event.”

The Lewis and Clark Trail travels through St. Louis and has a link to the area for the proposed Mounds Heritage Trail. We know from the journals of William Clark that the Lewis and Clark expedition moved up river toward their encampment, passing the mouth of Cahokia Creek on December 7, 1803. The historic location of the mouth was in Illinois in the vicinity of Sugarloaf Mounds in Missouri. Additionally, Clark's journal entry of January 9, 1804 reports “*this fortress is 9 mouns forming a Circle two of them is about 7 foot above the leavel of the plain on the edge of the first bank and 2 m from the woods & about the Same distance from the main high land, about this place I found great quantities of Earthen ware & flints— about ½ m. N. is a Grave on an Emenince*” These are believed to be mounds of one of the outlying communities of Cahokia Mounds located in the Mitchell, Illinois area located at present day Interstate 270 and Illinois Highway 203 some seven miles from the main mound complex.

The Lewis and Clark State Historic Site is the “Official” site to commemorate Lewis and Clark's departure. Since this site is located in Hartford, Illinois just north of the proposed Mounds Heritage Trail corridor and the LCNHT provides

an opportunity, in part, to “demonstrate the continuum of human history”, there are several opportunities to link the LCNHT with the Mounds Heritage Trail both physically and through interpretation and as a bikeway or auto tour route.

East West Gateway Council of Governments:

In 2005 the East-West Gateway Council of Governments adopted the “*St. Louis Regional Bicycling and Walking Transportation Plan*” (EWGCC is the “metro planning organization (MPO) for the bi-state area [and] has responsibility for selecting the road, bridge and transit projects in the region that will receive federal funds.”) The plan was developed in cooperation with the Great Rivers Greenway District and prepared by HNTB, a St. Louis based consulting firm. Through surveys and regional open houses the EWGCC developed a plan which “depart[ed] from conventional master plans, which often focus on the development of priority corridors for bicycling and walking improvements and instead place[ed] emphasis on defining the nature of bicycling and walking environments and providing guidance on the elements common to model bicycling and walking facilities. (The study included methods for tying a bikeway system into the areas mass transit system, Metro, including buses and light rail.) In other words, rather than specify where facilities should be located, the plan serves as a “how-to and when-to” resource document for communities developing facilities. This concept is important due to its applicability to communities with limited budgets or areas where implementation of the bikeway might need to be developed in phases. The Plan provides a method for “qualitative assessment to help evaluate existing bicycling ... conditions and to promote best practices for bicycling. The checklist and environments are to be used to find solutions and to provide connectivity and consistency for municipalities, agencies, and stakeholders involved in the bicyclingproject.” Additionally, it provides an outline for model ordinances, marketing, and education.

Great Rivers Greenway:

Bicycle Master Plan -

As a part of Great Rivers Greenway's (GRG) planning and development efforts as a regional park district GRG is leading the effort to develop a regional bike master plan in cooperation with St. Louis and St. Charles Counties. This is a recent effort begun in early 2010. The goal of the Bicycle Master Plan is to create a “more connected region where more citizens are riding their bikes safely. The Bicycle Master Plan (BMP) is a roadmap to achieving this goal over the next several years. The plan will be project specific containing:

- specific facility recommendations (such as bike lanes or shared lane signage) for

specific roadway segments, • specific priorities for implementation in the short, intermediate, and long term timeframes, and • policy recommendations that can be adopted by public entities to support the goals of the plan.” The Master Plan Coverage Area will include St. Louis City and County, as well as St. Charles County.

The GRG Bike Master Plan is important to the Mounds Heritage Trail for several reasons. First, the vision for the Mounds Heritage Trail includes connecting the mounds groups located in St. Louis to the Illinois mounds found from East St. Louis to Cahokia Mounds. Therefore, the Mounds Heritage Trail supports GRG’s goal of a “more connected region” and it will be important to insure that the Mounds Heritage Trail receives recognition in this document. Second, “the master plan will be coordinated with existing bicycle plans developed by communities...” including bikeways such as the Mounds Heritage Trail. GRG’s cooperation and support in developing the St. Louis portions of the Mounds Heritage Trail will be critical. Finally, GRG can be a source of funding to develop the St. Louis portions of the trail.

The Great Rivers Greenway District (GRG) was established in November 2000 by the successful passage of the Clean Water, Safe Parks and Community Trails Initiative (“Proposition C”) in St. Louis City, St. Louis County and St. Charles County, Missouri. The District is funded by a 1/10th of 1 cent sales tax. In Illinois GRG’s sister organization, the Metro-East Park and Recreation District (MEPRD,) was established at the same time using very similar legislation.

Since their founding many projects have been implemented regionally, frequently in partnership with municipal, governmental and public agencies, as well as private and nonprofit organizations. Both districts are “model[s] for comparable green space initiatives nationwide.”

Bike St. Louis

The Bike St. Louis Project “is an outgrowth of a partnership between the City of St. Louis and the Great Rivers Greenway District. The idea came from then Alderman Lewis Reed and Congressman Russ Carnahan, long-time friends and cyclists who felt it was time to create a way to connect the parks in the City for cyclists and to provide safe commuter route options.”

By 2008 some 70 miles of bikeway existed “providing expanded connections from downtown to neighborhoods, business districts, educational, cultural and recreation amenities in North and South St. Louis. The ... routes also provide on-street connections to the North Riverfront Trail and the McKinley Bridge Bikeway along the Mississippi River in North St. Louis, as well as the River des Peres Greenway and Christy Greenway in South St. Louis ... [with] routes into the Cities of Clayton and Maplewood and offers users solid connections to Metrolink and Metro Bus stations. In addition, a public awareness campaign was introduced

made up of three posters with themes; safety awareness, encouraging people to consider the health and environmental benefits of cycling”

Bike St. Louis bikeways include bike paths separate from roadways, dedicated bike lanes on roadways, and bike routes which share traffic lanes on roadways. As currently developed, the project provides bikeways mainly in the City of St. Louis with extensions into surrounding communities and Illinois by way of the Old Chain of Rocks Bridge Bike/Pedestrian connection and a bike path on the McKinley Bridge. Both of these connections are north of the downtown core and distanced from the mounds area of St. Louis. However, development of the Mounds Heritage Trail could easily be connected to the Bike St. Louis system providing bicyclists from both sides of the river an opportunity to interact with the various communities served by the combined routes.

Old North St. Louis

The area of the City of St. Louis immediately north of the central business district was first established as the Village of North St. Louis in 1816 and was annexed into the City in 1841. For many years it was a main residential area of the city and included many local commercial establishments. Beginning in the 1950's Old North St. Louis, as it is known now, began a steady decline, as did much of St. Louis, as residents moved to the suburbs.

“In 1981, a group of residents, small business owners, and community leaders in the Old North St. Louis neighborhood established the Old North St. Louis Restoration Group as a not-for-profit corporation.... with a mission to restore and develop the physical and social dimensions of the community in a manner that respects its historical, cultural, and urban character.” As part of that mission the group prepared a Community Development Plan with the support of the City of St. Louis. An outgrowth of that plan was the creation of the “Old North St. Louis Historic Trail”, an on-street bike route and auto tour that is highlighted by numerous historic buildings and open spaces. The trail connects to the Riverfront Trail via Branch Street and a proposed Bike St. Louis bike route on Tucker.

Madison County Transit (MCT) Trails Plan

“In the early 1990s, MCT initiated its “rails to trails” program with the goal of preserving urban rail corridors for future light rail possibilities and interim trail use. MCT is one of the only transit systems in the country that has an integrated transportation system which links its own bikeways with its existing bus system.” With approximately 100 miles of bikeways developed and maintained, the MCT Trails system is a series of interconnected bikeways that link natural landscapes, neighborhoods, schools, parks, colleges, commercial areas and

other destinations.

MCT buses are equipped with bike racks, providing an opportunity to extend the intermodal transportation concept from bike to bus. The system links to the existing Missouri bikeways by way of the Old Chain of Rocks Bridge and McKinley Bridge mentioned in the previous section. While the Mounds Heritage Trail is located in St. Clair County, which is immediately adjacent to Madison County to the south, long range plans call for some of the Madison County bikeways to be extended into St. Clair County providing a potential connection to the Mounds Heritage Trail. This would improve the integration of the Mounds Heritage trail into a truly regional bikeway system.

MEPRD Long Range Development Plan

The MEPRD Long Range Development Plan is a comprehensive planning document for the Metro East Park and Recreation District published in 2003. The Strategic Action Plan included the following recommendation: the "District should utilize a minimum of 85% of its available non-overhead and non-reserve funds for the acquisition, preservation, development, and maintenance of an interconnecting system of parks and trails. A maximum of 15% of its funds should be set aside to provide grants ... to local park districts or other public and private entities ...for approved projects."

The plan identified up to 131 miles of trails throughout Madison and St. Clair Counties with an estimated construction cost of \$40,000,000 for future development. The plan also recommended that MEPRD's "financial participation" should not exceed 50% of any project cost where other sources of funding equaling a 50/50 grant were available. This would result in potential \$20,000,000 being available for funding such cooperative projects.

The plan recommended a number of trail routes that would have a terminus in East St. Louis providing a variety of opportunities for integrating the Mounds Heritage Trail into a regional network. The plan included a Mounds Trail with an allocation of \$125,000 toward development. However, their recommendation was for an interpretive driving [*auto-tour*] trail only.

The National Road

In 1806, President Thomas Jefferson signed legislation creating a National Road funded solely by the federal government. This road would provide a route from Cumberland, Maryland through Pennsylvania, Virginia (today West Virginia), Ohio, Indiana and Illinois. It has earned the title "the road that built the nation." Construction began in 1811 and, after years of labor, reached

Illinois. By the 1830s, the road in the eastern states needed repair but Congress opted not to fund the work and began surrendering ownership to the states.

The railroad's emergence in the 1850s plus the lack of maintenance of the National Road saw its popularity deteriorate. However, by the early 20th Century the rise of the bicycle and automobile created a demand for improved roads. The National Road re-emerged and was designated as U.S. Route 40 in the Federal Highway system.

Today the Historic National Road is promoted by the Federal Highway Administration (FHWA) and the six state National Road Associations, who desire to enhance, promote and protect its unique resources. It is designated as a scenic byway under the National Scenic Byway Program. "The program is a collaborative effort established to help recognize, preserve and enhance selected roads throughout the United States. The U.S. Secretary of Transportation recognizes certain roads as National Scenic Byways based on one or more archeological, cultural, historic, natural, recreational and scenic qualities." Efforts are underway by the National Road Association of Illinois to improve the interpretive aspects of the route including the development of a National Road Visitors Center in Vandalia, Illinois.

Portions of Highway 40 (also known as Collinsville Avenue) traverse the Cahokia Mounds area and the communities which would be included in the routing of the Mounds Heritage Trail. Although the National Road is identified as a National Scenic Byway and considered an auto tour route, the concept provides a unique opportunity to integrate the Mounds Heritage Trail and the National Road for enhanced interpretive prospects related to history and culture.

Mounds Heritage Trail – a Thesis by Jay LeChien

In 2007 University of Illinois landscape architecture student proposed as his thesis the development of plan and design for a seven and one-half mile trail from Cahokia Mounds to the Eads Bridge in East St. Louis, Illinois. His project was funded, in part, by the Illinois Department of Natural Resources and administered by the Southwestern Illinois RC&D. In his thesis introduction Mr. LeChien stated "This proposal represents phase one of trail planning with a primary purpose of "getting something on the ground" and to formalize an alignment or route so more extensive development can proceed in the future. Establishing the trail concept now will increase its recognition and use, as roadway and other projects proceed in the area. The corridor has been identified by regional groups which include The Natural Resources Conservation Service, The Illinois Department of Natural Resources, Metro-east

Park and Recreation District, Confluence Greenway and The American Bottom Ecosystem Partnership."

LeChien's research indicated that development of the Mounds Heritage Trail was beneficial not only for recreational and cultural purpose but for economic reasons as well. His thesis noted that approximately 55 million people travel annually for "heritage tourism" purposes spending an average of \$170 per day. "Heritage Trails are a key component to heritage tourism." The thesis continues, saying "the central questions that [planning for each] trail ... should answer include; Why do we want a trail here? (heritage tourism) Who is it for? (bike travelers) and What's it's purpose? (boost economy and tourism) and if the designer is not able to quickly answer these questions the trail design "May be ill-conceived" (Parker, Troy Scott, 1994). The heritage trail from the Eads Bridge to the Cahokia Mounds is classified in Troy Scott Parker's Trail Design Process and Guidelines as a "recreation and transportation trail." The heritage trail is meant to be an experience; an element that guides visitors to places of historical significance, takes advantage of local ecology, and inspires others to appreciate the history of the ground they walk on. Trails can bring in visitors from afar or encourage people nearby to get out and explore. The influx of heritage tourists brings economical benefits boosting local businesses and hopefully helping to create new business. Heritage trails also provide a great place for exercise and have more practical purposes that can aide in community development." This research clearly supports the need for and benefits of a Mounds Heritage Trail.

Based on the research, LeChien studied alternative routes and developed design elements for a Mounds Heritage Trail in Illinois. Since his study, additional interest has developed for creation of a Mounds Heritage Trail extension in Missouri as well. However, LeChien's thesis can provide much of the basis for the Mounds Heritage Trail Master Plan for the Illinois component.

Vision –

The Mounds Heritage Trail study corridor is a fascinating mix of cultural, historic, and natural resources in Illinois and Missouri. As the trail name implies, the focus is on showcasing Cahokia Mounds and the other mound complexes in the two states. It will be critical to link mounds and mound centers with other cultural, historical and natural resources. To make the Mounds Heritage Trail as inclusive as possible it is proposed that the trail be a multi-use trail, with an emphasis on bicycling, combined with an auto tour for motorists.

Based on these concepts, the following vision statement was prepared:

“Connecting Missouri and Illinois with a multi-use trail that interprets the rich cultures and communities of the past and present with Cahokia Mounds and other mounds centers in East St. Louis and St. Louis acting as focal points, tied together by vibrant, diverse cultures and unique natural resources.”

Goals and Objectives –

Specific goals and objectives have been developed to guide the development of the Master Plan. These goals and objectives are:

Goal 1) Promote an awareness of Pre-Columbian and other cultural, historical, and natural resources along the Mounds Heritage Trail corridor.

Obj. 1.1 Develop branding that incorporates the mounds theme.

Obj. 1.2 Utilize other symbols and logos as part of increasing awareness and knowledge.

Goal 2) Develop interpretive programming that promotes educational opportunities related to culture, heritage, and nature.

Obj. 2.1 Develop programming tailored to various age groups.

Obj. 2.2 Incorporate other group's existing & future programming .

Obj. 2.3 Establish educational context of varying cultural, historical and environmental perspectives.

Obj. 2.4 Maintain and expand cell phone tour stations along route.

Obj. 2.5 Explore webcam locations and other technology options (not yet known) for future interpretation.

Goal 3) Promote trail corridor through all media outlets as a local, regional, and national tourism destination.

Obj. 3.1 Develop and implement programming related to the promotion of the trail corridor.

Obj. 3.2 Develop touring itineraries based upon varying interests.

Obj. 3.3 Develop self-guided media tour for all users.

Obj. 3.4 Create and maintain website.

Goal 4) Cultivate partnerships with communities, organizations, and agencies to develop and support the Mounds Heritage Trail.

Obj. 4.1 Establish broad outreach with residents along the corridor during Planning, development, and after trail completion.

- Obj. 4.2 Expand existing resolutions of support to include other entities.
- Obj. 4.3 Foster links that spur economic benefits to areas adjacent to or near the Mounds Heritage Trail.
- Obj. 4.4 Hold a regular (at least annual) coordination meeting with partners and agencies to provide updates and seek cross-promotion opportunities.

Goal 5) Integrate Mounds Heritage Trail with other existing and planned local, regional, and national trails as well as scenic byways.

- Obj. 5.1 Identify opportunities to integrate both physical and thematic connections.
- Obj. 5.2 Explore future alternative routing options to improve connections.
- Obj. 5.3 Seek cross-promotion opportunities with national and scenic byways.

Goal 6) Develop an implementation strategy for the multi-use trail.

- Obj. 6.1 Work with partnering entities to ensure a safe and secure trail route.
- Obj. 6.2 Develop maintenance program, schedule, and projected costs in partnership with managing agencies.
- Obj. 6.3 Develop an “adopt a trail” volunteer group.

Public Participation –

Public participation in the development of the Mounds Heritage Trail Master Plan is divided into two elements: the Advisory Committee and Public Forums.

The Advisory Committee was an outgrowth of the gathering of a number of representatives from government agencies, non-profit organizations, and universities to discuss the feasibility and promotion of the Mounds Heritage Trail. Representatives from the following organizations or agencies participated in the original group meetings:

- Collinsville Park & Rec. District
- City of East St. Louis
- Fairmont City
- The Confluence Project
- Southwestern Illinois RC&D
- Illinois Dept. of Natural Resources
- Metro East Park & Rec. District
- Illinois Historic Preservation Agency
- National Park Service
- East West Gateway Coordinating Council
- Great Rivers Greenway
- Illinois Dept. of Transportation
- Washington University
- American Bottoms Conservancy
- Middle Mississippi River

The partnership group first began meeting in 2007 to discuss the potential interest in developing a Mounds Heritage Trail. After an initial show of support the group began meeting on a regular basis to study the feasibility of the trail's development and to begin building community support for the idea. With funding from the Illinois Department of Natural Resources, Jay LeChien, a landscape architecture student at the University of Illinois joined the group through the auspices of the University's East St. Louis Action Research Project. LeChien provided additional technical expertise as part of the development of his thesis project. As part of his research, LeChien assisted the group by studying various routes, preliminary design elements, and points of interest. A program was developed and presented to various government agencies. Additionally, a resolution of support was prepared and presented to these agencies. To date eleven agencies have signed the resolution supporting the development of the Mounds Heritage Trail.

With the receipt of funds from the Norman J. Stupp Foundation and the National Park Service Challenge Cost Share Program funds as well as the commencement of the Master Plan preparation the original group of organizations will be reconstituted as the Master Plan Advisory Committee. In addition to the organizations listed above other organization may be added. (In particular, the Osage Nation which recently purchased the Sugar Loaf mound in St. Louis has expressed interest in participating.) They will provide technical expertise, advise the master plan team, and critique the master plan as it is prepared.

In order to build general public support for the master plan, public forums were held in both Illinois and Missouri to present the plan to interested attendees. These forums were conducted upon development of the draft master plan. The forums provided maps, narratives, and other information for review by anyone from the general public interested in the project. Their comments and contributions were considered and incorporated into the master plan when appropriate prior to its publication. Comments included the addition of loop routes connecting the main trail with neighborhoods in Illinois and Missouri, improved connection to Metrolink stations where possible, and suggestions for interpretation and education.

2. EXISTING CONDITIONS:

Natural Resource Inventory –

Basic Geography and Natural Resource Conditions

Topography

For many bikeway users the proposed Mounds Heritage Trail corridor is ideal for its intended use. In Illinois the corridor is located in the American Bottom, a floodplain of the Mississippi River. The American Bottom was formed after the last Ice Age and is a composite of deposited eroded materials and old channel scars made as the river meandered back-and-forth across the floodplain. This combination has left a series of slightly higher ridges interspersed with narrow swales. Overall the total elevation change of the bottom is no greater than ten feet. As such, the topography is fairly flat with slopes less than 1% in most locations. Most elevation changes are man-made and include raised roadways, bridges, landfills, and the Cahokia Mounds.

The Missouri portion of the corridor is somewhat different. At the time of European settlement the area that is now downtown St. Louis was selected for a settlement because it was the first significant high ground south of the confluence of the Mississippi and Missouri Rivers not subject to flooding. A forty foot high terraced limestone bluff existed when the area was first settled. The bluff no longer exists. Years of commercial development, road and railroad construction, and control of the river have created a more

The Laurentide Ice Sheet (18,000 - 20,000 years ago) played a significant role in creating changes to the area's landscape. As the ice sheet advanced and retreated it delivered huge volumes of water and sediment to the Mississippi and other Midwestern Rivers. The resulting effects were abandoned channels, levees, splays and other floodplain features on the river valley's exposed terraces.

Changes in the Mississippi's channels during the Wisconsin (late Pliocene) and Holocene period left undulating sand ridges, sweeping natural levees, and rich alluvial soil scars, pocked with abandoned channels, swamps, sloughs and wetlands. These slight variances in topography allowed for a great diversity of flora and fauna within the region.

gently rising river bank. The forty foot rise still exists between the river and the approximate top of the bank along Broadway and Memorial Drive but it is in an incremental series of terraces punctuated by streets running north and south parallel to the river. Therefore, the slope of any proposed trail corridor adjacent to the river will average approximately 4 to 5%. Once one reaches the top of the rise the topography is very similar to the American Bottoms with slopes of approximately 1%. As such, any trail route in this area will include slopes requiring some effort to ascend. For most, but not all cyclists, this will create little difficulty.

Hydrology

Originally the American Bottom was an open floodplain of the Mississippi River with remnant channels (oxbows), sloughs, meandering tributaries, wet prairies, and wood covered ridges. As development occurred much of this area has been significantly modified. Levees have nearly eliminated river flooding, tributaries have been channelized into straight running canals, farmland has replaced many of the wet prairies, and commercial and residential development has occurred on many of the ridges. However, significant areas of lakes and wetlands still exist due to the cost of draining the wetlands, new environmental regulations, and the need for storm water storage capacity. Because of these factors the trail corridor in Illinois includes extensive areas of lakes and wetlands. These natural areas can provide scenic enjoyment as well as interpretive opportunities for trail users. But, this can also be problematic. Because of the nature of the floodplain heavy rainfall can create temporary flooding including some of the roadways or alternative routes that could be used for the trail. Therefore, routing and types of surfaces may be influenced by hydrology.



Wetlands such as this dot the American Bottom in Illinois including areas proposed for the Mounds Heritage Trail

Vegetation

Vegetation in the study corridor can be divided into four categories:

- Forest – Bottomland or Floodplain forest was found throughout the American Bottom on depositional ridges or other high ground which received intermittent or infrequent flooding. Typical species of the forest include Willow, Cottonwood, Green Ash, Pecan, Persimmon, Sycamore, Deciduous Holly, American Bittersweet, various Dogwoods, and other species. Remnant forests remain in the American Bottom portion of the study corridor that have avoided filling and development. After years of modifying the landscape, first by settlers and now by extensive commercial and residential development, numerous invasive species have been introduced.

In Missouri, floodplain forest would have been found immediately adjacent to the river. Atop the original bluffs would have been upland forest composed mostly of trees such as ash, maple, oak, and hickory. Today, those original forests are non-existent except for a thin ribbon of native trees along the riverbanks north of downtown. Existing trees within the corridor have been planted as landscaping of commercial and residential areas.

- Grasslands (Wet prairie) – Grassland or Wet Prairie areas were found in the American Bottom in topographic zones between wetlands and/or lakes and forests. They could also be found in areas where soils contained high gravel content allowing for rapid percolation or drainage of water from rains or floods. These areas would have been subject to intermittent flooding but not long periods of standing water. Typical species of wet prairies include species such as Switchgrass, Little Bluestem, Wild Rye, various Sedges, Swamp Milkweed, Swamp Aster, Rose Turtlehead, Ironweed, and numerous other grasses and forbes. Small remnant areas of wet prairie still exist adjacent to wetlands in the study area. Areas that have remained fairly undisturbed have been able to withstand the encroachment of invasive species. Other areas that might have been farmed would be found to include a combination of invasive species and native plants.

In Missouri wet prairies would have existed in some areas along the riverfront. Development has eradicated the native prairies. Today, there is an effort being undertaken to restore wet prairie habitat along the Riverfront Trail north of downtown including within the study area.

- Wetlands – As defined here, wetlands are areas of soils saturated with

water having intermittent standing water due to storm runoff or other flooding. Prior to development there were extensive wetlands throughout the American Bottom. Due to channelization of streams, construction of levees, drain tile installation, and filling much of these original wetlands have disappeared. Remnants such as Indian Lake still exist in or adjacent to the study corridor in Illinois. These areas are somewhat to highly degraded due to past and present pollution from runoff, invasive species, and other environmental conditions. There are some efforts being made to improve the quality of these wetlands through replanting of native plants and invasive species control but the improvements are slow to come.

- Aquatic – Aquatic areas are those that have some level of standing water year-round. Pre-development these extensive areas would have been in cut off channels of the river (oxbows) and tributary streams as they meandered across the floodplain. Plants such as cattail, arrowheads, lotus, rush, Pickerel weed, and water lily are common. Today much of these areas have been drained although remnants remain in the study area in the American Bottom. The condition of the vegetation varies from good too poor depending on surrounding land use, past use or abuse, and other environmental factors.

Vegetation does not have a direct impact on the routing or development of the Mounds Heritage Trail. Instead, it can have a significant impact on aesthetic quality, variety of scenery, level of user enjoyment as well as interpretive opportunities.

Natural Resources of Interest

Within the study corridor, the areas with natural resources of interest are found in Illinois (*Map 1*). In the community of Fairmont City lies a wetland and wet prairie area that is called Indian Lake. Available research indicates that this area is a former river channel. Over time much of the channel was filled by sediment becoming a wetland with several areas of standing water. There are remnants of a stream channel (probably the former channel for Canteen Creek) which has been cut off from its natural drainage pattern by road and other construction. A portion of Indian Lake was converted to a golf course at one time. However, the course was restored to its natural condition as part of a wetland mitigation project for the construction of state highway projects in the area. In addition to the diverse plant community that is available for viewing and interpretation, there are numerous opportunities to view wildlife including birds and amphibians. Herons, egrets, mallard ducks and various songbirds are known to inhabit Indian Lake. Black Crowned Night Herons, an endangered species, have been identified in adjacent areas and may occasionally visit the site. This site is also identified in the Army Corps of Engineers E. St. Louis and



Map 1: Natural Resources of Interest

Legend

- Mounds Heritage Site
- Metrolink Stations
- Main Alignment
- Loop Options
- Wetland Trail
- Existing Trail
- Planned Trail
- Mounds Heritage Sites
- Public Open Space
- Spring Lake USACOE Restoration Area
- Forest
- Grassland
- Vegetated Wetland
- Bodies of Water/Open Water Wetland
- Metrolink
- Railroad
- Streams

Madison County Parcel Data 2010
 St. Clair County Parcel Data 2010
 St. Louis County Parcel Data 2008

0 0.25 0.5 1 Miles



Vicinity Ecological Restoration Project as an area for restoration and flood control.

East of Indian Lake is the open space of the Cahokia Mounds State Historic Site. While much of the area is maintained as lawn interspersed with the prehistoric mounds there are some natural features of interest. There are three areas that have been identified as borrow pits for the indigenous inhabitants of the mounds community. Over time these areas have become naturalized wetlands that now provide opportunities for wildlife viewing. Additionally, portions of the State Historic Site have reverted to forest and because of their low lying position and slow drainage have many of the characteristics of the original floodplain forest. When combined with the wetlands there is significant diversity of habitat.

These natural areas provide an aesthetic backdrop for recreational use of the trail. Additionally, the opportunity for interpretation and wildlife viewing is enhanced by the existence of a trail system that traverses the wetland and forested area.



Many varieties of birds migrate through or live year round along the Mounds Trail corridor

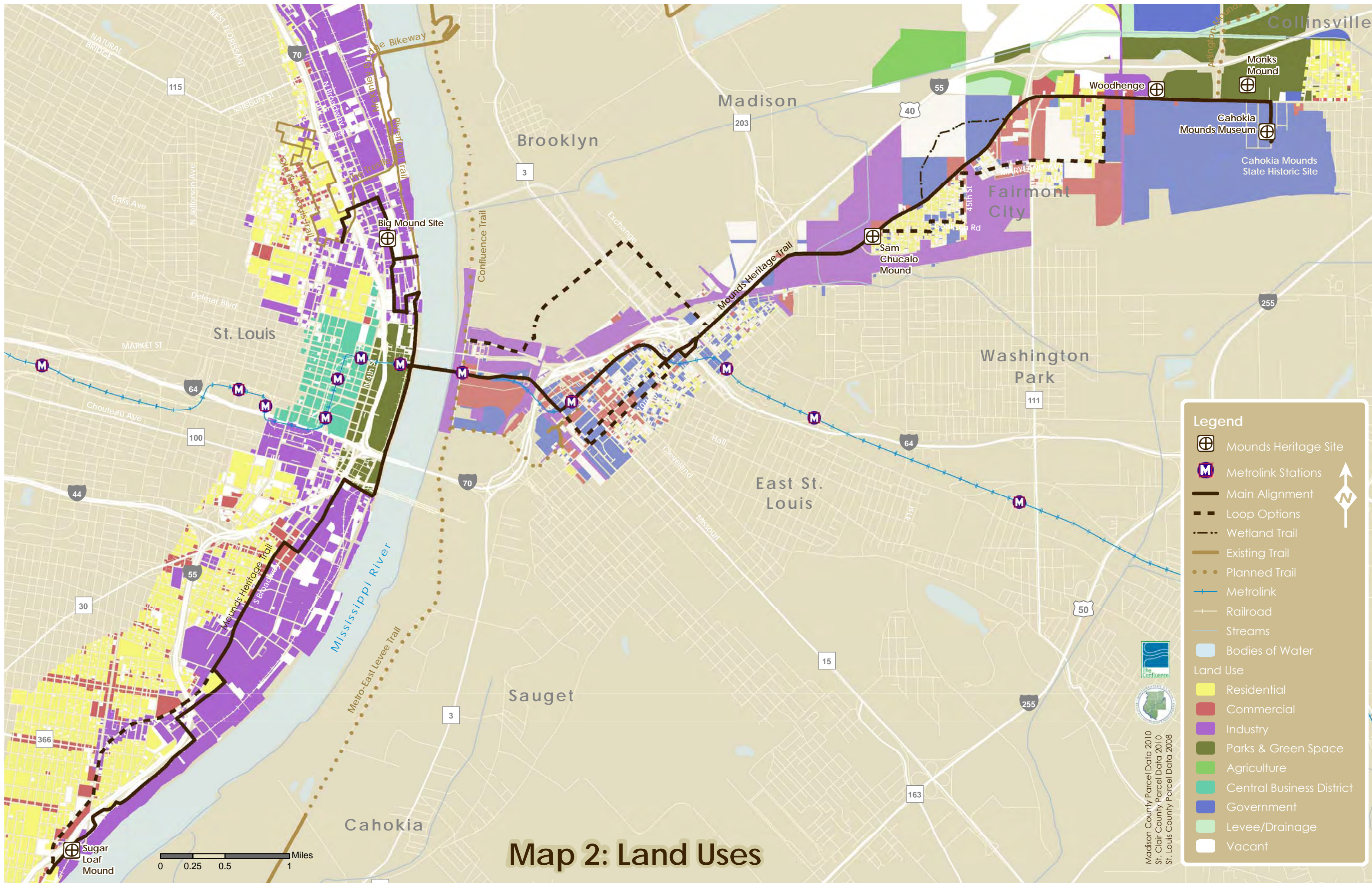


Abundant plant life support a variety of animals and insects in natural areas throughout the study corridor

Cultural Resource Inventory –





















Land Uses

As can be expected in an urban area there is a significant variance in land uses within the study corridor. Any route selected for the Mounds Heritage Trail will pass by or through areas of commercial, residential, industrial, institutional, and governmental land uses. (Map 2)



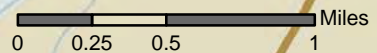
Map 2: Land Uses

Legend

-  Mounds Heritage Site
-  Metrolink Stations
-  Main Alignment
-  Loop Options
-  Wetland Trail
-  Existing Trail
-  Planned Trail
-  Metrolink
-  Railroad
-  Streams
-  Bodies of Water
- Land Use**
-  Residential
-  Commercial
-  Industry
-  Parks & Green Space
-  Agriculture
-  Central Business District
-  Government
-  Levee/Drainage
-  Vacant



 Madison County Parcel Data 2010
 St. Clair County Parcel Data 2010
 St. Louis County Parcel Data 2008


 0 0.25 0.5 1 Miles

Beginning at Cahokia Mounds and moving east through the corridor one is struck by the amount of vacant land north of Collinsville Avenue (The National Road) This vacant land is a combination of undeveloped industrial, commercial and residential land interspersed with open space used for storm drainage storage and government property. Fairmont City, also located in this area, is mostly residential. But, as one travels further west and enters East St. Louis, there is a mix of residential with a central business district comprised of commercial, governmental, institutional and, interestingly, a large number of parcels identified with social or non-profit organization with very little land identified as industrial.

Traveling west into Missouri and the City of St. Louis the variation in land use in a given area dwindles significantly. There is a distinctive central business district that is predominantly commercial with an intermingling of governmental. Immediately north and south of this commercial core are industrial districts adjacent to the Mississippi River. Away from the river to the west of the industrial areas are residential areas.

Demographics

The St. Louis area has a diverse demographic makeup comparable to many urban metropolitan areas. In the Missouri portion of the study corridor the City of St. Louis has an estimated population of 356,587 (2009 figures). The majority of the population falls into two census categories: African-American (48.9%) and white non-Hispanics(44.8%). The remainder of the population is Hispanic (2.9%), Asian (2.1%), and several smaller groups (1.3%). While much of the study corridor traverses the commercial and industrial area of the City, residential areas are immediately adjacent to or in close proximity to the corridor.

Still in Missouri, income within the study area varies greatly. In the northern reaches of the study area, in the area identified as Old North St. Louis, average per capita income is \$9,500 or less. In the central area, income for households found in the Loft District and Souldard Market area averages \$20,000 up to \$42,000. South of the Souldard Market area the per capita income has a greater variance. There are pockets of very low income (\$0-\$9,500) ranging up to pockets of moderate income (\$20,000-\$42,000).

In Illinois the study corridor passes from west to east through East St. Louis on the Mississippi riverfront, Fairmont City, and to Cahokia Mounds State Historic Site where portions follow the Madison-St.Clair County boundary as Hwy 40/ Collinsville Road (The National Road). Overall St. Clair County had a population of 263,617 (2009 data), of which East St. Louis contributed approximately 29,400 and Fairmont City provided approximately 2,400. The majority of the population falls, again, into two census categories: white non-Hispanics (65.1%)

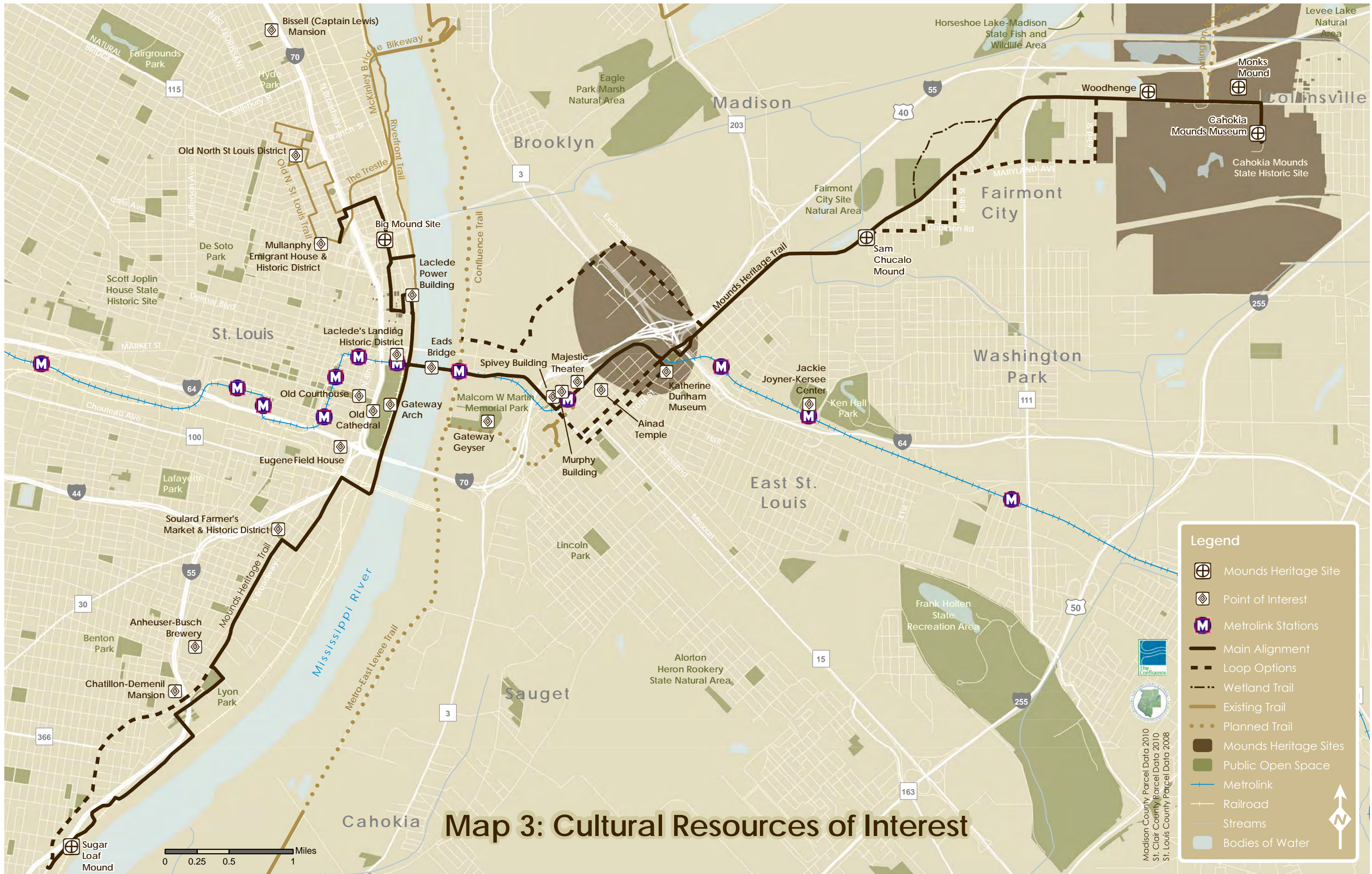
and African-American (29.4%). The remainder of the population is Hispanic (2.8%), Asian (1.2%), and other groups (4.5%). Unlike the Missouri portion, the study corridor in Illinois traverses a mix of commercial and residential areas in East St. Louis and mostly residential areas in Fairmont City.

Income in the Illinois portions of the study area show less variation spread over a greater geographic area than Missouri. Per capita income ranges from \$0 up to \$20,000 per year with the largest geographic area (and probably largest population group) within the lowest income range of \$0 to \$9,500. Portions of Fairmont City lie within the \$12,000 to \$20,000 income group. Income can have a direct bearing on trail use, not for recreational purposes as much as for transportation. A bikeway that connects residential areas to centers of employment can provide an alternative, inexpensive form of transportation for lower income employees. Instead of automobiles or mass transit, employees can use bicycles in most weather conditions thereby stretching their limited income.

Cultural Resources of Interest

Obviously, the most significant cultural resources in the study corridor are Cahokia Mounds in Illinois and the Jefferson National Expansion Memorial (The Gateway Arch) in Missouri (Map 3). The Cahokia Mounds State Historic Site preserves, interprets, and celebrates the contribution of the indigenous people who established, built and lived at Cahokia Mounds and surrounding indigenous communities on both sides of the river. This included a complex of over thirty five mounds in Missouri north of the current location of the Gateway Arch and Eads Bridge as well as smaller groups of mounds found in present day East St. Louis. Within the State Historic Site over one hundred mounds have been identified along with the remnants of a palisade and Woodhenge, a solar calendar. The Site would provide Mounds Heritage Trail users a unique destination point that includes an interpretive center with extensive displays, site tours, and trails for education and recreation.

While Cahokia Mounds interprets the prehistoric past, the Gateway Arch interprets the opening of the "frontier" by settlers. The National Park Service states "The Gateway Arch reflects St. Louis' role in the Westward Expansion of the United States during the nineteenth century. The park is a memorial to Thomas Jefferson's role in opening the West, to the pioneers who helped shape its history, and to Dred Scott who sued for his freedom in the Old Courthouse." The Gateway Arch is a focal point in downtown St. Louis and could be another destination point for education and recreation for Mounds Heritage Trail users.



Map 3: Cultural Resources of Interest

Legend

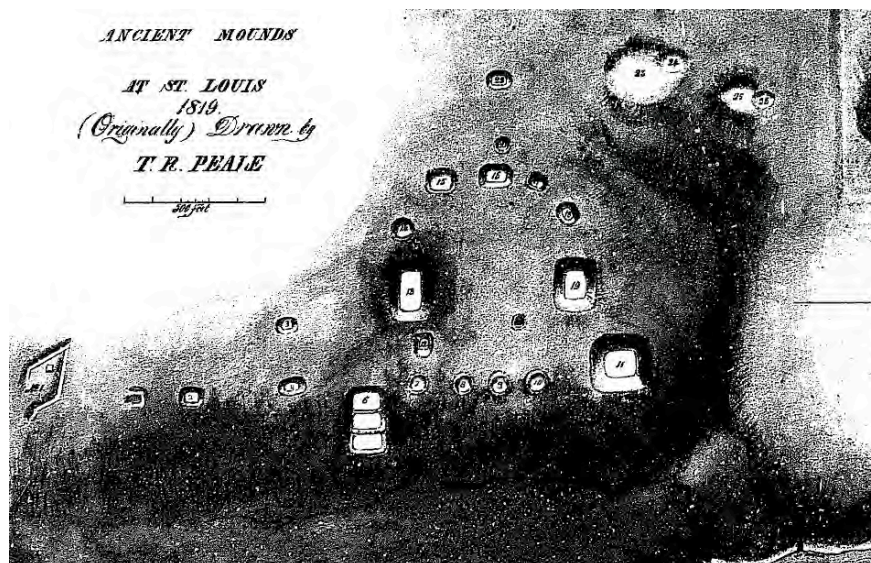
- Mounds Heritage Site
- Point of Interest
- Metrolink Stations
- Main Alignment
- Loop Options
- Wetland Trail
- Existing Trail
- Planned Trail
- Mounds Heritage Sites
- Public Open Space
- Metrolink
- Railroad
- Streams
- Bodies of Water

Madison County Parcel Data 2010
 St. Clair County Parcel Data 2010
 St. Louis County Parcel Data 2008

0 0.25 0.5 1 Miles



*Big Mound as it was being destroyed for fill dirt in 1869.
The mound was located in area of current day Broadway and Mound Street.
This was the largest of the St. Louis mounds complex and located north of the main group*



*Copy of map drawn by T.R. Peale in 1819 showing
most of St. Louis mounds complex. This group was located in area
of current day Broadway and Biddle Street.*

In addition to Cahokia Mounds and the Gateway Arch there are many other points of cultural interest in the study corridor. For example, East St. Louis is also the site of a significant group of mounds, one of five (including Cahokia) in the St. Louis region. "Henry Brackenridge first reported the East St. Louis Mound Group in 1811. He documented 45 to 50 mounds sweeping in a large arc along the east bank of the Cahokia Creek just east of the Mississippi River. Remnants of at least nine mounds remain today." The Powell Archaeological Research

Center (PARC) has focused preservation efforts on the ritual center of this mound group. Eighteen parcels are now protected and represents a significant step forward toward PARC's goal of establishing a large East St. Louis green-space, and cultural preserve.

Near the East St. Louis mounds is the Katherine Dunham Museum. Ms. Dunham was a critically acclaimed, dancer, choreographer, instructor, and collector of African and Caribbean art objects. Today, her home houses the museum dedicated to her life and to her collection of art. It is operated by the non-profit Katherine Dunham Centers for Arts & Humanities. Downtown East St. Louis also has a number of architecturally important buildings. Although many of these structures are somewhat deteriorated they still convey a sense of their original beauty and unique style. Structures such as the Spivey Building, the Broadview Hotel, and Majestic Theater represent what was East St. Louis in its heyday.



Majestic Theater Located On Collinsville Avenue in East St. Louis

Immediately adjacent to the Mississippi River in East St. Louis and near the Eads Bridge is Malcolm Martin Memorial Park. The park is directly across the river from the Gateway Arch. Dedicated to the memory of Malcolm Martin who worked to develop a complimentary facility to the Arch on the east river bank, the park includes an elevated observation deck that allows visitors an unobstructed view of the Arch grounds and the river as well as a spectacular fountain with a jet of water rising to as much as 600' centered in a lake. Connecting East St. Louis to St. Louis is the previously mentioned Eads Bridge. Built between 1867 and 1874, it was the first bridge across the river in the St. Louis area. It also set many other records being the longest arch bridge in the world at the time, first to use a cantilever construction method, and first to use steel as its main support element. After undergoing renovation it now includes

a walk system suitable for bicycles and pedestrians alike. The bridge also carries the Metrolink light rail system between Illinois and Missouri. The tracks run just below the upper level dedicated to vehicles, pedestrians and bicyclists. There are two stops on either end of Eads Bridge creating potentially excellent access from the bicycle friendly light rail system to the trail.

In St. Louis important landmarks within the study corridor include the Old Cathedral which is adjacent to the Gateway Arch and Old Courthouse. The Old Cathedral was the first Catholic cathedral west of the Mississippi. Additionally there are other historic structures such as the Eugene Field House, Soulard Market, the Anheuser-Busch Complex, the Ashley Street Powerhouse (Trigen), the Laclede Power Building, and more. The Eugene Field House is a historic house museum whose mission is to inform the general public about the life, works, and times of Eugene Field, display Field family memorabilia and other period artifacts, to educate visitors about Eugene Field's father, Roswell Martin Field, who served as Dred Scott's attorney when he sued for his family's freedom in 1853, and to collect and exhibit toys as an outgrowth of Eugene Field's abiding interest in collecting children's toys and dolls. Soulard Market is the oldest functioning farmer's market west of the Mississippi River having



Eugene Field House and Toy Museum



Anheuser-Busch Brewery Complex

been established in 1838. Today, the market is a vibrant community asset with vendors selling a variety of food and produce to individuals, restaurants, and grocers. The Anheuser-Busch Complex, home to the brewery of the same name, is an iconic point of interest for many local residents as well as tourists. Many of the buildings have architectural features of interest as well as being a visual landmark for south St. Louis. Tours of the facility are given frequently providing visitors a glimpse into the history of brewing in St. Louis as well as the

modern production facilities. The Ashley Street Powerhouse and Laclede Power Building are at the southern terminus of the Riverfront Trail, an 11-mile bike/hike trail following the Mississippi river northward to North Riverview Park and the Old Chain of Rocks Bridge. The Laclede Power Building is planned for redevelopment including a visitor center for trail users. Any route for the Mounds Heritage Trail can incorporate portions of the Riverfront Trail and include the visitor center for trail users' information and services.

The various cultural points of interest provide an extra layer of quality to a trail user's experience. These cultural points are needed to attract visitors from outside the region as well as provide different experiences for users each time they return to the trail.

Favorable Factors –

There are a number of favorable factors in support of developing a Mounds Heritage Trail. These factors can be identified as:

- Growing local interest in bicycling as a form of transportation and for recreation.
- An existing and growing network of bikeways in Illinois and Missouri into which a Mounds Heritage Trail can connect.
- Favorable topographic conditions (i.e. fairly flat) that allow for a leisurely ride, if desired, for a majority of the study corridor.
- Significant cultural, historic, and natural points of interest to attract users, both bicyclist and auto tour.
- Identified and established support by local agencies, non-profits, and individuals for development of Mounds Heritage Trail.

Constraints –

There are a number of constraints that limit the development of a Mounds Heritage Trail. These constraints can be identified as:

- Routes for bikeway following existing streets or roads would need considerable upgrading to create a separate bike lane or bike path.
- Some areas within the study corridor have a reputation as being unsafe.
- Limited funding available for completing the trail without phasing of development.
- Perception that trail would not be used

3. NEEDS ANALYSIS:

User Needs –

Variety of Scenery and Attractions

In order to attract and maintain a constant base of users, both bikeway and auto tour, one critical need is a route with a variety of scenery, attractions, and learning opportunities that will stimulate the users, both visually and intellectually. There must be enough variety to not only attract users initially; but, to keep people coming back and to invite others to take pleasure in the Mounds Heritage Trail.

A changing landscape is the key to a variety of scenery. While probably not at the same level of scenic interest as a trip in the Ozarks or southern Illinois, there is none-the-less a diverse landscape within the study corridor that many will enjoy. The corridor contains historic neighborhoods with different styles of residential and commercial architecture, an urban core, a river crossing, historic mounds, and floodplain wetlands and woodlands. This allows users to view a broad spectrum of sites from a somewhat rural feel to strictly urban.

The attractions within the study corridor are probably as abundant as in any urban bikeway corridor. Internationally recognized features such as the Gateway Arch or Cahokia Mounds are the major points of interest but there are also parks, casinos, museums, retail centers, architectural gems, restaurants, and engineering marvels. These attractions allow users diverse opportunities to just enjoy the passing view or stop along the way to spend more time at a particular point.

With a variety of both scenery and attractions there are ample opportunities for both local residents and visitors to enjoy the Mounds Heritage Trail. This in turn provides both recreational opportunities and economic benefits to the community.

Passable Bikeway Route

A passable bikeway route, as defined here, is one that follows a route of easy

to moderate terrain that can be ridden by the average user and not just avid cyclists. It should be expected that the Mounds Heritage Trail may be used by bicyclists for not only for touring but also for exercise and commuting. (While it is not anticipated that commuting will be a significant factor in the trail use, the fact that the study corridor traverses residential, commercial, industrial and downtown areas may invite more commuters to use the route over time.) The study route, for most of its distance, follows relatively flat terrain with an average slope of less than five percent. Except for periodic changes in slope, the only significant areas of steep slope will be encountered accessing the Eads Bridge, and possibly traveling from the St. Louis riverfront up to the level of the original bluff line in the vicinity of Broadway.

Clearly Marked Auto Tour Route

For an auto tour to be usable and enjoyable a driver must be able to easily follow the tour route. This can be most easily accomplished by clear and easily identifiable route markers such as a sign with logo or text (or combination of both). There must also be a means of coordinating the location of important features with guide books or informational brochure. With technology advances this may be also be accomplished with GPS guided systems (which are being used elsewhere) when funds are available.

Trailheads, connections to other trails, and user services

The use of any trail system, for whatever purpose, is dependent on ease of access. In order to use a trail it must have identifiable points of access commonly referred to as "trailheads". Trailheads may be at the terminus of trails or points between. But, trailheads tend to have certain characteristics in common. Because of our dependence on automobiles, trailheads will, in most cases, include parking facilities. They also typically have, at least, rudimentary informational signage as well as a map. In some cases, a trailhead may have restrooms, drinking water, and a method for distributing printed brochures. Because of its more or less urban setting, the Mounds Heritage Trail study corridor includes a variety of locations, some already suitably developed, appropriate for use as trailheads

In addition to trailheads, use of a trail can be increased, if not maximized, by connections to other trails or trail networks. An isolated, stand alone trail going from one point to another with little or no connection to other trails will attract few users unless the trail is extremely unique or has extremely unique attractions to draw visitors to it. (It will also be difficult to attract repeat visitors.) A trail system that connects to a variety of other trails or networks provides users diverse opportunities to enjoy different scenery, terrain, attractions, and experiences. Additionally, many users prefer a trail system that allows them to

travel a loop instead of an “out-and-back” experience. While the Mounds Heritage Trail connects points of interest in St. Louis to Cahokia Mounds in Illinois in a traditional “out-and-back” fashion, there are ample opportunities to connect to existing trail systems in St. Louis (Bike St. Louis, Old North St. Louis History Trail, Riverfront Trail) and Illinois (Madison and St. Clair Counties systems).

Along with trailheads and trail connections many users prefer and more people are attracted to a trail that include user services at different points along the trail unless the sole purpose of the trail is for recreational use in a natural setting. User services may include, but are not limited to, restrooms, food, bicycle rental and repair, retail outlets, and museums. While limited to some extent, the study corridor includes these services and has potential for expansion once the trail is completed.

Educational Opportunity

Trail users who are interested in recreational and educational use seek a variety of information during their visit. The rich history, cultures, and environmental resources of the corridor provide many topics of interest to users. While diverse topics are critical it is also important to maintain topical themes that tie into each other throughout interpretation along the trail. It is also important that users be able to enter the trail at any point and immediately begin absorbing information without feeling as if they have missed an important part of interpretation along the trail.

Trail interpretation should tie in seamlessly with significant points of interest that offer their own educational programming and interpretation. This will invite and encourage users to learn more by visiting a specific point of interest along the trail.

When possible collaborations between existing and partnering organizations should focus programming specifically for the users of the trail. And potential users of the trail through provision of educational opportunities at other venues. This will help foster new and fresh educational opportunities as well as attract new users to the corridor. As funding becomes available, additional interpretation and educational brochures should be developed or retrofitted on existing signage and information kiosks in order to keep the look and feel of the trail up to date and ensure both new and returning visitors maximize their educational and recreational experiences.

General Safety Needs –

Impediments Along Route

The surface material of any trail is a key component of users' enjoyment and attracting return visits. Obviously auto tour users will be traveling on road surfaces. A smooth concrete or asphalt surface free of potholes and cracks is preferred. A rough, uneven surface distracts drivers and passengers to some extent. A smooth surface minimizes distractions and allows drivers some time to enjoy the features of the tour. For bikeway users a smooth surface is an almost absolute necessity. If a bike route or bike lane is used on a roadway the trail is sharing the surface with the auto tour users. If a bike path has been developed the trail is separate from the auto tour but the principles concerning the surface are the same: rough surfaces are uncomfortable for the bicycle rider, can cause wear and tear on equipment, and prevents the rider from enjoying the ride features. Surface conditions of any potential route within the study corridor must be assessed and recommendations for improvements made.

Street crossings are an additional impediment on trail routes. The impediment is, basically, insignificant for auto tour users. Minor intersections create minor problems for autos that can be controlled with stop signs. Major intersections are normally controlled with traffic signals. For bicyclists street crossings can be problematic, however, especially in high traffic areas. Bikeway users must heed traffic regulations and be particularly watchful at intersections to avoid accidents. At the same time, crossings should be analyzed by engineers and modifications taken to maximize safety and minimize bicyclist/motorist accidents.

In addition to street crossing issues there are other traffic conflicts that require attention when considering the needs of trail users. The number and speed of vehicles can be an impediment to trail users as well as a risk factor. Higher speeds and numbers increase the probability and potential seriousness of accidents for both auto tour and bikeway users. To fully enjoy an auto tour a driver must be able to proceed at a pace that allows them to view and enjoy the tour features. A slower tour pace will likely put them in conflict with drivers whose only concern is reaching their destination within a prescribed time period. Bikeway users, whose pace is naturally slower than vehicles, have the added risk of little protection from injury in a vehicle/bicycle accident.

Large numbers of vehicles at higher speeds also can detract from a trail users' experiences because of traffic noise, vehicle generated wind, and pollution. Therefore, the study corridor should be analyzed and recommendations provided that will limit the impact of the above traffic conflicts. When

implemented, these recommendations can increase user enjoyment and increase potential return visits.

User Security

In addition to traffic conflicts, trail users must be concerned with personal and property safety and security. The study corridor includes some areas of identifiably higher crime rates. Therefore, through appropriate design, education and local enforcement, the user must be assured that the trail is safe while using appropriate precautions. Elements of safety and security might include signage, printed materials, separation barricades and/or barriers, fencing, and increased security patrols.

Signage

Signage can be used for multiple purposes at trailheads and along the trail route. The signage can be located at various points on the trail as well as at stopping points along the route that includes a signage kiosk. Signage can be used to clearly identify and delineate the trail route, provide information such as trail use rules and regulations, and provide educational information regarding points of interest along the route.

An important element of signage is to have a graphic design scheme that immediately identifies the signage as “belonging” to the Mounds Heritage Trail. This design scheme needs to be integrated into all levels of the signage from simple directional route signs to the more complex educational signage. The design scheme elements need to have a commonality of color, layout, lettering, and, most importantly, a symbol (logo) that clearly identifies the trail as the Mounds Heritage Trail. This is usually accomplished through the use of a graphic design consultant.

Maintenance

Consistent, scheduled trail maintenance is important for several reasons. First, it adds to user enjoyment of their experience. This in turn encourages more use of the trail and may provide additional economic benefits to the community. Second, proper maintenance can add to the longevity of the trail surface and amenities thereby reducing costs. Finally, it can reduce responsible party's liability in the event of accidents.

Maintenance includes any tasks required to keep the trail surface clean and usable such as striping, sweeping and patching. It also includes the inspection, repair or replacement of signage, traffic signals, and amenities such as benches, restroom, or bike racks.

4. ALTERNATIVE CONCEPTS:

Design Standards –

There are many requirements to consider when designing a bikeway. The accepted standard for bikeway regulation is the American Association of State Highway and Transportation Officials (AASHTO). AASHTO divides bikeways into four broad categories:

- Shared Roadways
- Signed Shared Roadways
- Bike Lanes
- Shared Use Paths

All four of these categories could be appropriate to use in developing the Mounds Heritage Trail bikeway. Further definition of these categories is included below in order to understand their relationship to the Mounds Heritage Trail.

Shared Roadways

In most states, Missouri and Illinois included, bicycles are considered modes of transportation or “vehicles” and are required to use roadways and follow the same traffic laws as other vehicles such as automobiles and trucks. Therefore, they may share space on any roadway except interstates. However, AASHTO has several recommendations for improving roadways in relation to bicycle safety. “Design features that can make roadways more compatible to bicycle travel include bicycle-safe drainage grates and bridge expansion joints, improved railroad crossings, smooth pavements, adequate sight distances, and signal timing and detector systems that respond to bicycles. In addition, more costly shoulder improvements and wide curb lanes can be considered. The recommended shoulder improvement is widening or installation of a four foot paved shoulder not including the stormwater gutter. However, AASHTO guidelines note “any additional shoulder width is better than none at all”. Wider curb lanes of at least twelve feet “can better accommodate both bicycles and motor vehicles in the same lane and thus is beneficial to both bicyclists and motorists. In many cases where there is a wide curb lane,

motorists will not need to change lanes to pass a bicyclist. Also, a wide curb lane provides more maneuvering room when drivers are exiting from driveways or in areas with limited sight distance. In general, fourteen feet (14 feet) of usable lane width is the recommended width for shared use in a wide curb lane. Usable width normally would be from edge stripe to lane stripe or from the longitudinal joint of the gutter pan to lane stripe (the gutter pan should not be included as usable width)".

From a purely cost standpoint, shared roadways are the least costly form of bikeway development especially when shoulders or lane widening is not included. However, this form of bikeway should be considered the least safe.

Signed Shared Roadway

"Signed shared roadways are those that have been identified by signing as preferred bike routes. There are several reasons for designating signed bike routes:

- a. The route provides continuity to other bicycle facilities such as bike lanes and shared use paths.
- b. The road is a common route for bicyclists through a high demand corridor.
- c. In rural areas, the route is preferred for bicycling due to low motor vehicle traffic volume or paved shoulder availability.
- d. The route extends along local neighborhood streets and collectors that lead to an internal neighborhood destination such as a park, school or commercial district.

Regardless of the type of facility or roadway where they are used, it is recommended that bike route signs include destination information."

One consideration before developing a signed shared route is that the responsible agency(ies) have identified the route as suitable as a shared route and that it will be maintained as such. This in turn increases the agency's level of liability. There are a number of factors identified by AASHTO to be considered prior to designating a signed route. These are:

- a. The route provides through and direct travel in bicycle-demand corridors.
- b. The route connects discontinuous segments of shared use paths, bike lanes and/or other bike routes.
- c. An effort has been made to adjust traffic control devices (e.g., stop signs, signals) to give greater priority to bicyclists on the route, as opposed to alternative streets. This could include placement of

- bicycle-sensitive detectors where bicyclists are expected to stop.
- d. Street parking has been removed or restricted in areas of critical width to provide improved safety.
- e. A smooth surface has been provided (e.g., adjust utility covers to grade, install bicycle-safe drainage grates, fill potholes, etc.)
- f. Maintenance of the route will be sufficient to prevent accumulation of debris (e.g., regular street sweeping).
- g. Wider curb lanes are provided compared to parallel roads.

- h. Shoulder or curb lane widths generally meet or exceed width requirements.

Because of the higher level of commitment required to maintain a signed shared roadway (including signage, route maintenance, and safety) costs will be higher than those of shared roadway but still lower than the other bikeway categories.

Bike Lanes

Roadways with appropriate and acceptable widths can have redesigned striping to include separate bike lanes for bicyclists or, when widths are not acceptable, additional pavement can be added for bike lane development. Bike lanes are most appropriately incorporated in a roadway “when it is desirable to delineate available road space for preferential use by bicyclists and motorists, and to provide for more predictable movements by each. Bike lane markings ... can increase a bicyclist's confidence in motorists not straying into their path of travel. Likewise, passing motorists are less likely to swerve to the left out of their lane to avoid bicyclists on their right. [Preferably], bike lanes should be one-way facilities and carry bike traffic in the same direction as adjacent motor vehicle traffic. However, there may be special situations where a two-way bike lane for a short distance can eliminate the need for a bicyclist to make a double crossing of a busy street, travel on a sidewalk,” or where other factors may prevent one-way bike lanes.

There are a number of factors that affect the width of bike lanes and how they are constructed. For roadways with no curb and gutter, the minimum width of a bike lane should be four feet. If parking is permitted the bike lane should be placed between the parking area and the travel lane and have a minimum width of five feet. Where parking is permitted but a parking stripe or stalls are not utilized, the shared area should be a minimum of eleven (11) feet without a curb face and twelve (12) feet adjacent to a curb face. If the parking volume is substantial or turnover is high, an additional one to two feet of width is

desirable. Bike lanes should never be placed between the parking lane and curb lane. Bike lanes between the curb and parking lane can create obstacles for bicyclists from opening car doors and poor visibility at intersections and driveways and they prohibit bicyclists from making left turns.

The recommended width of a bike lane is five feet from the face of a curb or guardrail to the bike lane stripe. A five foot width should be sufficient in cases where a one to two foot wide concrete gutter pan exists, given that a minimum of three feet of surface appropriate for riding is provided. The width of the gutter pan should not be included in the measurement of the riding or usable surface [in most cases]. Since bicyclists usually tend to ride a distance of 32-40 inches from a curb face, it is important that the pavement surface in this zone be smooth and free of structures. Bike lanes should be located within the limits of the paved shoulder at the outside edge. Bike lanes may have a minimum width of four feet, where the area beyond the paved shoulder can provide additional maneuvering width. A width of five feet or greater is preferable. Additional widths are desirable where substantial truck traffic is present, or where motor vehicle speeds exceed 50 mph.

Bike lanes that require additional construction to develop the appropriate widths for bike lanes are not as cost effective as bike routes. However, there are significant reduction in traffic conflicts and other safety improvements that reduce bicycle/vehicle accidents which is a factor for consideration in offsetting the additional costs.

Shared Use Path

Shared use paths are facilities constructed on right-of-ways separate from roadways with minimal interaction or cross-flow from vehicular traffic. As the name implies, because of the nature of their location and construction, shared use paths are often frequented by bicyclists, pedestrians, in-line skaters, wheelchair users, and other non-motorized forms of transport. Unlike bike lanes and bike routes, shared use paths typically carry traffic in both directions using lane markings, signage, and directional arrows. "Shared use paths should not be used to preclude on-road bicycle facilities, but rather to supplement a system of on-road bike lanes, wide outside lanes, paved shoulders and bike routes."

Whenever shared use paths are considered it is important to provide as much space between the path and adjacent roadways as possible. When two-way shared use paths are located immediately adjacent to a roadway, some operational problems are likely to occur. Some problems with paths located immediately adjacent to roadways are as follows:

1. Unless separated, they require one direction of bicycle traffic to ride against motor vehicle traffic, contrary to normal rules of the road.
2. When the path ends, bicyclists going against traffic will tend to continue to travel on the wrong side of the street. Likewise, bicyclists approaching a shared use path often travel on the wrong side of the street in getting to the path. Wrong-way travel by bicyclists is a major cause of bicycle/automobile crashes and should be discouraged at every opportunity.
3. At intersections, motorists entering or crossing the roadway often will not notice bicyclists approaching from their right, as they are not expecting “contra-flow” vehicles. Motorists turning to exit the roadway may likewise fail to notice the bicyclist. Even bicyclists coming from the left often go unnoticed, especially when sight distances are limited.
4. Signs posted for roadway users are backwards for contra-flow bike traffic; therefore these cyclists are unable to read the information without stopping and turning around.
5. Many bicyclists will use the roadway instead of the shared use path because they have found the roadway to be more convenient, better maintained, or safer. Bicyclists using the roadway may be harassed by some motorists who feel that in all cases bicyclists should be on the adjacent path.
7. Although the shared use path should be given the same priority through intersections as the parallel highway, motorists falsely expect bicyclists to stop or yield at all cross-streets and driveways. Efforts to require or encourage bicyclists to yield or stop at each cross-street and driveway are inappropriate and frequently ignored by bicyclists.
8. Stopped cross-street motor vehicle traffic or vehicles exiting side streets or driveways may block the path crossing.
9. Because of the proximity of motor vehicle traffic to opposing bicycle traffic, barriers are often necessary to keep motor vehicles out of shared use paths and bicyclists out of traffic lanes. These barriers can represent an obstruction to bicyclists and motorists, can complicate maintenance of the facility, and can cause other problems as well.

When two-way shared use paths are located adjacent to a roadway, wide separation between a shared use path and the adjacent highway is desirable to demonstrate to both the bicyclist and the motorist that the path functions as an independent facility for bicyclists and others. When this is not possible and the distance between the edge of the shoulder and the shared use path is less than five feet, a suitable physical barrier is recommended. Such barriers serve both to prevent path users from making unwanted movements between the path and the highway shoulder and to reinforce the concept that the path is an independent facility. A barrier between a shared use path and adjacent

highway should not impair sight distance at intersections, and should be designed to not be a hazard to errant motorists."

In addition to considering the type of bikeway to develop there are certain other AASHTO design criteria which apply to bikeway development which should be incorporated into the Mounds Heritage Trail. A few of these criteria are: A). "a minimum operation height of 100 inches" to satisfy the majority of trail users; B) For an effective off road trail tread a hot-mix asphalt trail surface to provide the maximum comfort and safety to trail users while minimizing installation and maintenance cost; C) a trail design speed of 20 mph; D) a maximum grade change of 5%; and E) Safe stopping sight distance for trail signage set at 140 feet.

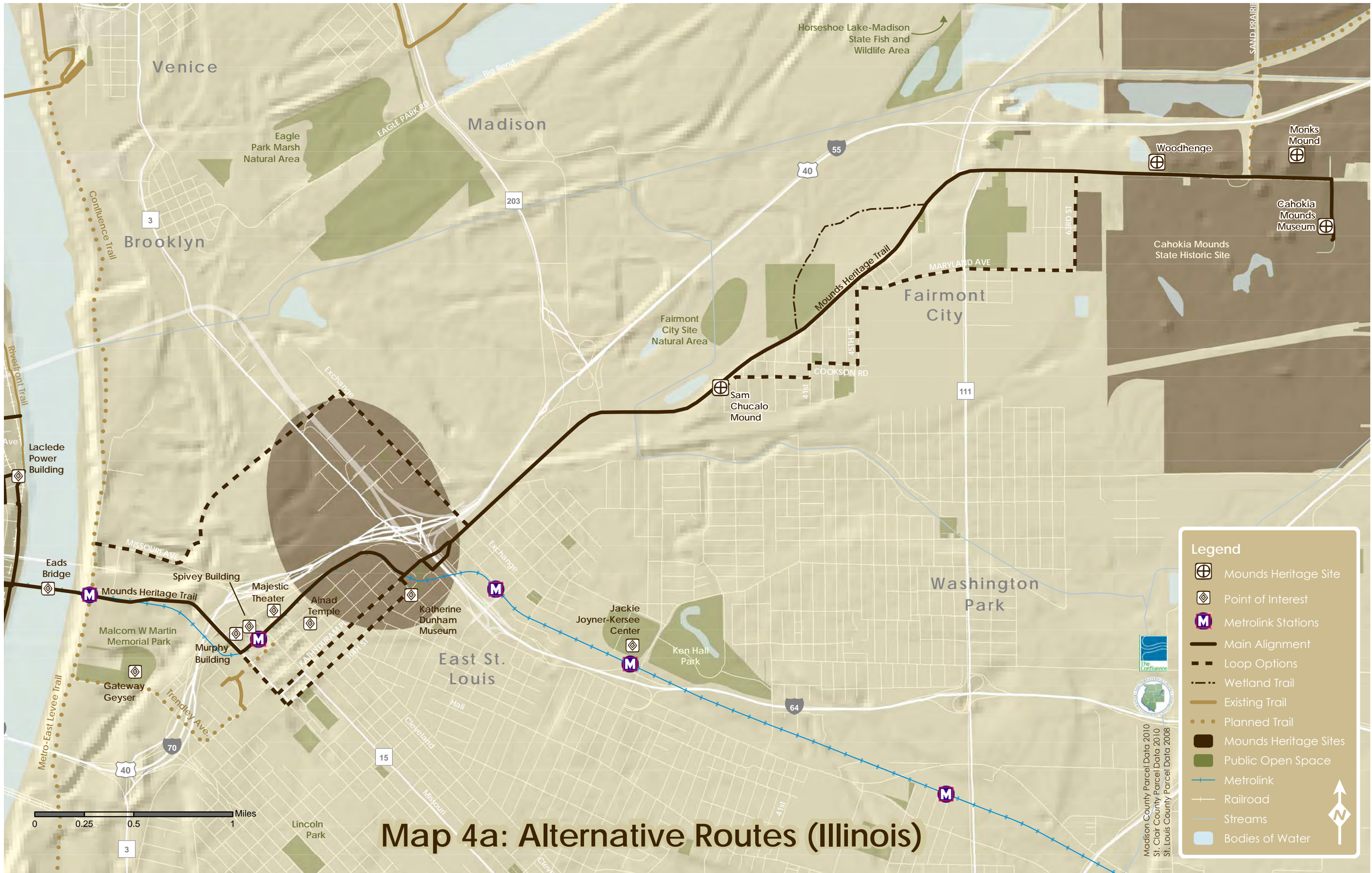
Other design standards to consider are state and local regulations related to bikeway development, use, and permitting. During final design development these additional standards should be carefully researched and incorporated to insure that the trail is in full compliance with federal, state, and local laws.

Alternative Routes -

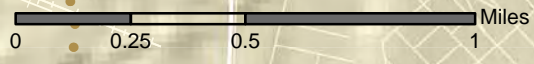
Ideally, the safest and, probably, preferable method of construction for the Mounds Heritage Trail would be to immediately develop a shared use path system for the entire route. However, limitations caused by right-of-way widths, property ownership, resource location, costs and other factors need to be considered when designing the bikeway. Therefore, alternatives for routing and bikeway type must be considered first and foremost before deciding on trail types to be constructed.

In Illinois there are few alternatives for linking Cahokia Mounds to mounds and other resources located in East St. Louis and Missouri (*Map 4*). Therefore, Collinsville Avenue becomes the focus of the trail route. However, consideration was given to alternatives in relationship to Fairmont City and East St. Louis proper. To begin, after exiting the Cahokia Mounds State Historic Site the trail route would follow Collinsville Avenue till it reaches Fairmont City. Here the trail could continue on Collinsville Avenue or follow an alternate route through the residential areas of the city past Holy Rosary Catholic Church and City Hall and returning to Collinsville Avenue.

(While not a part of the Mounds Heritage Trail, it might be worthwhile to mention, at this point, a connecting trail to Collinsville. Two possibilities exist. One is to continue east from Cahokia Mounds on Collinsville Avenue to Highway 159 or another north/south route into Collinsville. The second option is to follow Highway 111 north from Collinsville Avenue to its intersection with the



Map 4a: Alternative Routes (Illinois)



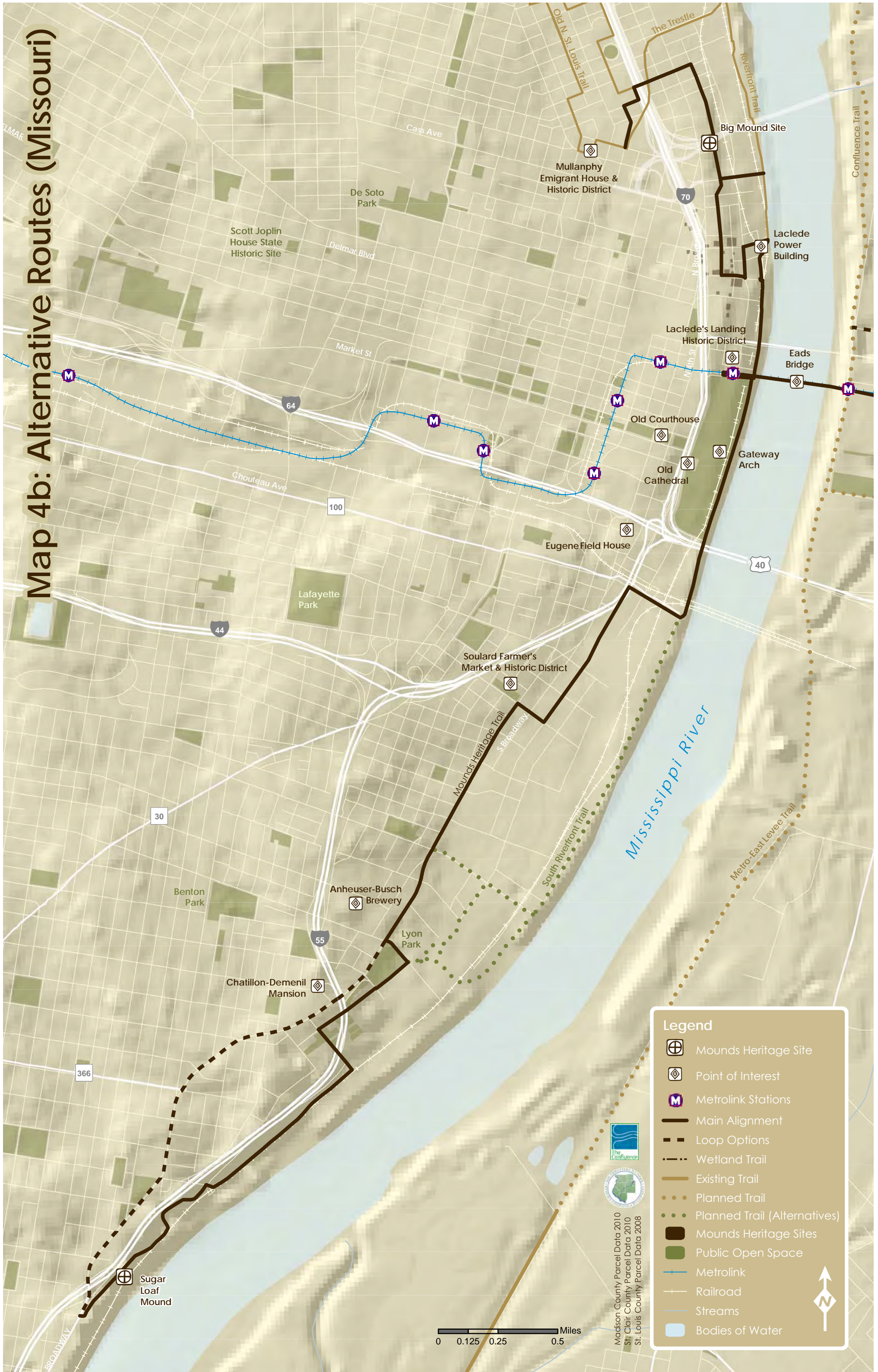
Legend

- Mounds Heritage Site
- Point of Interest
- Metrolink Stations
- Main Alignment
- Loop Options
- Wetland Trail
- Existing Trail
- Planned Trail
- Mounds Heritage Sites
- Public Open Space
- Metrolink
- Railroad
- Streams
- Bodies of Water

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 St. Louis County Parcel Data 2008



Map 4b: Alternative Routes (Missouri)



Legend

- Mounds Heritage Site
- Point of Interest
- Metrolink Stations
- Main Alignment
- Loop Options
- Wetland Trail
- Existing Trail
- Planned Trail
- Planned Trail (Alternatives)
- Mounds Heritage Sites
- Public Open Space
- Metrolink
- Railroad
- Streams
- Bodies of Water

The Confluence
 MISSOURI STATE UNIVERSITY
 Madison County Parcel Data 2010
 St. Clair County Parcel Data 2010
 St. Louis County Parcel Data 2008

0 0.125 0.25 0.5 Miles



Schoolhouse Trail (an MCT trail) which connects to Collinsville to the east. A spur to the Collinsville Park District office could be developed which would provide a likely site for a Collinsville Trailhead. The Metro East Park and Recreation District is currently considering such alternate routes as part of their strategic plan update.)

In East St. Louis alternative routes are present at Exchange Avenue and after crossing Interstate 64. At Exchange Avenue the bikeway could travel northeast then turn west through the former National City stockyard site, cross the future I-70 extension at 1st or Packer Streets and continue west to connect with the Confluence Bikeway. At this point the trail would continue south to Eads Bridge or north to McKinley Bridge. An alternate would be for the route to continue along Collinsville Avenue crossing I-64 at 10th Street. However, there are some issues with this route due to limited right-of-way width which could preclude bike lanes or a bike path without major alterations. A possible alternative is to follow 9th Street west to Broadway. However, because 9th Street is one-way going west it will be necessary to have the east bound route follow 10th Street which is also one-way but eastward. At Broadway the trail must, of necessity, follow this street as there are no alternate routes west past existing railroad tracks and Interstate 55/70. Continuing west to the river, the trail could conceivably follow the levee north on the proposed Confluence Bikeway route to McKinley Street bridge and connect with the existing bikeway that crosses the river on that bridge. From that point the Mounds Heritage Trail could follow the Riverfront Trail south. However, this should be considered as impracticable as the alternative route across the EADS Bridge is more direct and provides an easier access to a mounds complex site located just north of Eads Bridge.

In St. Louis there are numerous alternative routes. The trail is divided into two sections: A northern section connecting the Illinois portion of the trail to the area of the extensive mound complex that was found here and a southern section connecting Illinois to the Sugarloaf Mound, the last remaining, fairly intact mound in St. Louis.

In the northern section any final alignment would include some portion of Biddle and Collins Street as these streets pass through the heart of what had been the mounds complex in St. Louis. Additionally, there is some public land in this area that could be used for a rest area and interpretive stop. Further north the route should pass by the location of the Big Mound site before crossing Interstate 70 to reach its proposed intersection with the Iron Horse Trestle trail. One alternative was to cross at Howard Street. However, this alternative was dropped when it was found that the construction of the new I-70 Mississippi River bridge would mean the demolition of the Howard Street overpass. The next closest connection would be at Madison Street less than a half mile north

of Howard. This bridge has been completely reconstructed and includes suitable width for bike lanes.

With the southern section, the most logical connection from the Eads Bridge starts with Leonoir K. Sullivan Boulevard which runs along the Mississippi River at the base of the Arch grounds. From the southern end of Leonoir K. Sullivan there are at least two alternatives. One is to follow Wharf Street and the flood wall along the river. There are a number of issues related to right-of-way and utilities but, with improvements, this could be a viable alternative. Another route would be to connect to Broadway which extends southward past the city limits. Once past Interstate 55 the trail could connect with Sugarloaf Mound by way of Ohio Street. It would also be possible to connect to the mound by leaving Broadway at Lyon Park located at Arsenal Street, connect with 1st Street and, by using right-of-way through city owned property, access the mound from the east by traversing the bluff line.

Amenity Concepts -

Aesthetic elements or amenities related to trail development can include signage standards, structures such as restrooms and information/educational kiosks, landscaping, lighting, and rest areas. While many of these elements will be addressed in detail during the design development and engineering period required prior to construction it is useful to address those elements that establish a sense of identity for the Mounds Heritage Trail. The elements that address this identity most directly are signage standards and related informational/educational kiosks.

A key element of any signage standard is the development of an easily recognizable and memorable logo. Such a logo can be used on directional, informational and educational signage and identifies or links the signage as a component of the Mounds Heritage Trail. Additionally, the logo can be used in public relations, marketing, and the development of printed material related to the trail. Several alternative logos were developed and presented to the Advisory Committee for their evaluation and recommendation. Figures 1 through 4 are examples of preliminary logos that were presented to the committee. Variations of color and minor modifications were made based on committee comments for further evaluation. (The final selection is discussed in the Recommended Plan section.)

In addition to logos and signage, the Advisory Committee evaluated several preliminary designs for informational and educational kiosks. By increasing or decreasing the scale of the kiosk one or more sign panels can be incorporated based on the amount of information to be disseminated. Three examples of



Figure 1 – Preliminary Logo depicting mound shape and Cahokia Mound symbol



Figure 2 – Preliminary Logo depicting mound shape only



Figure 3 – Preliminary Logo depicting Cahokia Mound symbol surrounded by standard symbols the National Road, bicycling, and hiking



Figure 4 – Preliminary Logo depicting mound shape with background gradient blue tint

kiosks (Figures 5 through 7) are shown below. Kiosks can be constructed at trailheads and at some of the important cultural, historical, and natural points of interest along the trail. This would be most important at points where other structures, such as architecturally significant buildings, are not available as a focal point for signage.

By standardizing the kiosk design, in conjunction with signage using a logo common to the trail, users can easily identify features of the Mounds Heritage Trail as well as its route.

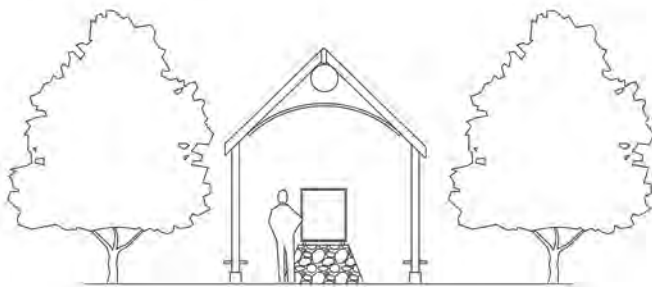


Figure 5 – Preliminary kiosk design with separate shade structure and center monument with sign panels on four sides

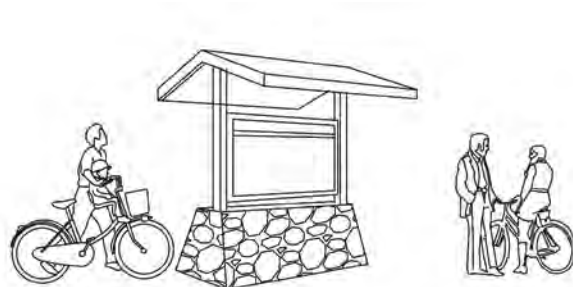


Figure 6 – Preliminary kiosk design with monument and shade structure incorporated. One sign panel with information on each side



*Figure 7 – Preliminary kiosk design with
Shade structure on piers and sign panels
on three sides. Each panel with
information on each side*

Programming Concepts –

Educational

There are a great many opportunities for educational programming throughout the Mounds Heritage Trail corridor as well as methods of delivering the programming. The programming can be far ranging as it addresses the three categories of resources found within the corridor: cultural, historical, and natural. Programming can take the form of interpretive signage, printed materials, guided rides or hikes on the trail as well as virtual tours, web pages, or other on-line opportunities.

For those using the Mounds Heritage Trail auto tour as their preferred means of traveling and viewing the corridor the options can be divided into two areas. A tried and true method has been, for some time, the use of printed materials in conjunction with a map. Since the entire route follows existing streets, a well designed map can provide all the necessary information related to points of interests such as those noted in the resource inventory sections of this document. Positive aspects of this method are that significant details about each point of interest can be included in the printed material and the trail can be traversed in a short period allowing time for lengthier stops at key points of interest. An alternative is to develop a cell phone tour, possibly with GPS points linked to in-vehicle navigation devices, with specific stops at points of interest. While this method is technologically superior to printed material, cost is a factor in its consideration. The major constraint to both methods is the need for rest areas or pullouts to prevent accidents.

Recreational

In addition to educational programming there are a great many opportunities for recreational programming for both individuals and groups. Recreational programming can take the form of organized and sponsored rides, runs or walks. For the individual, programs could take the form of goal-based distance or time related targets. These recreational programs could be sponsored by park agencies, groups like Trailnet, or other organizations.

5. RECOMMENDED ALIGNMENT AND DESIGN:

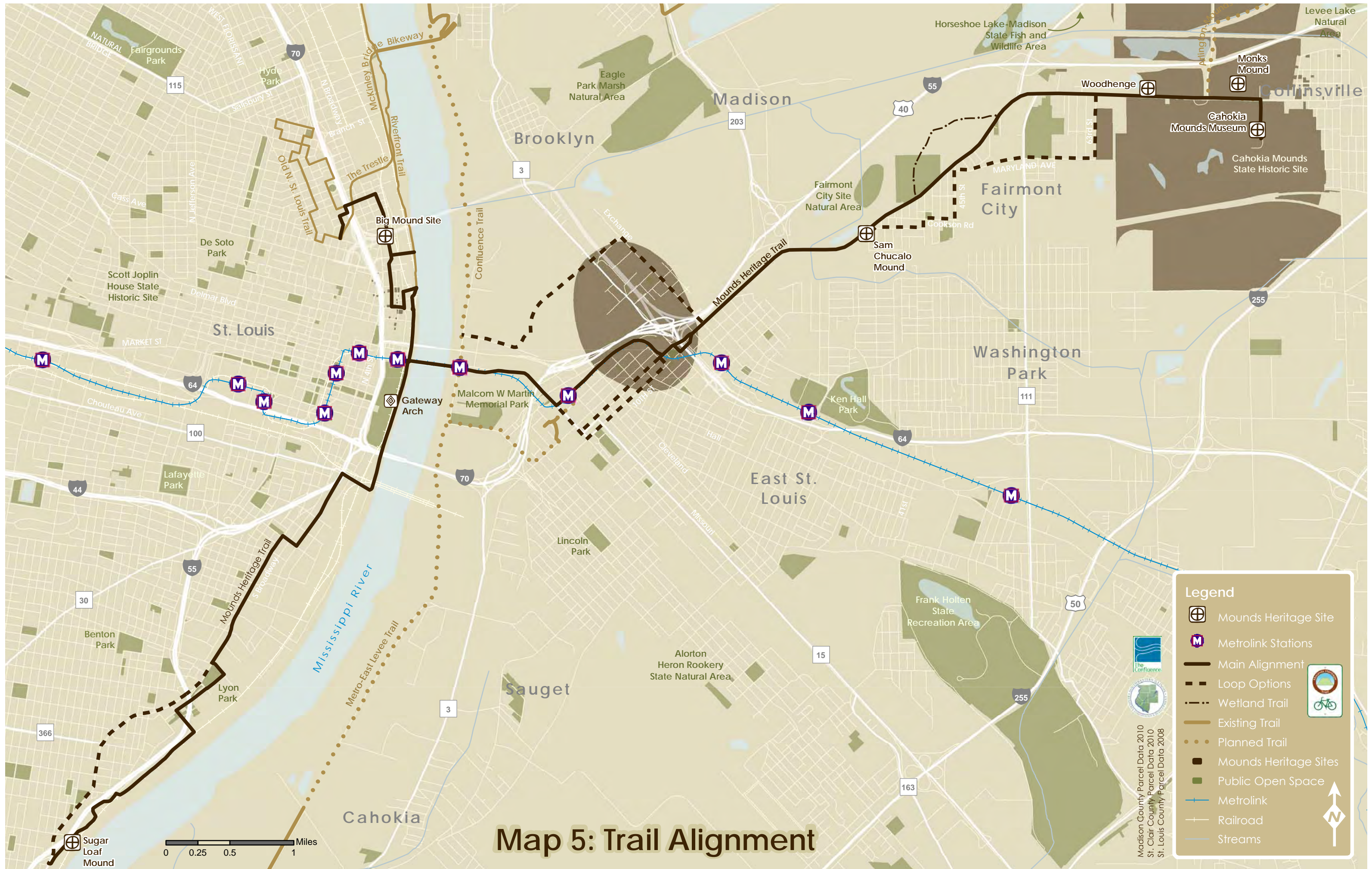
Trail Alignment -

An important step in designing and developing the Mounds Heritage Trail is to agree upon a trail alignment. While a significant section of the trail can follow the National Road in Illinois, the details of the alignment still need to be addressed for the Missouri sections and portions in East St. Louis. After analyzing the various options for alignments and their relationship to numerous points of interest it became clear that the Mounds Heritage Trail would best serve the users by the development of a primary trail with intermittent trail “spurs” or “loops” to provide access to certain points of interest and amenities not immediately adjacent to the preferred trail route.

Therefore, beginning at Cahokia Mounds on the east, the primary trail will follow Collinsville Avenue (the National Road) passing through Fairmont City (Map 5). At this point there will be two proposed spurs. One spur will begin at 63rd Street to the south of Collinsville Avenue and pass by City Hall and through the residential sections of the city and return to the primary trail at 31st Street which is the site of the Chucalo Mound. The second spur will begin on the north side of Collinsville Avenue across from 53rd Street and return to Collinsville Avenue in the area of 40th Street. This spur will be a boardwalk trail traversing an existing wetland and include environmental education opportunities and signage.

The primary trail will continue west on Collinsville Avenue past Hwy 203. At this point the trail will need to split into an inbound and outbound lane on each side of the road no matter what bikeway type is being used for the final design. This is required in order to navigate under a railroad trestle crossing Collinsville Avenue. Due to right-of-way restrictions at the trestle it will be necessary to use existing sidewalks as bike lanes in this section.

From the trestle the trail will continue through to Interstate 64 where a new roundabout and overpass is being constructed. After crossing Interstate 64 the trail will travel west following Collinsville Avenue. At this point a spur will connect

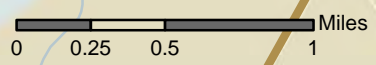


Map 5: Trail Alignment

Legend

- Mounds Heritage Site
- Metrolink Stations
- Main Alignment
- Loop Options
- Wetland Trail
- Existing Trail
- Planned Trail
- Mounds Heritage Sites
- Public Open Space
- Metrolink
- Railroad
- Streams

The Confluence
 Missouri Department of Transportation
 Madison County Parcel Data 2010
 St. Clair County Parcel Data 2010
 St. Louis County Parcel Data 2008



the trail to the Katherine Dunham Museum located at 10th Street and Pennsylvania Avenue. Once the trail reaches downtown East St. Louis another issue arises. There are a number of architecturally important points of interest in the business district. However, Collinsville Avenue, beginning at Martin Luther King (MLK) Boulevard to Broadway Avenue, is much too narrow to accommodate an on road bikeway and the trail needs to be diverted in this area. The most viable solution is to divert the trail route south to the existing Metro Link right-of-way (a light rail line from Illinois to Missouri) then to Broadway Avenue. The right-of-way contains an existing sidewalk which could easily be expanded to accommodate a bikeway. The primary trail alignment is then straight from Broadway Avenue west toward the Eads Bridge, the western terminus of the National Road. To accommodate the architectural points of interest in East St. Louis a signed shared use roadway spur will continue on Collinsville Avenue to Broadway where it will reconnect with the primary trail. (It should be noted that one alternative was to have the route follow Exchange Avenue then turn west to connect to the Confluence Bikeway. We believe this is a viable bike route. However, it is recommended that the primary route traverse the business district of East St. Louis for cultural and economic reasons.)

At Eads bridge trail users will be able to access the traffic deck by way of a ramp. The existing walkway on the traffic deck will accommodate bikeway traffic. At the Missouri-end of the Eads Bridge trail users will follow Washington Avenue down hill to Lenoir K. Sullivan Boulevard (*Map 5*). At this point users will have the option of turning north to follow the Boulevard to access the St. Louis Mounds Complex section of the Mounds Heritage Trail near the Riverfront Trail trailhead or south to access the Sugarloaf Mound section of the trail.

When turning north, trail users will follow Lenoir K. Sullivan Boulevard paralleling the Terminal Railroad trestle and view the interesting architecture of the Ashley Street Powerhouse (Trigen Building). At the Powerhouse users will find the Riverfront Trail trailhead. The Mounds Heritage Trail shares portions of the Riverfront Trail in order to define a loop route in this area. Therefore, users travel north on the Riverfront Trail from the trailhead to O'Fallon Street. The Mounds Heritage Trail splits from the Riverfront Trail at O'Fallon Street turning west and heading up hill to Second Street, then Biddle, and finally Collins Street. By following this circuitous route the user has switch backed up to the top of the steep riverbank slope and avoided a steeper, more direct route.

It was in the general vicinity of Biddle and Collins that the early European settlers found the abandoned complex of some thirty-five pre-historic mounds. Nothing remains of this complex and currently it is an area undergoing redevelopment. However, this will be an area where significant displays will be developed to interpret the mounds built by the indigenous people. From this location the trail travels north on Collins where it will connect with either 2nd or

1st Streets. At Mullanphy there will be a spur to connect the trail back to the Riverfront Trail forming a loop back to O'Fallon Street. Continuing north the trail will turn west on Madison Street, cross Interstate 70, wind through the residential neighborhood, and intersect with Great River Greenway's Iron Horse Trestle Trail and The Tucker Boulevard Bike St. Louis bikeway at Howard and Hadley Streets.

If one turns south on Lenoir K. Sullivan Boulevard, trail users will pass the Jefferson National Expansion Memorial on the west with the Arch dominating ones view. Past the Arch trail users will travel under the Poplar Street bridge (I - 55/64/70) and MacArthur Bridge which carries railroad

traffic. At Chouteau trail users will turn west to 3rd Street and continue for several blocks to Lafayette. Continuing west on Lafayette, trail users will head south on 7th Street which becomes Broadway. Users will pass Soulard Market and have a good view of the Anheuser-Busch Brewery complex before turning east on Arsenal passing Lyon Park. Arsenal dead ends at 2nd Street which users will follow south to Potomac. At Potomac trail users will turn east toward the river continuing to 1st Street. Trail users will follow 1st Street south past the site of the City Animal shelter continuing up the hill to Ohio Street and Sugar Loaf Mound.

"The most prominent early day landmark in [North St. Louis] was the Big Mound at the northeast corner of Broadway and Mound Street. It was about 30 feet high and about 150 feet long from north to south. At the time of its removal in 1869, it was found to be an Indian burial mound. A recreation summer resort called Vauxhall Gardens was built atop the Big Mound in the 1820's. There were three terraces down to the river's edge east of the mounds and it is believed that they were used as approaches for religious ceremonies. It was from these mounds that St. Louis received its sobriquet "The Mound City"."

Over time the materials from which the mounds were constructed were removed. Today the area that was occupied by the mounds is estimated to be as much as 14' lower than when the mounds existed.

It should be noted that at the time of this Study Great Rivers Greenway is nearing Completion of a study for the Mississippi River Greenway which includes the portion Of the bikeway from Eads Bridge to Sugar-Loaf Mound. This study includes a recommendation to construct a bikeway along the floodwall and Wharf Street south to Shipley Street then west to Broadway. While we concur with these

recommendations it will be an unknown period of time until this bikeway is constructed. Therefore, we are showing the Mounds Heritage Trail following Broadway and the Mississippi River Greenway is shown as a future Trail. Once the Greenway is constructed the Mounds Heritage Trail will follow this route.

Trail Types -

As stated before the safest and, probably, preferable method of construction for the Mounds Heritage Trail would be to immediately develop a shared use

path system for the entire route. However, right-of-way widths, property ownership, and costs limit the amount of bike path that can be developed versus bike lanes and/or bike routes.

Beginning at Cahokia Mounds adequate space exists to develop a bike path in conjunction with the Illinois Historic Preservation Agency through the State Historic Site and adjacent to Collinsville Avenue. Based on available right-of-way widths, the bike path should be able to continue along Collinsville Avenue past Fairmont City. However, this will require re-engineering of the road and some additional paving. Due to the costs related to this it may be necessary to develop interim bike lanes while awaiting funding for the more extensive work.

Past Fairmont City, in the vicinity of Hwy. 203, it will be necessary to convert from bike paths to bike lanes on each side of the road in order to accommodate the need for lanes to pass under the railroad trestle just east of the 9th Street intersection. The split bike lanes would continue on 9th Street (which continues Collinsville Ave. till the I-64 overpass) to the new Interstate overpass. After crossing the interstate the lanes would merge onto one side of Collinsville Avenue and continue west to the point where the trail diverts onto the Metro-link right-of-way. At this point the trail would once again become a bike path traveling west to Broadway. At Broadway the path converts to merged bike lanes on the south side of Broadway traveling west, under Interstate 55-70 to River Park Drive as a bike path, and onto the Eads Bridge where the walkway is suitable for bicycle traffic in both directions.

After exiting Eads Bridge at Memorial Drive the trail will turn immediately east on Washington Avenue as a shared signed roadway due to width restrictions to Lenoir K. Sullivan Boulevard. Turning north, the bikeway on the boulevard will include directional bike lanes on each side of the street until it reaches the Riverfront Trail, which is a bike path. Where the Mounds Heritage Trail does not share the Riverfront Trail it is envisioned that the bikeway will be bike lanes on each side of the road except on Collins Avenue which has a very wide right-of-way and portions of the 1st/2nd Street section which can be bike paths where vacated right-of-way can be used. To the south of Washington Avenue, the bikeway is envisioned as bike lanes for its entire length except for the end section running past the former City Animal Shelter up to Sugar Loaf Mound.

Amenities –

Trailheads

Trailhead features will be somewhat standardized in that, in most cases, the trailheads will include parking, bike racks, and informational signage and

brochures. Based on location and cooperation from local agencies trailheads may also include drinking water and, possibly, restrooms. Exact locations for trailheads will be decided during design development of the trail. However, it is anticipated that trailheads will be located in Cahokia Mounds State Historic Site, Fairmont City, East St. Louis and one or more in St. Louis

Signage

Signage can be categorized in three groups: directional, informational, and educational. Directional signage will be located along the trail to indicate points of turning or continuation of the route. These signs will meet Department of Transportation standards with a dimension of twelve by eighteen inches (12" x 18"). The specific design approved by the Advisory Committee is shown in Fig. 8.

Informational signage will be located at trailheads. Information sign(s) will vary in size. The sign(s) will include trail rules, local sponsors, a route map, and area services. An example of an information sign is shown in Figure 9.

Educational signage will be developed specifically for significant points of interest along the route. However, these signs will use a standard design and layout. Education signs may be individual free standing signs at some points or included with other signs as part of a kiosk. Map 7 indicates where proposed educational signage will be included as well as proposed points for informational kiosks. A standard education sign design is shown in Figure 10.

The Advisory Committee reviewed the alternative concepts and selected the kiosk shown previously in Figure 7 as the concept which should be used for further refinement into architectural drawings. This kiosk is a shade structure on piers with sign panels on three sides. This will allow a maximum of six sign panels when information is displayed on both sides. Such an arrangement will allow for both educational and informational displays. As envisioned, the roof structure is reminiscent of some of the mound forms at Cahokia. Materials will be selected for durability and low maintenance while giving the overall structure a sense of solidity and permanence. The education and information signs should be manufactured from high density laminates, at a minimum. These materials are cost effective and have a ten year life cycle period, approximately. As funding is available higher quality porcelain enamel or newer materials may be used.

Other Amenities

Additional amenities for trail users can include turnouts or rest areas. These can be especially important for sections of the trail which may be used as much by pedestrians as bicyclists. Rest areas, which may be no more than a widened



Map 7: Proposed Educational Signage

Legend

- Mounds Heritage Site
- Metrolink Stations
- Educational Signage
- Main Alignment
- Loop Options
- Wetland Trail
- Existing Trail
- Planned Trail
- Mounds Heritage Sites
- Public Open Space
- Metrolink
- Railroad
- Streams



 Madison County Parcel Data 2010
 St. Clair County Parcel Data 2010
 St. Louis County Parcel Data 2008

0 0.25 0.5 1 Miles

paved area along the trail, will allow trail users to move to the side and out of the way of trail traffic. Rest areas may include benches and water. For convenience and cost efficiency these rest areas can be incorporated into areas where education signage has been placed.



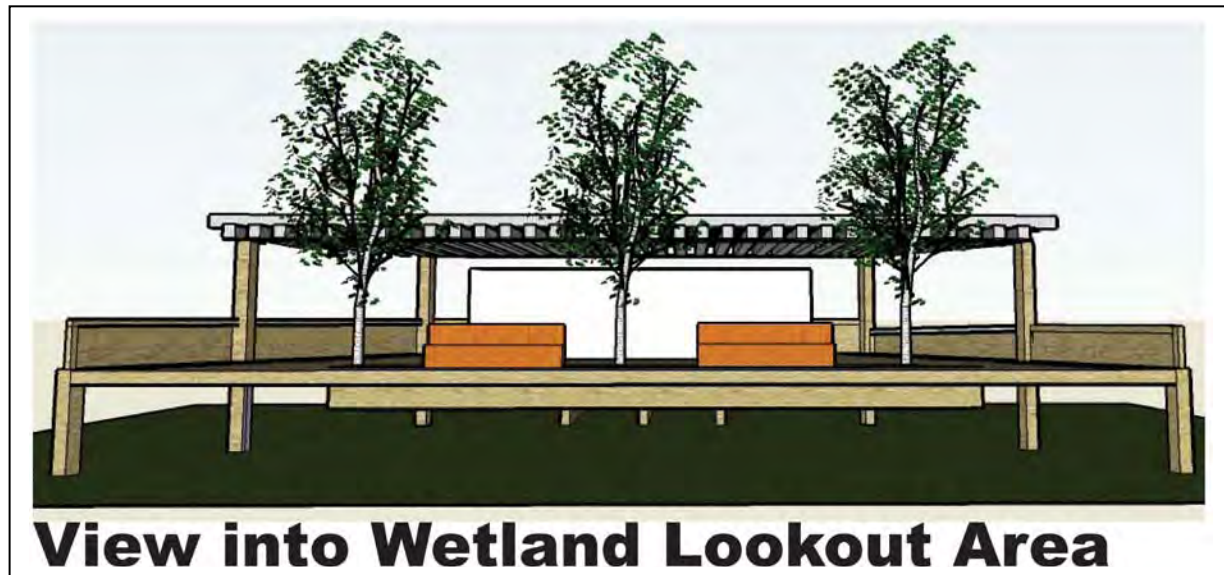
Figure 8 – Standard directional sign. Added arrows will indicate turns or continuation straight ahead.



Figure 9 – Concept design for standard informational sign.

While not always thought of as critical in trail design, it may be important to think of improving the trail aesthetics by including landscaping along the trail corridor. This may be especially true in urban areas, particular points of interest, and where the plant material can be easily maintained.

One other amenity has been proposed for the Mounds Heritage trail: a pavilion to be constructed along the boardwalk spur in the Indian Lake wetlands at Fairmont City. The conceptual pavilion was designed by Jay LeChien as part of his thesis. The concept included a shade structure, enough seating for interpretive classes, and signage. The conceptual design is shown in Figure 11.



*Figure 10 - Boardwalk pavilion concept design by
Jay Le Chien*

Programming –

Educational

Educational programming can be conducted in three broad categories: Bikeway safety, environmental, and cultural. While some may assume that anyone using a bikeway has all the knowledge necessary to use any bikeway in a safe and secure manner, this is not always the case. Therefore, it is in the best interest of the public and the managing agencies to provide educational programs “pertaining to bicycle and pedestrian safety.” The educational programs can be specific such as tips on how to cross streets and ride in traffic to how to deal with trail user conflicts between riders and pedestrians. It can also foster knowledge regarding established nationwide programs such as “Safe Routes to School”. Bikeway safety programs should be coordinated throughout the area. Regional organizations such as Great Rivers Greenway, the Metro East Park and Recreation District, and bike advocacy groups can be most useful in leading the coordination effort.

“Environmental education programs often aim to change people's perceptions about the value of the natural world and to teach how to change environmental behaviors”. Because of the existence of wetlands, bottomland forest, and the Mississippi River in the project area there is an ideal opportunity

to include educational programs that focus on the importance of these natural features and how trail users can be good stewards of them. Also, with the extensive industrial sites there are opportunities to educate the public on the interrelationship of these sites to the environment and their impact.

Finally, it would be impossible to develop educational programming for the Mounds Heritage Trail without paying due deference to the cultural features within the corridor. Not only are there numerous, namesake mounds within the corridor but other architectural and historic cultural features in Illinois and Missouri. A number of educational programs already exist in relation to the mounds at Cahokia Mounds State Historic Site which can be used to the trail's programming advantage. There are also other mounds or mound sites that can be interpreted as well as educational opportunities such as the Dunham Museum, Eads Bridge, and others.

Exact programs are not proposed at this time. These programs should be developed by appropriate organizations and/or agencies, funded, and managed once the trail is developed.

Informational/Recreational

Informational and recreational programming promotes "health, recreational, economic, social, cultural and other benefits arising from bicycling and walking." It provides programming that promotes trail use and the use of park and other open space facilities along the trail route. By encouraging use it can provide economic benefits to service providers along the route. Under the right circumstances it also encourages social and cultural interactions of the various groups that use the trail.

Programming can take the form of printed materials or signage but, it more often is in the form of special events or specific group rides scheduled at various times of the year. These programs can have a cultural theme such as "Cinco de Mayo", a goal such as a trail clean-up, or destination such as "Cahokia Mounds to the Arch".

As with educational programming, exact programs are not proposed at this time. Instead they should be developed after the trail is established and managed by appropriate agencies or organizations.

Implementation Strategy –

Strategies

- Short-term

In order to implement the Mounds Heritage Trail development in as short a time period as possible several options were considered by the Advisory Committee. The most significant barrier to development is funding. Acquiring funding will take time and will, in all likelihood, only allow for incremental development. Therefore, the Advisory Committee believes the most cost-effective and quickest strategy is to establish the bikeway as a “signed shared roadway”. This development would be with few to no amenities except for trailheads at locations that do not require additional construction. But, the development of the various spurs as “signed shared roadway”, except for the wetland boardwalk, would also be included. This strategy will require only the development of a brochure and map for the bikeway, as well as the auto tour, and the fabrication and installation of directional signage.

Also during this period funding should be procured and consultants hired to complete the design development and engineering for future construction of the Mounds Heritage Trail. Once completed, these plans can be implemented in future phases as funding becomes available.

This strategy has several advantages. First, the total short-term development cost is relatively low when compared to the cost of other bikeway categories. Second, due to the cost, funding will be more easily procured for development. Third, once approved the brochures can be designed and printed and signs can be fabricated and installed with some rapidity. This will allow the route to be established and opened for use in short order. Fourth, operation and maintenance costs will be miniscule compared to other bikeway options. Fifth, by establishing the route and encouraging use of the trail, it is anticipated that interest in the Mounds Heritage Trail will grow and build support for further improvements.

There is a significant disadvantage to this short-term strategy. Once the route is established the interest or inertia to develop the bikeway further by adding bike lanes or paths as well as amenities may decline or disappear. Therefore, it will be critical for involved individuals, organizations, and/or agencies to insure that interest in improving the bike route is maintained and funding is acquired to complete these improvements.

- Intermediate-term

Once the Mounds Heritage Trail route is established and opened with signs and brochures, efforts can begin to acquire additional, more significant funding to begin intermediate-term improvements. It is proposed that the next phase be the establishment of bike lanes in areas where appropriate right-of-way exist, the establishment of additional trailheads with amenities, improvements to spurs, and fabrication and installation of a few educational signs along the route.

The length of time for completion of this phase is dependent on the amount of available funds as well as the ability of communities to establish operation and maintenance policies and programs to care for the trail. Based on the number of applications submitted and funds available it may take one or more funding cycles to complete this phase.

The advantages of completing intermediate-term projects are that the costs are still somewhat low. Striping the bike lanes is comparatively inexpensive as is the cost of individual signs. The most significant costs would, likely, be the construction of the trailheads with amenities. Also, developing these intermediate-term improvements will allow communities to adjust more gradually to the operation and maintenance requirements and costs.

The disadvantages are similar to the short-term strategy in that complacency may slow or stop further improvements. Additionally, there may be some disadvantage to creating bike lanes in some areas while maintaining a "shared use roadway" in others.

- Long-term

The long-term strategy is based on the assumption that the procurement of funding for higher cost items such as bike paths, the wetland boardwalk, kiosks, rest areas, significant numbers of education signs, landscaping, and other amenities will take a longer period of time than lower cost improvements outlined in the short and medium-term strategies. This assumption is made because there are fewer grants of significant size and communities are more reluctant to fund their portion of the project costs. Therefore, these types of improvements require more effort in building support and grants tend to be competitive in nature.

More specifically, the section of bike path from Cahokia Mounds past Fairmont City will require extensive engineering and construction costs. This is further complicated by the fact that the Fairmont City section will require the cooperation of the Illinois Department of Transportation in regards to the

addition of a bike path within the Collinsville Avenue right-of-way. The wetland boardwalk will also require engineering and have higher construction costs. Additional time may be needed for regulatory permits due to the site being a wetland.

There are no real advantages to the long-term strategy. The disadvantages are that, while a longer time period may be needed to build support for the funding, local interest for completing these higher cost improvements may wane to the point that official support may disappear.

Costs

Bikeway

Bike Route	\$ 4,000 to 6,000/mile
Bike Lane	60,000 to 125,000/mile
Bike Path	175,000 to 290,000/mile

Facilities & Amenities

Benches	800/bench
Drinking fountain	2,000/fountain
Trailhead signage (24" x 36" signs)	1,200/sign
Trailhead kiosk	5,500/kiosk
Trailhead restroom	75,000/restroom

Programs/Marketing

Newsletters, brochures, rides, walks	5,000 to 10,000/year
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Annual Operation & Maintenance

Depends on trail type (route, lane, path) and surface i.e. asphalt more expensive than concrete to maintain	2,500 to 10,000/mile/year
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It should be noted that in order to develop an accurate construction cost it will be necessary to development a more detailed design of the bikeway. However, based on the unit costs above a rough total cost can be estimated. The total primary bikeway (not including indicated loops) measures approximately 15.7 miles. Of this, it is estimated that 2.1 miles would be bike path. The remaining 13.6 would be bike lanes. As part of the bike lane creation in Fairmont City, the Illinois Department of Transportation has indicated they would require that Collinsville Rd. be widened to accommodate traffic as well as the bike lanes. Additionally, the following amenities were used in the estimate – ten benches; four drinking fountains; twelve educational or informational signs (24" x 36"); four kiosks; and two trailhead restrooms. Using an average cost from the table above the following costs could be developed:

Short-term bike route	15.7 miles x \$5,000/mile	\$ 78,500
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Completed bikeway with bike lanes, paths, and amenities

Bike path	2.1 miles x \$235,000/mile	\$ 493,500
Bike lane	13.1 miles x \$93,000/mile	1,218,300
Realign Collinsville		2,000,000
Benches	10 x 800/bench	8,000
Drinking Fountains	4 x 2,000/fnt	8,000
Signage	12 x 1,200/sign	14,400
Kiosks	4 x 5,500/kiosk	22,000
Restrooms	2 x 75,000/building	<u>150,000</u>

Total estimated bikeway cost in 2011 dollars	\$3,914,200
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Additionally the annual maintenance costs for the bike lanes and bike paths is estimated at \$157,000.

Funding

The following funding sources have been identified as potential starting points for financing the bikeway development. Amounts indicated are based on 2010 budgets.

- Illinois

Congestion Mitigation and Air Quality Program 80/20 match	\$2.5 mil statewide
Metro East Park and Recreation District 50/50 match with IDNR programs	\$100,000 max.
Illinois Transportation Enhancement Fund 80/20 match	Varies
National Recreational Trail Funds 80/20 match	\$ 200,000 max.
Illinois Bicycle Path Program 50/50 match for bike paths only	\$ 200,000 max.
LWCF 50/50 match usually tied to a park, more available for land acquisition	\$400,000 max.

- Missouri

Missouri Recreational Trail Grant 80/20 match	\$100,000 max.
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Great Rivers Greenway	varies by project
Congestion Mitigation and Air Quality Program 80/20 match	\$2.5 mil statewide
Missouri Transportation Enhancement Program 100%	Min 25K, Max 300K

Maintenance, Security, and Liability–

Maintenance

Because there is no single government agency that exists to operate and maintain the Mounds Heritage Trail the municipal, county, park district or other agencies will have to assume responsibility for the annual operation and maintenance requirements. Accepting the fact that several of the municipalities have limited funding available for operation and maintenance of this type, bike advocacy and other non-profit organizations will need to assist these municipalities in applying for grants or other sources of funds to defray some of the additional expense.

The estimated total annual maintenance cost of the primary bikeway and spurs is estimated at \$10,000/mile annually once the entire trail is complete. Most of the maintenance costs are related to the proposed shared use paths or bike lanes, as shared roadways and signed shared roadways are assumed to be maintained as part of routine street maintenance. Bicycle lanes require restriping, sweeping, replacing signs and markings, and street repair. Shared use path maintenance costs include labor, supplies, and equipment costs for weekly trash removal, monthly sweeping, and annual or bi-annual inspection which may include resurfacing and patching. It is anticipated that maintenance of shared use paths will be conducted using standard equipment used by municipalities, such as pick-up trucks, driven on the path itself.

Shared use path maintenance includes cleaning, repairing and restriping the path, repairs to crossings, cleaning or replacing signs, cleaning storm drains, trash removal, and landscape trimming and/or pruning. Weed or undergrowth control should be performed twice per year, once in the late spring and again in mid-summer. It also may be necessary to complete some or all of the above maintenance tasks for shared roadways and bike lanes on a less frequent basis when tasks are not carried out as part of routine roadway maintenance.

It will be important to identify a reliable or dedicated source of funding to cover maintenance costs. As part of the effort to minimize maintenance costs

it will also be important to review all proposed design elements to maximize durability and minimize need for repair or replacement.

**Table 1
Bikeway Maintenance Check List and Schedule¹**

<u>Item</u>	<u>Frequency</u>
Sign Replacement/Repair	1 - 3 years
Pavement Marking Replacement	1 - 3 years
Tree, Shrub & grass trimming	Weekly/As needed
Pavement sealing/potholes	5 - 15 years
Clean drainage system	1 year
Pavement sweeping	Weekly-Monthly/As needed
Shoulder and grass mowing	Weekly/As needed
Trash disposal	Weekly/As needed
Lighting Replacement/Repair	1 year
Graffiti removal	Weekly-Monthly/As needed
Maintain Furniture/kiosks	1 year
Fountain/restroom cleaning/repair	Weekly-Monthly/As needed
Pruning	1 - 4 years
Bridge	1 year
Remove fallen trees	As needed
Weed control	Bi-annually/As needed
Remove snow and ice	Weekly/As needed
Maintain emergency telephones,	1 year
Irrigate/water plants	Weekly-Monthly/As needed

Security

As stated previously security may be an issue along portions of the bikeway. The following steps are recommended to address these concerns. Enforcement of applicable laws on the bikeway will be the responsibility of the local municipal or county jurisdiction in which a given section of the bikeway is located. Enforcement should be conducted using both bicycles and vehicles. Enforcement of state vehicle statutes relating to bicycle operation will be enforced on shared roadways and bike lanes as part of the local jurisdiction's normal operations. Should additional manpower or equipment be anticipated appropriate agencies or non-profits will assist the community in identifying and applying for supporting funds. Furthermore, where needs are identified, additional and appropriate signage, fencing, barricades, or other barriers should be installed and educational literature be printed and distributed to maximize user security.

Liability

While government agencies need to be concerned about user safety and security, it is also just as important to be concerned about liability for all local governments responsible for any portion of the Mounds Heritage Trail. "Liability for local agencies implementing and operating new bikeways and pedestrian facilities should be no different than the liability for new roads, parks, or schools." Responsible agencies should stick to the following to minimize their liability.

- 1. Use Appropriate Design Standards:** Everyone from designers, engineers, contractors, and inspectors involved in the development of the trail should adhere to widely accepted standards governing the design and construction of the trail. Design standards include AASHTO's Guide for the Development of Bicycle Facilities; Manual for Uniform Traffic Control Devices, and the Americans with Disabilities Act (ADA). "Compliance with applicable laws, regulations, route selection criteria, and design standards should greatly reduce the risk of injury to bicyclists using the bikeway, and also provide strong evidence that the agency used reasonable care."
- 2. Traffic signals and warning devices:** Both Illinois and Missouri Departments of Transportation have adopted traffic design manuals which define the conditions under which traffic signals and warning devices are required. Require traffic signals, signage and markings, non-regulatory warning signs must be installed and maintained according to these design manuals where necessary to warn of a dangerous condition, such as an intersection.
- 3. Use of Professionals:** Facilities that have been reviewed and approved by unregistered or unlicensed professionals may increase liability exposure. Therefore, final design and engineering of the bikeway facilities should be completed by appropriately trained and licensed professionals. Additionally, construction management, inspection, and facility approval should be completed by the appropriately trained and licensed professionals.
- 4. Adhere to Maintenance Standards:** "Maintenance practices should be consistent along the entire facility, and conform to recognized maintenance practices. The responsible maintenance agency(ies) should have a written procedure to follow to maintain all portions of the facility, including pre-existing conditions such as drain grates."
- 5. Monitor Conditions:** The responsible agency(ies) should have an established policy and method to monitor or inspect and respond to actual operating conditions on the trail. This is typically done through the maintenance procedures, written reports and public comments. Accidents should be reviewed to determine if conditions on the trail were a contributing factor.
- 6. Keep Written Records:** Written records of all maintenance activities and

procedures and responses to reports of safety hazards should be prepared and maintained on file for the period of time recommended by the agency's legal counsel. It may make sense to have one contact person or department responsible for the entire facility, rather than risk confusion by incidents being reported to the wrong jurisdiction. The contact person/department can then dispatch the incident report to the appropriate jurisdiction. Mileposts on the route may be of help to maintenance and enforcement personnel responding to problems.

7. Correct Hazards: Maintenance personnel should correct all problems identified through monitoring/inspections or public comment in a timely fashion.

8. Warn of Known Problems/Hazards: Trail users should be warned of known hazards or problems such as the trail is adjacent to an active light rail corridor and to use caution when crossing the tracks or there is damage to the bike lane ahead.

9. Insurance: Proper insurance coverage or budgeting for self-insurance to cover potential liability will minimize concerns.

10. Be Careful With the Word 'Safe': Do not make any verbal or written comments that the facility is safe or safer than a non-designated route. For example, maps and brochures should not make any blanket claims that the facility is safe or safer than comparable routes.

11. Do Not Rush to Settle: "Fear that juries will award a plaintiff large sums for damages has made many attorneys eager to settle cases before they come to court. Lawsuits related to bikeways and walkways may be settled more quickly than other types of lawsuits due to the misconception that walking or bicycling are inherently unsafe activities. Attorneys may feel that a local government has an extra responsibility on designated bikeways or walkways –more than it does for motor vehicles on roadways for example– to prevent incidents. In fact, there is no evidence that bicycling or walking is inherently more or less safe than other transportation modes such as driving, flying, or other recreational activities such as swimming or playing soccer. This misconception is probably shared by the same public, who must be educated about the facts of bicycling and walking. The same exceptions for user responsibility and facility condition that apply to driving should apply to bicycling or walking. Since by law bicyclists and pedestrians are allowed on all roadways except where expressly prohibited, and roadway conditions vary widely, a public agency incurs no additional liability by identifying the route on a map or a plan. The net effect of prematurely settling a case is to incrementally reduce the types of improvements that can be offered by local government. In other cases, settling cases prematurely may simply encourage legal actions by others."

6. CONCLUSION

The area encompassed by the Mounds Heritage Trail master planning effort is a singularly exceptional blend of historical, cultural, and recreational resources coupled with a diverse demographic base and natural features. It is only conjecture, but the native peoples who established the community now known as Cahokia Mounds must have been attracted to the region and the site because of a diversity of features that they needed to thrive in this location. European settlers moving into the area, first for trade then later for homesteading, were attracted to the area for other reasons. This changing physical and cultural environment has continued to attract people for over a thousand years.

Today, with the Mounds Heritage Trail, we have an opportunity to celebrate the regions diversity, inform ourselves of the variety of resources, and interact with the cultural richness within the trail's corridor. In order to take advantage of this opportunity means overcome a number of obstacles. While extensive support for the idea has been expressed, strong leadership will be needed by elected officials and community leaders for the project to succeed. The first challenge is funding. To develop the Mounds Heritage Trail to its fullest extent with bike lanes and bike paths with trailheads, way points, and signage for both the bikeway and auto tour will require an estimated \$3.9 million dollars. Engineering challenges must be overcome in some areas in order to construct bike lanes and/or bike paths. Commitment and funding for safety and maintenance issues must be established by the various agencies or jurisdictions that will be responsible for management. With these challenges in mind, the master plan recommends an implementation strategy with short, medium, and long-term goals which will enable slow but progressive development of the Mounds Heritage Trail from a designated route to the end goal of a combined bike lane/path system.

The opportunity is available. Support exists. Leadership and perseverance will achieve success.

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