2035
Jackson Urbanized Area Transportation Plan

Volume III
BICYCLE AND PEDESTRIAN FACILITIES PLAN

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In cooperation with:

Mississippi Department of Transportation
Federal Highway Administration
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Introduction

3.1.1 Introduction

The Jackson Urbanized Area Bicycle and Pedestrian Walkway Facility Plan supports and recognizes the significance of a network that will support the need of the urbanized area to assuage traffic congestion, temper excessive motorized vehicle emissions and promote physical fitness and safety. In the State of Mississippi over the last several years there has been a growing concern over many economic, environmental and health issues affecting not only the Southern Region, but the Nation as a whole. Currently, the State of Mississippi is experiencing an increase in gas and energy prices, a decrease in available funding for a myriad of federal and state programs, an increase in traffic congestion, growing environmental concerns, especially those dealing with motor vehicle emissions, and an out of control obesity epidemic in which the State of Mississippi is ranked first in the country.

At a time when these issues are having a profound negative effect on the State, there is growing awareness by commuters that alternative modes of transportation, including non-motorized transport options, are needed to help abate these problems. Therefore it is imperative that we place more emphasis on and an investment in a comprehensive transportation system that will include improved transit services, improved intelligent transportation systems and an increased bikeway and pedestrian facility network to help combat and reduce the amount of single occupancy vehicles currently on the roadways.

According to 2009 population estimates for the Jackson Metropolitan Statistical Area (MSA) the total population has increased by 41,448 between 2000 and 2009. In 2000, 198,530 workers age 16 and over commuted to work. Based on 2009 Claritas Census estimates (Appendix A Table 1), the total number of commuters increased to 242,921, an increase of 44,391. The total population increase in the MSA is less than the increase in commuters; this difference in data can be attributed to several factors including, but not limited to the notion that people are moving out of the larger metropolitan areas to more rural settings and willing to commute longer distances to get to work, school and shopping. An increase in vehicle miles traveled correlates into increases vehicle hours traveled, therefore increasing capacity becomes necessary to reduce travel time, which will reduce congestion. Though adding lanes to the existing network would help reduce some congestion and vehicle hours traveled, more times than not, this objective is not realized. The addition of new lanes typically results in an increase in traffic demand due to an influx of additional vehicles, the “If you build it they will come” mentality. Due to this fact other alternatives should be considered instead of the status quo of adding lanes for capacity to reduce the number of commuters currently using the existing network. As a result of longer travel distances and travel times for a growing number of

commuters in the Jackson Urbanized Area, many commuters don't view travel by foot and/or bike as a viable alternative to their current travel needs. Therefore, a strategic targeting of commuters with shorter travel times and distances is necessary. There is also a need to change the perception of a large segment of the population which perceives biking and walking bikeway facilities as more dangerous and potentially life threatening.

According to the Unified Planning Work Program for Fiscal Years 2009-2010, the MPO staff will refine the Jackson Urbanized Area Bicycle and Pedestrian Plan that was adopted in July, 2006. Also during FY's 2009 and 2010 the City of Jackson proposes to enter into a professional services agreement with a firm to develop a City of Jackson Bicycle and Pedestrian Plan. Elements of both plans will be incorporated into the 2035 Jackson Urbanized Area Transportation Plan and an attempt to identify funding sources to implement projects in both plans will be made.

Section 450.306 (a) (6) of Title 23 & section 613.100 (a) of Title 49, Code of Federal Regulations, hereinafter called the Final Rule, lists among the eight factors, that the Transportation Planning Process must address the following: "—enhance the integration and connectivity of the transportation system, across and between modes, for people and freight." Furthermore, Section 450.322 (f) (2) states that the LRTP must include: "existing and proposed transportation facilities (including----pedestrian walkways and bicycle facilities—.)"

Therefore, this plan inventories and examines the existing and proposed Bikeway and Pedestrian facility network located in each of the municipalities and counties in the Jackson Urbanized Area. The information was evaluated and recommendations for the design and construction of additional bikeway facilities have been included in the plan. The proposed facilities will be built to provide interconnectivity between the existing and proposed bikeways and to promote a reduction in the number of single occupancy vehicle commuters.

Creating a seamless Bicycle and Pedestrian Facilities network will give the metro area a viable alternative to motor vehicle transportation, which will have an impact on the environment by reducing the amount of motor vehicles emissions, reducing traffic congestion, promoting the concept of creating more sustainable communities and also providing the citizens of the Jackson Urbanized Area with a means to improve their health and reduce obesity. 2009 Census estimates show that 25% of estimated workers age 16 and over that commute to work travel less than 15 minutes. If only one half of those commuters began biking or walking to work, there would be a substantial reduction in traffic congestion.

To assist in developing, implementing, reviewing and revising this updated version of the Jackson Urbanized Area's Bicycle and Pedestrian Facilities Plan the Jackson Metropolitan Planning Organization (MPO) created a Bicycle and Pedestrian Facilities

sub-committee to the MPO technical committee. This committee is comprised of several organizations including but not limited to Jackson MPO staff, local elected and appointed officials, local chambers of commerce, the Mississippi Department of Transportation, the Pearl River Valley Water Supply District, the Greater Belhaven Neighborhood Foundation, the Jackson Community Design Center and various bicycle advocacy groups just to name a few.

Chapter 2

Vision, Goals and Objectives

3.2.1 Vision

The vision of the Jackson Urbanized Area (JUA) Bicycle and Pedestrian Facilities Plan is to, enhance, expand and develop new and existing bicycle and pedestrian facilities that would create a safe, secure, seamless, destination oriented, user friendly, linked to transit facilities, bicycle and pedestrian circulation network that promotes bicycling and walking as a healthy, environmentally conscious, convenient, cost effective, sensible, alternative to motor vehicle transport.

3.2.2 Goal and Objectives

General

Goal: Develop a Bicycle and Pedestrian Facility transportation network for the Jackson Urbanized Area.

Objective: Establish a bicycle and pedestrian facility network that increases accessibility for users to schools, commercial areas, parks, transportation centers and other existing bicycle and pedestrian facilities.

Objective: Encourage design provisions on all new residential and commercial developments requiring the construction of shared use facilities.

Objective: To “close the gaps” that exists with current and proposed bikeway facilities promoting a seamless bicycle and pedestrian facility network.

Objective: Develop and provide support facilities such as rest stops, bicycle racks, benches, bicycle racks on transit buses, water fountains and showers, where applicable throughout the JUA along the bikeway network.

Objective: Establish a network that accommodates bicyclists and pedestrians of all skill levels including those with special needs, the elderly, children and commuters.

Objective: Integrate bikeway facilities into the design of new roadway construction, as well as proposed roadway widening.

Objective: Place emphasis on the planning and construction of bikeway facilities in economically distressed areas.

Objective: Establish and develop a prioritized phased development of the Bicycle and Pedestrian Walkway Plan that can have achievable results through public and private partnerships.

Objective: Encourage all municipalities and counties in the Jackson Urbanized Area to incorporate Complete Street Principles in the planning and design of their transportation networks.

Objective: Collaborate with state and local officials and local land owners/ stakeholders to encourage the conversion of unused rail lines to bicycle and pedestrian walkway facilities.

Multi-Modal Connectivity

Goal: Create a bikeway system that establishes connections to transit service routes and facilities and promotes multi-modalism.

Objective: Establish bikeway facilities within the bikeway network that promote connectivity and accessibility for bicyclists and pedestrians to transit stops and the Union Station Multi-modal facility.

Objective: Meet with local transit operators to identify existing transit routes.

Objective: Encourage transit operators and the Union Station Multi-modal facility to install and maintain short-term and long-term parking facilities.

Objective: Encourage transit operators to install bike racks on all buses used in the Jackson Urbanized Area.

Objective: Identify strategic locations throughout the Jackson Urbanized Area for the creation of Park and Ride Facilities, which would include access for bicycle users and pedestrians, as well as bicycle support facilities, to reduce the amount of traffic congestion along JUA's principal corridors.

Support Facilities

Goal: Provide bicyclists and pedestrians with support facilities throughout the Bikeway and Pedestrian Facility Network that promotes the increased use of non-motorized transport.

Objective: Encourage the installation of, at a minimum, short-term bicycle parking facilities in all newly proposed commercial developments.

Objective: Require the installation of, at a minimum, short-term bicycle parking facilities at all Town and City Halls, Police Departments, Public Libraries and Schools, where bikeway and pedestrian facilities currently exist or are proposed.

Objective: Provide covered rest areas and water fountains in strategically located areas throughout the entire Bicycle and Pedestrian Facility Network.

Objective: Encourage major employers, University of Mississippi Medical Center for example, in the Jackson Urbanized Area to install covered bicycle parking, showers and locker facilities.

Objective: Provide bicycle parking, where none is currently available, in parking garages in downtown Jackson.

Funding

Goal: Identify, apply for, and maximize the use of all existing and potential funding sources available to the Jackson Urbanized Area for the implementation of the bicycle and pedestrian facility plan.

Objective: Develop a list of all potential bicycle and pedestrian facility funding sources, public and private, available to the Jackson Urbanized Area.

Objective: As much as possible, develop bikeway and pedestrian facility grant applications which demonstrate multi-jurisdictional cooperation and coordination for the construction of proposed facilities.

Objective: Consort with federal, state and local agencies and any other potential public and private stakeholders to procure funding or in-kind contributions necessary to implement the construction of facilities identified in the bicycle and pedestrian plan.

Objective: Research the amount of federal funds available used to support health related initiatives.

Maintenance

Goal: Continually maintain, and upgrade/improve when financially feasible, the existing bicycle and pedestrian facilities in the Jackson Urbanized Area.

Objective: Ensure all bicycle and pedestrian facilities are continually monitored and when necessary, vegetation is trimmed, debris is removed, signage and pavement markings are updated consistent with updates/restriping of adjacent motor vehicle lanes and overlays/repairs are made to deteriorated bikeway surfaces.

Objective: Establish a maintenance schedule for the JUA Bicycle and Pedestrian Facility Network that coincides with each municipality/county's existing schedule for maintenance/repair of motorized vehicle traffic lanes which run parallel to or are a part of the Bikeway Network.

Objective: Identify a point of contact for the public, for each responsible jurisdiction should an unscheduled maintenance issue on the Bikeway Network be identified.

Objective: Upgrade Class II and Class III bikeways to Class I (See Chapter 4) when adequate funding and demand to do so is available and warranted.

Safety

Goal: Improve and address potential safety concerns on all existing and proposed Bicycle and Pedestrian Facilities, including support facilities.

Objective: Coordinate with municipal police departments to patrol bike/pedestrian facilities by bike, and obtain residential neighborhood support for groups of citizens to monitor bike/pedestrian facilities, reporting suspicious situations.

Objective: Require the installation of adequate and consistent signage, pavement markings and striping, and when necessary signalization, to eliminate/assuage safety concerns for users of **ALL** skill levels of the JUA Bikeway Network.

Objective: Ensure in the design phase of proposed Bikeway Facilities, and where needed upgrade existing facilities, that standards that meet and/or preferably exceed those required by the Americans with Disabilities Act have been included.

Objective: Where necessary to increase safety due to an excessive amount of accidents between motorists and non-motorized facility users, promote the development and installation of traffic calming methods including, but not limited to: lowering of existing speed limits, addition of speed humps and/or bumps and police enforcement.

Objective: Place emphasis on safety applications such as striped intersection crossings and crosswalk markings, pedestrian crossing signals and signage and share the road and yield to pedestrian signage along bikeway facilities in close proximity to schools, transit facilities and any and all additional high destination areas.

Objective: Log and keep record of collision data between motorized and non-motorized users. Annually, this data should be reviewed and safety improvements made to mollify and/or eliminate recurring issues in problem areas.

Outreach and Education

Goal: Establish Bicycle and Pedestrian Facility programs and outreach materials which promote biking or walking as a safe, healthy, environmentally conscious, connected, viable alternative to motorized transport.

Objective: Develop and distribute bicycle and pedestrian brochures which include information about bicycle and pedestrian safety, the benefits of biking and walking as not only a means of recreation, but also a means of commute to and from work and school. The brochure shall also provide a map of the existing bikeway network located in the Jackson Urbanized Area.

Objective: Collaborate with law enforcement officials to present educational programs and meetings to not only children, but also adults aimed at increasing awareness of the traffic laws that affect not only motorists, but also bicycle users and pedestrians. Also work with law enforcement officials to encourage the enforcement of posted speed limits on transportation facilities which are shared by bicycle and pedestrian users.

Objective: Develop and plan annual biking and walking programs such as Bicycle Rodeo's and Bike to Work Week which encourage an increase in the usage of bicycle and pedestrian facilities over motorized vehicle transport, promotes the environmental and benefits of biking and walking and provides instructional hands-on activities which promote bicycle and pedestrian safety education.

Chapter 3

Benefits of Bicycling and Walking

3.3.1 Benefits

Biking and walking to work, school, shopping or for recreation purposes can provide substantial benefits not only to the individual, but also to the environment and the transportation network. Biking and/or walking helps to improve a user's mental and physical well-being. The by-product of a person's improved well-being is a reduction in healthcare costs. By foregoing motorized vehicle transport, a user reduces dependency on and use of fossil fuels, which reduces the amount of emissions, released into the environment thus improving environmental quality. Finally, an increase in walking and/or biking improves the condition of and reduces the need for maintenance on the metropolitan area's transportation network. A reduction in the amount of motor vehicles on the roadways, reduces congestion, decreases the need to build additional roads and enhances traffic safety.

3.3.2 Health Benefits

Physical Well-Being

The State of Mississippi has been ranked number 1 in the United States for many years for being the most obese state. Increased physical activity, along with a healthy diet, helps to promote and sustain weight loss. It is believed that an obese person that engages in moderate to strenuous physical activity can achieve similar health benefits, even if they don't lose weight, to people who are at a healthier body weight.

Incorporating exercise into a person's daily routine helps to build and maintain health bones, joints and muscles. It improves blood circulation and reduces high blood pressure. Biking or walking to work 4 to 5 days a week for a period of at least thirty minutes can help achieve all of these benefits, as well as lower mortality rates for older and younger adults alike.

Mental Well-Being

According to the Surgeon General, physical activity is believed to decrease symptoms associated with anxiety and depression and is believed to improve a person's mood. A person who maintains a steady, physically active lifestyle of at least 30 minutes of brisk walking a day tend to exhibit signs of greater self-esteem, reduced stress levels, better sleep quality, higher test scores in adolescents and increased cognitive function in older adults. It is also believed that people who have a more active lifestyle tend to demonstrate an increased ability to perform average daily living tasks. Additionally, there are studies that advocate that an active physical lifestyle increases alertness and a person's ability to learn.

By riding a bicycle or walking to work an individual circumvents the added stressors associated with motor vehicle transport, such as traffic congestion or locating a parking spot. Increased stimulation found in the aesthetic landscapes associated with biking and walking, coupled with the social interaction afforded to people walking and biking in groups can have a significant influence on an individual's mental well-being.

Healthcare Costs

Studies have shown that an increase in physical activity can reduce an individual's annual health care costs. An increase in physical activity can lower a person's risk of stroke, high blood pressure, type 2 diabetes and weight gain; while improving sleep quality, muscular and cardio-respiratory fitness and better weight maintenance. In older adults it is believed that an increase in physical activity helps to increase cognitive function, reduce the amount of falls and promote stronger bone density.

According to the U.S. Department of Health and Human Services, an obese person spends 36% more on healthcare than the general public and 77% more on medications (http://aspe.hhs.gov/health/reports/physicalactivity/index.shtml). Medicare and Medicaid spend over $84 billion dollars a year on patients who suffer from diabetes, heart disease, depression, cancer and arthritis, all of which could be substantially improved with an increase in physical activity. In addition to health care costs, individuals can suffer monetary loss due to the inability to work because of disability or illness.

Due to the fact that regular physical activity promotes health and is believed to reduce and/or prevent disease, it is logical to draw the conclusion that an active lifestyle could/would decrease an individual's healthcare costs.

3.3.3 Environmental Benefits

Mitigating threatening impacts on the environment is a major concern that needs to be addressed throughout the country. By abdicating the use of motorized transport and embracing the concept of bicycling and/or walking as a viable alternative, commuters can have a substantial impact on improving overall environmental quality in their communities. By choosing to bike and/or walk to work, school and/or commercial areas, commuters are reducing their consumption of fossil fuels, as well as reducing emissions of carbon dioxide, nitrogen oxide, methane, carbon monoxide, and volatile organic compounds. It is believed that these emissions are directly responsible for depletion of the ozone layer and an increase in warming across the planet through the greenhouse effect. Walking and/or biking also aid in the reduction of water pollution, by using one of these modes users eliminate the possibility of air conditioner coolant leaks or oil drips, associated with motorized vehicles, polluting the metro areas water supply.

3.3.4 Transportation Benefits

Reduction in Traffic Congestion

A growing concern in the Jackson Metropolitan Area is the increase in traffic volume causing a strain on the existing transportation network. Though adding lanes is a quick fix to the problem, it is also a very expensive method for reducing congestion. In a time when money is tight, decisions need to be made to incorporate alternative means of transportation into the urbanized area's transportation system that will reduce the need for large amounts of funding. Adding bike lanes, routes and/or paths make a greater amount of alternatives available to the transportation network users in the metro area. The more people who bike and or walk to work, school or shopping areas, the fewer amounts of single occupancy vehicles on the roadways causing congestion.

Enhances Transit

It should be one of the top priorities in the Jackson Urbanized Area (JUA) to design bikeway facilities that tie in to the transit route network. To get the maximum transportation benefit out of bikeway facilities, it is imperative to work with local transit providers, JATRAN, to identify existing transit routes, stops and multi-modal facilities and develop bikeway networks that tie in to these areas to promote and increase ridership of the transit system. Providing access to these areas is a key component in creating livable communities and encouraging commuters to use the public transit system. Additionally, at all transit stops and multi-modal facilities, ancillary facilities, such as bike racks (both at transit stops and located on buses), benches and water fountains, should be provided as an additional means of encouraging bicyclists and pedestrians to use the transit services provided in the Jackson Metro Area.

Reassessing transit routes and transit stops is also crucial to increasing transit use by pedestrians and bicyclists. Existing routes and stops may not be conducive to the needs of commuters in the area; therefore re-evaluation of the current transit system could be beneficial in increasing ridership. Finally, instituting better land use planning practices can also have a profound effect on use of the transit system. It should be the goal of future land use planning for the Jackson Area to implement land use practices that focus on improved residential, commercial, public and open space land uses patterns that are adjacent to and/or are in the immediate vicinity of existing transit and bicycle and pedestrian facilities routes. Also, proposed transit and bicycle and pedestrian routes should be better planned and coordinated to take advantage of the future land use patterns. By implementing these best management land use and transportation practices, the Jackson Metropolitan Area will have created a more livable and sustainable community, with viable transportation alternatives, which has the potential to entice a greater number of commuters to use the transit system, when it is reasonable to do so, and abandon the status quo practice of commuting by single occupancy vehicle.

Promotes Safety

By increasing the number of commuters using bicycle and pedestrian facilities, there is an immediate reduction in the number of single occupancy vehicles (SOV's) on the transportation system. A decrease in SOV's sharing the same roadways, automatically improves the possibility of reducing traffic accidents due to lower traffic volumes and increased traffic flow and mobility. Roadway improvements, such as wider shoulders gives bicyclists a traffic lane separate from automobiles, and also makes available a lane for disabled vehicles to move off of the roadway which not only increases safety, but also reduces the possibility of congestion. A separated facility provides an even greater sense of security for commuters and alleviates, though does not eliminate bicyclists and pedestrians fears of traffic incidents with motorized vehicles. This increased level of assurance in the safety of a bikeway and/or pedestrian facility sometimes is the largest obstacle to overcome with commuters when attempting to change their propensity toward the use of motorized vehicles over bicycling and walking.

Chapter 4

Bicycle Facilities by Type*

3.4.1 Bicycle Facility Types

Several factors should be taken into consideration when determining the most appropriate type of bicycle facility to use for each segment of an area wide bicycle and pedestrian network. For example, there is no single bicycle facility that suits every bicyclist's needs. This doesn't mean that all bicyclists won't be able to use certain facilities; it means that not all bicyclists are using bikeway facilities for the same purposes. Some bicyclists are using the facilities for recreation only, some for transportation purposes to get to work, shopping or even school. Some want to be able to ride at their own speed without being impeded by less skilled riders and pedestrians or want to use a facility with the most direct route to get to their destination of choice.

Additionally, safety is a huge concern. Planners and engineers should consider the varying traffic volumes and speeds, bus traffic, on street parking and limited visibility safety concerns along proposed bicycle facility corridors. Certain facilities are more suitable to address these concerns than others. Other considerations should include the amount of funding available and the level of access and mobility. When developing a bikeway facility along a transportation corridor it should be easily accessible to the greatest number of people possible. It should also provide access to users to parks, schools, shopping and also to other bikeway facilities. Many users are also looking for a facility located in an area that affords them the most direct route from point A to point B.

Funding, in all areas of transportation, is always an issue. In a perfect world, for safety purposes, all bicycle facilities would be bike paths separated from motorized vehicles. In a realistic world this is not feasible. This is why proper planning is necessary to make the most informed decisions about the type of facility that should be designed, taking into account the other factors mentioned above as well. On the following pages the varying types of bikeway facilities, and sidewalks, have been categorized, with a brief explanation of each.

* Information used to categorize bicycle facilities came from:
AASHTO Guide for the Development of Bicycle Facilities, 1999
George Washington Regional Bicycle and Pedestrian Plan
Idaho Bicycle and Pedestrian Plan, January 1999
http://www.ibike.org/engineering/glossary.htm

Class 1

Shared-Use Path/Bike Path - A bikeway that is physically separated from motorized vehicular traffic by an open space, buffer or barrier. Shared use paths may be used by pedestrians, skaters, wheelchair users, joggers, bicyclists and other non-motorized users. This type of facility is the preferred choice for group B and C bicyclists due to its separation from the motorized traffic. Though group A bicyclists use these types of facilities, they are not conducive to the type of use group A prefers. Typically, group A bicyclists would prefer not to use these facilities due to the fact that they have to share the pathways with other users which slows down the rate of speed they are able to travel.

Sidewalks can be found along many roadways throughout the Jackson Urbanized Area, however, shared use paths and sidewalks do not provide the same functionality and thus should not be confused with one another. Sidewalks are narrower and are designed with pedestrians in mind. Shared use paths are wider to make it easier for bicyclists to pass each other without conflict. Typically a shared use facility is 10 feet in width which provides for two (2) five (5) foot lanes for bi-directional flow, in areas where there is a high volume of bicycle use the preferred standard is 12 feet. Poorly designed shared use paths can present safety issues, due to the fact that the majority of motorists are primarily focusing on oncoming traffic on a roadway and are not paying attention to bicyclists or pedestrians on the paths.

Shared use facilities should be properly signed and marked for safety purposes. Many shared use facilities cross roadways and driveways thus presenting safety concerns. Properly signed and marked crossings inform motorists of the exact location of a shared use path and of the need to yield to pedestrians and bicyclists. Yield to pedestrian signs should also be installed along shared use paths to ensure the safety of pedestrians and make bicyclists aware of the need to slow down when pedestrians are present to prevent the possibility of crashes and injuries. Other safety measures that should be used in the design of shared use facilities, if necessary, include: stop signs, stop lights and where needed an underpass or overpass.

Class 2

Bike Lane – Is a portion of a roadway that is designated by striping, signing and pavement markings for the preferential or exclusive use of bicyclists. These facilities are located on both sides of a roadway, adjacent to the outside through travel lane. In areas where on street parking is permitted, bike lanes should be placed between the parking lanes and motorist travel lanes. Each bicycle lane is one way with bicyclists traveling in the same direction as motor vehicles. Typically bicycle lanes range from 4-6 feet wide and are designated on a roadway with striping and markings. Bike lanes can also include bikeable shoulders. Bikeable shoulders provide bike lanes by using the existing striping on the outermost motor vehicle lane, thus creating a bike lane from the outermost lane to the edge of the shoulder. Bikeable shoulders should, at a minimum provide four (4) feet of space for bicyclists. It is imperative to properly mark and sign these lanes to emphasize the fact to motorists that they are set aside primarily for bicyclists and to reduce safety risks. It is equally important to clearly and concisely mark intersections to reduce the potential for traffic accident interactions between motor vehicle users and bicyclists. Proper lane striping, marking and signage reduce bicyclist's fears of the potential for motorists swerving into the bicyclists travel lanes.

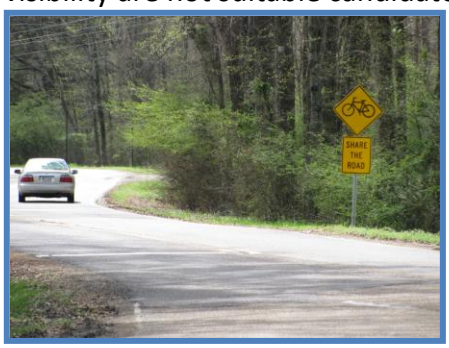
Primary users of bike lanes are those with group A skill sets. These riders do not feel uncomfortable or unsafe riding parallel to motorists, as opposed to group B and C riders. Bike lanes provide group A riders with more direct routes to their points of destination and allow them to ride at their desired speed without concern of safety conflicts that arise with shared use facilities, as bike lanes do not allow for pedestrian use. Bike lanes reduce the amount of bicyclists that use sidewalks (which improves safety for pedestrians), decreases the amount of travel time required for bicyclists to reach their destination and creates connectivity with other bikeway facilities, such as shared use facilities, at a fraction of the cost.

Two-way bike lanes should not be permitted in any part of the Jackson Urbanized Area as biking against the flow of traffic is one of the major causes of bicycle accidents. On one-way streets it is recommended that bike lanes be placed on the right side of the roadway. Only under extraordinary circumstances should a bike lane be placed on the left side of a one-way street. Some of these circumstances include bus routes in which frequent stops are made and areas where there is a large number of motorized vehicles

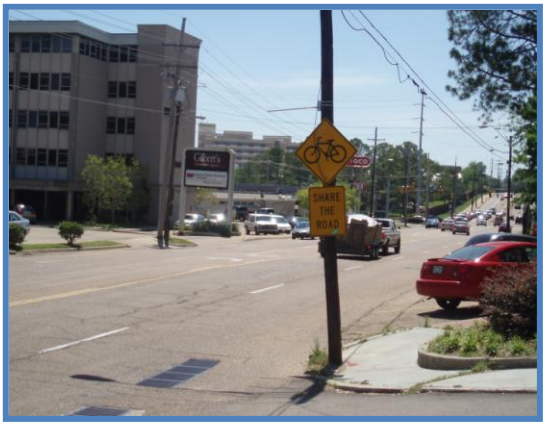
making right turns. Other safety concerns are providing bike lanes on roadways where on street parking is allowed. This places bicyclists at risk of being caught between parallel flowing traffic and parked vehicles and also subjects them opening car doors, limited views of intersecting traffic and parked automobiles pulling out of the parked space.

Class 3

Bike Route – A bike route is a bicycle facility where motorists and bicyclists share the same travel lanes and is designated by signage only. Bike routes typically have no identifiers designating lanes, nor are they a separate facility from motorized vehicles. Bike routes are typically identified with appropriate directional and informational markers which read "Bike Route" or "Share the Road"; however, there is no striping or pavement markings creating a lane for the exclusive use of bicyclists only. There are several factors that can contribute to a facility being identified as a bike route only, which include limited right of way, lack of available room on motor vehicle lanes to create enough spacing for bike lane designation and/or lack of funding. Most any roadway corridor can be designated a bike route; however, some are better suited than others. Roadways that have high levels of speed, traffic volume and/or have limited visibility are not suitable candidates for bike routes due to safety concerns.



Bike routes should be facilities where motorized vehicles can share the roadway with bicyclists with enough clearance for a motorized vehicle to pass a bicyclist without compromising the level of service and safety of either. This can be accomplished by using the existing roadway "as is", or through the use of wide curb lanes by either restriping the existing lane or increasing lane width through construction. Wide curb lanes are an alternative to bikeable shoulders (bike lanes) in areas where shoulders are not available. Expanding the existing lanes provides a safer environment for bicycle users.



It is recommended that **ANY** roadway classified as a bike route using wide curb lanes should have a minimum width of 14 feet, but be less than 16 feet from striped center line. Fourteen feet should provide enough spacing for both motorized and non-motorized vehicle users to share the roadway without conflict. Roadways that provide motorists minimum widths greater than 16 feet can encourage the use of two (2) motorists attempting to use the same lane. Any roadway designated as a bike route, in which the minimum width of each lane is greater than 16 feet should consider lane striping and marking for the safety of the bicyclist.

Typically, though not always, the only category of bicyclist on bike routes are those in Group A. These bicyclists are comfortable enough riding along with traffic with no markings or implied barriers separating them from motorists. A bike route also allows

Group A bicyclists to ride at their desired free flow speed without concern of pedestrians, as pedestrians should not be allowed on bike routes.

Sidewalks

Sidewalks are transportation corridors, mainly used by pedestrians, which provide users with a safer alternative than walking in motor vehicle traffic lanes to get to their desired location. Sidewalks are facilities typically located in the public right of way with buffer strips in place, used for safety purposes, to increase separation between users and motorized vehicle traffic. Along transportation corridors where the traffic volume is high, it is **recommended** that the buffer zone between the roadway and sidewalk be a minimum of four (4) feet and in certain instances even larger to increase the safety for pedestrian users.

It is not commonplace to allow bicycle users on sidewalks, due to several reasons one being a minimum width requirement, recommended by AASHTO and FHWA, of five (5) feet. Most sidewalks adhere to this minimum width requirement, which does not provide bicyclists with enough space to pass pedestrians easily without conflict or potential collision. Though it is not deemed to be acceptable to allow for bicycles on sidewalks, occasionally there are extenuating circumstances that merit the need to share the facility.

Chapter 5

Bicyclists by Group

3.5.1 Bicyclists

It is often assumed that determining what type of bicycle facility is needed whether it is a bike path, bike lane, wide shoulder or bike route primarily depends on the level of funding available. In a perfect world, there would be enough funding available to acquire right of way and build a bikeway network that was comprised of nothing but bike paths, or separated facilities. This would provide a bikeway network that everyone would feel confident and safe in using due to its location away from motor vehicle traffic. However, in the current time and economy there isn't remotely enough funding to accomplish this lofty goal.

Just as there are several classes of bicycle facilities, there are also several classes of bicyclists. Not all bicyclists share the same skill set, knowledge of the road, understanding of traffic laws and/or confidence level when riding their bicycles. The skill level of bicyclists should be given serious consideration, along with the amount of funding, when determining what type of bicycle facility to design along certain corridors. For example, facilities that are along routes with lower traffic volumes and slower speed limits would be prime areas for adding a bike lane or share the road sign only, if adequate funding isn't available. In contrast, roadway corridors in areas with a higher density of less skilled riders (children for example), with higher traffic volumes and higher speed limits would be corridors which would need to have separated bike paths for safety purposes. The proposed bikeway facility network should address the needs of both the seasoned and the less skilled riders. Though it is not feasible to accommodate all skill levels of riders along every proposed bikeway corridor, attempts should be made, whenever possible and practicable, to provide a facility conducive to all bicyclists regardless of skill set. The list below defines the three (3) categories of bicycle riders as defined by the 1999 American Association of State Highway and Transportation Officials (AASHTO) Guide for the Development of Bicycle Facilities.

Table 3.5-A: Types of Bicyclists

Group	Description
Group A - Advanced or experienced riders	These riders are generally using their bicycles as they would a motor vehicle. They are riding for convenience and speed and want direct access to destinations with a minimum of detour or delay. They are typically comfortable riding with motor vehicle traffic; however, they need sufficient operating space on the traveled way or shoulder to eliminate the need for either themselves or a passing motor vehicle to shift position.
Group B - Basic or less confident adult riders	This group of riders may also be using their bicycles for transportation purposes, e.g., to get to the store or to visit friends, but prefer to avoid roads with fast and busy motor vehicle traffic unless there is ample roadway width to allow easy overtaking by faster motor vehicles. Thus, basic riders are comfortable riding on neighborhood streets and shared-use paths and prefer designated facilities such as bike lanes or wide shoulder lanes on busier streets.
Group C - Children	This category of riders are typically riding on their own or with their parents, may not travel as fast as their adult counterparts but still require access to key destinations in their community, such as schools, convenience stores and recreational facilities. Residential streets with low motor vehicle speeds, linked with shared-use paths and busier streets with well-defined pavement markings between bicycles and motor vehicles, can accommodate children without encouraging them to ride in the travel lane of major arterials.

3.5.2 Pedestrians

A standard definition for a pedestrian is a person who goes or travels on foot. Though this is the definition as provided by www.dictionary.com , the definition for pedestrian for purposes of this plan encompasses a broader range of individuals. For purposes of the Jackson Urbanized Area's Bicycle and Pedestrian Facilities Plan, a pedestrian is defined as any person who goes or travels by foot, or travels by means of a wheelchair, self-propelled wheelchair, scooter, crutches, invalid tricycle or any other manner of contrivance required due to physical disability whether permanent or temporary.

An effective bikeway and pedestrian facility should not only be geared toward the needs of bicyclists, but to pedestrians as well. Newly proposed and developed facilities should, in as much as possible, attempt to accommodate pedestrians of all manner ranging from children to senior citizens to special needs individuals, which include not only those listed in the paragraph above, but also pedestrians with ambulatory, hearing and vision impairments as well. It is essential that newly developed and proposed bikeway and pedestrian facilities include in their design any and all accessibility standards as required by the Americans with Disabilities Act (ADA) and measures to promote and insure pedestrian safety. These accessibility and safety standards benefit all users, not just those with disabilities.

Chapter 6

Critical Factors in Selection of a Bicycle Facility

3.6.1 Existing Inventory

The primary task undertaken during the development of the Jackson Urbanized Area Bicycle and Pedestrian Plan was to do a comprehensive assessment of the existing bikeway facilities, existing bicycle traffic generators, densely populated residential areas in close proximity to traffic generators, deficiencies, hazards, hindrances and safety issues. An inventory of the existing bikeway network was completed identifying whether the existing facilities were bike routes, lanes or paths/separate facilities. The existing inventory was mapped and proposals to create connectivity between these facilities were identified. Additionally, an inventory of bicycle traffic generators was conducted. Bicycle traffic generators are areas believed to create the greatest amount of trips for bicyclists, therefore, requiring improved accessibility. These include: major employment centers, retail shopping centers, schools, parks and colleges. These generators have been identified on the existing inventory map to show where the greatest potential needs to develop additional bikeway facilities are that would increase accessibility for bicyclists in the JUA.

In order to provide facilities that reach the greatest number of existing and potential bicyclists, densely populated residential neighborhoods were also identified. Adding a bikeway facility in an area with minimal residential property owners, diminishes the intent of the overall Bicycle and Pedestrian Plan which is to reach and provide accessibility to the greatest number of users possible in the JUA.

3.6.2 Safety and Security

No person wants to be put in a position where they feel there is a potential risk of injury and/or threat to their well-being. Commuters want to feel a sense of safety and security. There is always the potential for traffic incidents between bicyclists and motorists, bicyclists and pedestrians and with other bicyclists. It is incumbent upon bikeway facility planners to include in the design of proposed bikeway facilities all safety measures necessary to reduce the potential for accidents. All proposed and existing facilities should include in the design and construction of and/or upgrade, where necessary, bikeway facilities that satisfy and/or exceed the minimum requirements as established by the Americans with Disabilities Act. It is of the utmost importance to create a bikeway network that is easily accessible to everyone regardless of age or ability.

Municipal, county and state officials, along with bicycle advocates, should develop guidelines that require consistent safety measures to be included in the design and construction of bikeway facilities throughout the JUA bikeway network. For example, any and all signage, markings and traffic signalization along bikeways should be

consistent whether a cyclist is in Madison, Terry or Florence. Inconsistency in the types of signage and the way signage is used is a serious safety concern. The guidelines should make it a requirement that bike route or yield signs, for example, should look the same and be consistently located where needed throughout the bikeway network. The group should also come to a consensus on the types of pavement markings and striping to be used at intersections, crosswalks, school crossing, etc. The types of markings should include consistent design, color, size and frequency. Finally, where necessary, all bikeway facilities should have consistent traffic signals and signalization for all bikeway facilities. Developing consistent safety measures as mentioned above throughout the JUA will reduce the amount of confusion of bikeway facility users and decrease the potential of traffic incidents.

In areas where there are constant reports of accidents between motorists and non-motorists, assessments should be made to determine what the primary causes are for the repeated incidents. If it is found that the repeated problems are caused by cyclists then proper actions should be taken to address the issues whether it is improved signage, pavement markings, signalization at intersections or if additional programs need to be developed to educate cyclists to prevent these accidents from happening in the future. If it is found that the majority of the fault lies with motorists, then appropriate traffic calming methods should be implemented. A log should be kept and reviewed annually that collects the collision data between motorists and cyclists/pedestrians. Once the annual review is completed safety measures should be implemented that will reduce and/or eliminate the recurring problems.

Additionally, there are major safety and security concerns due to the possibility of criminal attacks, theft and vandalism, especially along portions of a shared use path that are isolated from the roadway right of way. To provide a greater sense of security for users of bikeway facilities planners should consider providing bikeways that are lighted; having emergency phone boxes located strategically along the facility and potentially organizing bicycle and pedestrian safety watch groups to intermittently patrol the facilities. Another important measure is to consult with and request local municipal and county law enforcement officials to provide officers that patrol the bikeway facilities on bicycle. Increasing law enforcement presence on the facilities is a major factor in deterring crime and easing the minds of users concerned about their safety.

3.6.3 Appropriateness

Not all users have the same skill level. Not all skill levels are interested in the same type of facility. Some prefer facilities that allow them to ride at their own speed level and maintain that speed with very few impediments, such as avoiding pedestrians and less

advanced riders and excessive stopping points. Whereas, basic level riders and children typically prefer facilities that connect to schools, parks and campgrounds, provide a greater since of safety and security and are separate from motorized vehicle traffic lanes. Therefore, when designing a bikeway facility, serious consideration needs to be given to what type of users would be accessing the facility the most, to determine which type of facility is most needed. Are the users using the facility primarily for recreation purposes? Do the majority of the users of the facility need a route that gives them more direct access from point A to point B to make it faster to get from home to work, shopping or schools?

Facilities should be located in a manner that provides for the greatest level of accessibility to the greatest amount of users, preferably in and/or around residential areas. Consideration should also be given, for accessibility purposes, to providing large enough ingress and egress allowances for emergency and maintenance vehicles, particularly along bikeways that are separated facilities.

Other questions to consider when determining appropriateness:

- Is the proposed alignment along a roadway corridor with high traffic volume and/or high speed limits? If so, is there an adjacent parallel corridor with lower traffic volumes and speeds that could be used that would serve the same purpose?

- Is the bikeway facility along a bus route or a route that has a high volume of heavy truck traffic? Routes along these types of facilities cause conflicts with transit loading and unloading, as well as the potential for increased pavement deterioration due to the constant flow of heavy traffic on the facility. Efforts should be made to identify routes that connect to transit stops, but not be along a transit route per se, unless the bikeway type is a bike path which creates separation from the transit route.

- Does the route have a lot of intersection crossings? The more intersection crossings there are the greater potential for accidents. When feasible, a route should be selected that minimizes the amount of intersection crossings for safety purposes.

- Does the route require crossing rivers, railroads, interstate level transportation corridors, mountains, lakes, etc? Every effort to minimize these types of crossings should be made, not only from a financial standpoint, but also from a safety standpoint.

- Is on street parking allowed on the proposed route?

3.6.4 Aesthetics

For users accessing bikeway facilities for recreational purposes, aesthetics is a major consideration to make the biking experience more enjoyable. Locating a facility in an area with a large number of trees not only provides a scenic route, but also provides shade from hot weather. Also, locating a facility near a lake, stream or recreational facility (campground, water park, park, etc.), improves the aesthetic quality of the bikeway, and also provides increased access to these facilities for users wanting to swim, picnic and/or fish.

3.6.5 Support Facilities

Support facilities are bicycle and pedestrian accessory facilities that are located along bikeway corridors. These facilities serve both short- and long-term purposes for users and can include bike racks, bike lockers, water fountains, trash receptacles, showers, lockers, benches, covered shelters, rest rooms, lighting and signage. Creating a user friendly bikeway network is not done through the design and construction of bike paths, lanes and routes alone. During the design phase of any proposed bikeway facility in the JUA, the inclusion of support facilities is integral in providing a bikeway facility and network that promotes cycling and walking as viable alternatives to motorized transport. There is reluctance among automobile users to switch to biking or walking due to several factors, among those is a lack of support facilities presently available for automobiles. Automobile users can travel to work or for shopping and parking stalls are available to them. Just like automobile users cyclists need places to park their vehicles. The City of Jackson has the largest amount of individuals commuting in and out to get to work every day. A lack of parking facilities for bicycles is one reason commuters are unwilling to switch from using their automobiles to riding a bicycle. To help relieve this issue every effort should be made to meet and work with the owners of all public and private parking garages in downtown Jackson and encourage them to install bicycle parking facilities.

The City of Jackson isn't the only area in the JUA which lacks adequate parking facilities for bicycles. Therefore, each municipal and county jurisdiction in the JUA should work with developers to encourage the installation of bikeways as well as, at minimum, short-term parking facilities for bicycles in all proposed commercial and residential developments. Not only should all municipalities and counties in the JUA encourage developers to provide these types of facilities in new developments, but should also strive to make the same support facilities available at all public buildings including city hall, police departments, fire stations, libraries, school and parks. It should be a primary goal of all governmental jurisdictions in the JUA to find ways to provide these facilities

to members of the community. These added facilities not only would encourage cycling and walking for those who have the option to use motorized vehicles, but also would make available transportation access routes and support facilities to individuals in economically distressed areas who have no option available to them.

In the current economy, people are trying to find as many ways to cut costs as possible. One major way to cut costs is to bike and/or walk to work instead of driving. The current draw back to people making this switch is lack of not only parking facilities, but also additional support facilities. Biking and walking, especially in Mississippi, can cause people on their way to work to sweat. No one wants to show up to work after perspiring and not be able to clean up before starting their day. Therefore the largest employers in the JUA should be approached and encouraged to explore the feasibility of installing showers and lockers, as well as, covered bicycle parking facilities for their employees wishing to bike or walk to work. The table below contains a list of all of these "largest employers" found in the JUA. Only employers with 500 or more employees were included.

3.6.6 Funding

A lack of available funding to design, acquire right-of-way if needed, construct and maintain bicycle and pedestrian walkway facilities is a major concern in ALL areas of the country. As noted above, there are numerous factors that come into play when determining what type of facility to construct, however without funding, none of the aforementioned factors matter. Funding plays an integral role in determining what type of facility to design and construct. However, it is crucial that a lack of funding not lead to poor decisions concerning the location, design and construction of proposed or upgraded facilities. When considering the type of facility to construct, it is of the utmost importance to evaluate which type of bikeway facility would have the greatest benefit to users per money spent. For example, designing and building a shared use path that does not run parallel to the existing roadway, but instead takes a more scenic route and eventually comes back to the roadway in a residential area populated by a number of office professionals, is not beneficial to this particular type of user who may be accessing the facility to get from home to work. It is not beneficial because it negates the directness from point A to point B that this type of user desires.

In many cases there will not be enough funding available to design and/or construct new bikeway facilities, however, even with limited funding, there are projects that can be completed. Where bikeway facilities have been proposed, establish bike routes, where appropriate. Though bike routes may not be ideal for cyclists, at a minimum they will provide an interim bikeway facility that will close the gaps with the existing JUA bikeway network and promote connectivity to other facilities for users and can be upgraded later when additional funding becomes available or roadway construction or reconstruction projects take place. Bike routes also require less funding than bike lanes or bike paths. The addition of benches, water fountains, bike racks and/or improved

landscaping in strategic locations can upgrade an existing facility and make it more appealing to users. Additionally, as with roadways, the surface materials used to construct bikeway facilities over an extended period of time will begin to deteriorate. Limited available funding can be used to make necessary repairs to these facilities to ensure their vitality and usefulness for users.

Thinking outside the box and being creative are very important factors when attempting to procure grant funding for projects. Grant applications are typically, though not always, approved for projects that are believed to serve a greater majority and/or purpose than all of the other applications. Finding ways to satisfy those components goes along way when attempting to get approved. Therefore, municipalities, counties and any other organizations interested in attaining funding for the JUA bikeway facility network should find ways to partner on projects to improve the projects possibility for being approved for funding. Identifying as many groups as possible willing to endorse and support the proposed project only increases the projects chances for grant funding. These types of multi-jurisdictional collaboration efforts should not look only to public partners, but seek to find private partners (local land owners, retail and industrial land owners/stakeholders) as well. Receiving endorsements from and collaborating with private partners can be extremely beneficial to the project as a whole. Private partners can assist in the planning and design phase of the process by identifying what they view as the needs for the bikeway network are and what they feel are some of the biggest obstacles to a proposed project.

Table 3.6-A: Federal Funding

Program	Description	Matching Requirements
Surface Transportation Program (STP)*	Funding that may be used by States for projects on any Federal-aid highway. Eligible projects are listed in 23 U.S.C. 133(b) Carpool, pedestrian, bicycle, safety projects and transportation enhancement activities, as listed in 23 U.S.C. 133(b)(3), (4) and (8), may be implemented with STP funding on roads of any functional classification, under the provisions of 23 U.S.C. 133(c). A State may obligate funds apportioned to it under section 104(b) for the surface transportation program only for the following: (3) Carpool projects, fringe and corridor parking facilities and programs, bicycle transportation and pedestrian walkways in accordance with section 217, and modification of public sidewalks to comply with the Americans with Disabilities Act of 1990 (42 U.S.C. 12101 et seq.), (4) Highway and transit safety infrastructure improvements and programs, hazard eliminations, projects to mitigate hazards caused by wildlife, and railway-highway grade crossings and (8) Transportation enhancement activities.	80 percent Federal 20 percent State/Local subject to sliding scale
National Highway System (NHS)*	Funds apportioned to a State under section 104(b)(1) for the National Highway System may be obligated for any of the following: (K) Bicycle transportation and pedestrian walkways in accordance with section 217 for construction of pedestrian walkways and bicycle transportation facilities on land adjacent to any highway on the National Highway System.	80 percent Federal 20 percent State/Local subject to sliding scale
Recreational Trails Program (RTP)	This program is funded by the Federal Highway Administration (FHWA) and managed by trail	Federal share used for major Federal-aid highway

	administrators in each state. It is a grant program designed to be competitive; therefore, only projects that meet certain criteria may be funded: maintenance and restoration of existing trails, development or rehabilitation of trailside and trailhead facilities and linkages, acquisition of necessary easements, associated administrative costs, new trails and educational programs. At least 30 percent of all funds must be used for non-motorized trails, and since 1995 this program has helped construct more than 100 miles of trail.	programs. In most States this is 80 percent, but it is higher in States with higher percentages of Federal lands. See Sliding Scale Rates In Public Land States. However, a State may require a larger non-Federal share at its option. A Federal agency project sponsor may provide its own funds toward RTP projects as additional Federal share up to 95 percent of the project cost. The limitation is intended to ensure commitment to the project from State, local, or private co-sponsors. Under this provision, a Federal agency project sponsor may provide any amount of funds, provided the total Federal share does not exceed 95 percent.
Transportation Enhancement Activities (TEA)	TE activities are projects that, according to the National Transportation Enhancements Clearinghouse (NTEC), "expand travel choices and enhance the transportation experience by improving the cultural, historic, aesthetic and environmental aspects of our transportation infrastructure." As 10 percent of the Surface Transportation Program, TEA is a large potential source of funding for trail	In general, the Federal share is 80 percent, with a 20 percent State and/or local match. This maximum share is adjusted for States with large proportions of Federal lands: see Sliding Scale Rates In Public Land States.

	projects; more information is available at NTEC's web site.	Section 133(e)(5) allows a State to use TE funds for up to 100 percent of the cost of individual projects without a corresponding match. However, for a fiscal year, the ratio of Federal funds to State match for all TE funded projects must comply with the maximum Federal share provisions in 23 U.S.C. 120(b).
Congestion Mitigation and Air Quality Program (CMAQ)*	CMAQ is jointly administered by FHWA and the Federal Transit Administration (FTA). Funding is available for both "nonattainment areas" that do not meet federal air quality standards as well as "maintenance areas," former nonattainment areas that are now in compliance with air quality standards. CMAQ provides more than $8.6 billion to state Departments of Transportation, metropolitan planning organizations (MPOs), and transit agencies for projects that improve air quality.	Most eligible activities and projects is 80 percent Federal, 20 percent State/Local. 90 percent Federal if used on certain activities on the Interstate System 100 percent Federal for certain identified activities such as traffic control signalization and carpooling projects
Safe Routes to School (SRTS)	Funded by FHWA, SRTS provides funds to improve the safety and availability of bicycle and pedestrian facilities to primary and middle school students. As with the Recreational Trails Program, each state has a SRTS coordinator responsible for administering the program. More information is available at the National Center for Safe Routes to School. Safe Routes to School funding is for non-recurring activities only. For example, in general, Program funds should not be used to pay crossing guard	100 percent federally funded

	salaries, as these are recurring costs (although funds *may* be used for crossing guard training programs). http://safety.fhwa.dot.gov/saferoutes/guidance/	
Transportation, Community and System Preservation Program (TCSP)	Only states, MPOs, local governments and tribal governments are eligible recipients of TCSP grants from FHWA, though a nonprofit group could partner with an eligible recipient. TCSP projects should improve the efficiency of the transportation system, reduce the impacts of transportation on the environment, reduce the need for costly future public infrastructure, ensure efficient access to jobs, services and centers of trade, and encourage private sector development patterns. Trails are an eligible use of program funds; in FY 2008 eight trail projects received a total of $5,365,500 in TCSP funds. According to the National Park Service's RTCA program, this discretionary funding source is usually monies requested through elected congressional officials (earmarks).	80 percent Federal 20 percent State/Local subject to sliding scale
Federal Lands Highway Program (FLHP)*	FLHP roads serve federal lands for which state and local governments are not responsible. According to the FLHP, these projects promote "recreational travel and tourism, protect and enhance natural resources, provide sustained economic development in rural areas, and provide needed transportation access for Native Americans." Despite being a "highway" program, trails often benefit as they fulfill the recreational travel and tourism requirement of the program.	100 percent federally funded. In addition, FLHP funds may be used as matching funds for other Federal-aid Highway funds including STP, NHS and CMAQ.
Federal Transit Capital, Urban and Rural Funds (FTA)	Urban areas with between 50,000 and 200,000 population may use their allocation of Urbanized Area Formula Grants for capital or operating costs. Urban areas with more than 200,000 may not spend these funds on operating costs but can cover the costs of preventive maintenance as well as	Federal share for bicycle-related transit enhancements is 95 percent. Federal share for all other transit enhancements is 80 percent.

	other capital costs. These funds may be spent to provide stand-alone bicycle and pedestrian improvements such as bicycle parking and pedestrian access to transit stations, and on larger projects that include bicycle and pedestrian elements, such as the purchase of new buses with bicycle racks.	
Transit Enhancement Funds (TE)	The FTA requires that at least one percent of transit expenditures for urbanized areas of more than 200,000 people (known as 5307 formula funds) go to projects that improve access to transit service. Many of these projects focus on cycling and walking. The list of eligible activities under the Transit Enhancement Program includes: pedestrian access and walkways, and bicycle access, including bicycle storage facilities and installing equipment transporting bicycles on mass transportation vehicles.	Federal share for bicycle-related transit enhancements is 95 percent. Federal share for all other transit enhancements is 80 percent.
National Scenic Byways Program (NSBP)	There are eight specific activities for roads designated as National Scenic Byways, All-American Roads, State scenic byways, or Indian tribe scenic byways. The activities are described in 23 USC 162(c). This is a discretionary program; all projects are selected by the U.S. Secretary of Transportation. Construction along a scenic byway of a facility for pedestrians and bicyclists and improvements to a scenic byway that will enhance access to an area for the purpose of recreation. 23 USC 162(c)(4-5). Construction includes the development of the environmental documents, design, engineering, purchase of right-of-way, land, or property, as well as supervising, inspecting, and actual construction. [Note: Construction of a separate bike/pedestrian pathway is not eligible.]	80 percent Federal 20 percent State/Local

Highway Safety Improvement Program (HSIP)	States with Strategic Highway Safety Plans (SHSP) that meet the requirements of 23 USC 148 may obligate HSIP funds for all the purposes listed in section 148. Funds may be used for projects on any public road or publicly owned bicycle and pedestrian pathway or trail. Each State must have an SHSP to be eligible to use up to 10 percent of its HSIP funds for other safety projects under 23 USC (including education, enforcement and emergency medical services). It must also certify that it has met its railway-highway crossing and infrastructure safety needs. The Federal share is 90 percent, except that the Federal share is 100% for certain safety improvements listed in 23 USC 120(c).	Federal share of the cost for most highway safety improvement projects carried out with funds apportioned to a State under 23 U.S.C. 104(b)(5) shall be a maximum of 90 percent. In accordance with 23 U.S.C. 120(a) or (b), the Federal share may be increased to a maximum of 95 percent by the sliding scale rates for States with a large percentage of Federal lands.
Job Access and Reverse Commute Grants (JARC)	Funds are available to support projects, including bicycle-related services, designed to transport welfare recipients and eligible low-income individuals to and from employment. *TEA-21 Section 3037*	50 percent Federal 50 percent State/Local
Hazard Elimination Program (HEP)	Funds authorized to carry out this program can be used for safety improvement projects on any public road, any public surface transportation facility, or any· publicly owned bicycle or pedestrian pathway or trail. Typical project types include: intersection improvements (channelization, traffic signals, and sight distance); pavement and shoulder widening; guardrail and barrier improvements; installation of crash cushions; modification of roadway alignment, signing, pavement marking and delineation; breakaway utility poles and sign supports; pavement grooving and skid-resistant overlays; shoulder rumble strips; and minor structure replacements or modifications. The Transportation Equity Act for the 2151 Century (TEA-21) added a provision that a State must consider	90 percent Federal 10 percent State/Local Federal share may be increased up to a maximum of 95 percent by the sliding scale rates for States with a large percentage of Federal lands. Under the provisions of 23 U.S.C. 120(c), the Federal Share may amount to 100 percent for projects for signing, pavement markings, active warning devices and crossing closures.

	bicycle safety in carrying out projects, and established eligibility for projects on the Interstate System and for traffic calming measures.	
Rail Highway Crossing Program (RHC)	Funds for this program are to be used to reduce the number of fatalities and injuries at public highway-rail grade crossings through the elimination of hazards and/or the installation/upgrade of protective devices at crossings. 23 USC 130 (j) Bicycle Safety - In carrying out projects under this section, a State shall take into account bicycle safety.	90 percent Federal 10 percent State/Local
State and Community Traffic Safety Program (402)	Section 402, the State and Community Highway Safety Grant Program, is a federal program that provides funds for education, enforcement and research programs designed to reduce traffic crashes, deaths, injuries, and property damage. Under Section 402, bike and pedestrian safety programs are eligible to receive funding.	80 percent Federal 20 percent State/Local
Highway Bridge Replacement & Rehabilitation Program (HBRRP)	In any case where a highway bridge deck is being replaced or rehabilitated with Federal financial participation, and bicyclists are permitted to operate at each end of such bridge, and the safe accommodation of bicyclists can be provided at reasonable cost as part of such replacement or rehabilitation, then such bridge shall be so replaced or rehabilitated as to provide such safe accommodations.	80 percent Federal 20 percent State/Local subject to sliding scale

Source: Rails to Trails Conservancy & Federal Highway Administration

Note: **(i) Transportation Purpose.--No bicycle project may be carried out under this section unless the Secretary has determined that such bicycle project will be principally for transportation, rather than recreation, purposes.)*

Table 3.6-B: Non-Transportation Federal Funding and Assistance

Program	Description	Matching Requirements
National Recreation Trails (NRT)	Though not a source of funding, NRT designation from the Secretary of the Interior recognizes exemplary existing trails of local or regional significance. NRT designation provides benefits, including access to technical assistance from NRT partners and listing in a database of National Recreation Trails. In addition, some potential support sources will take NRT designation into account when making funding decisions. The NRT program is open to applications.	N/A
Rivers, Trails, and Conservation Assistance Program (RTCA)	Though not a source of funding, RTCA is a technical assistance arm of the National Park Service dedicated to helping local groups and communities preserve and develop open space, trails and greenways. RTCA is an important resource center for many trail builders in urban, rural and suburban areas. "Instead of money," their Web site notes, "[RTCA] supplies a staff person with extensive experience in community-based conservation to work with a local group on a project."	N/A
Land and Water Conservation Fund (LWCF)	This program is administered by state agencies in cooperation with the National Park Service. Program funds are intended for the acquisition and development of outdoor recreation areas; trails are one priority of this program.	50 percent Federal 50 percent applicant
Urban and Community Forestry (UCF)	A program of the US Forest Service, UCF "provides technical, financial, research and educational services to local government, non profit organizations community groups, educational institutions, and tribal governments." Trails and greenways are a key part of the program.	50 percent Federal 50 percent applicant

Public Works and Economic Development Program (PWED)	One of a few investment programs administered by the Economic Development Administration of the US Department of Commerce, PWED is meant to provide funding for "construction or rehabilitation of essential public infrastructure and facilities" that, among other things, can help to "redevelop brownfield sites and provide eco-industrial development."	Varies depending on economic need of the region requesting funding assistance.
Historic Preservation Funding Sources	Many trail corridors contain historic structures, often of regional or national significance. Sometimes, the corridor itself is of historic significance. First awarded in 2006, Preserve America is a 50/50 grant program that will match non-federal funds. Administered by the National Park Service and focusing on education and heritage tourism, grants are awarded only to designated Preserve America communities and state Historic Preservation Offices (SHPOs). Trails are a common recipient of Preserve America grants. Administered by the National Park Service, Save America's Treasures grants can be used only to preserve properties and sites listed in the National Register of Historic Places that are of national significance or designated as a National Historic Landmark. NPS also administers the Historic Preservation Fund, which awards matching grants-in-aid to the states for the restoration of properties on the National Register of Historic Places. To look up your state, tribal or territorial SHPO, visit the National Conference of State Historic Preservation Officers. For information on the National Register of Historic Places and the process to get a property listed on the Register, visit the NPS National Register of Historic Places Web site.	Varies depending on Historic Preservation Funding source
Brownfields Funding Sources	Many rail corridors are contaminated from years of industrial use. To remediate this environmental pollution,	Varies depending on Brownsfields Funding source

	there are many federal and state funding sources for brownfields from which trails can benefit. The Environmental Protection Agency has devoted a section of its Web site to funding and financing for brownfields. Many trails have taken advantage of brownfield funding, including Rhode Island's Woonasquatucket River Greenway Project, the Elkins Railyard redevelopment in West Virginia, and the Assabet River Rail Trail in Massachusetts. A listing from the Trust for Public Land shows examples of brownfields converted to parkland.	
Wetlands Restoration Funding Sources	Many railroads were built through environmentally sensitive areas that are now candidates for restoration. Administered by the Fish and Wildlife Service, the National Coastal Wetlands Conservation Grant Program is a matching grant program designed to assist states in the "acquisition, restoration, management or enhancement of coastal wetlands." States bordering the Atlantic, Pacific, Gulf of Mexico or Great Lakes are eligible. Although trails cannot be the primary beneficiary of these funds, the program has been used to work on trail infrastructure. For example, the Cape Cod Rail Trail underwent some reconstruction to restore a tidal wetland in 2006 using program funds. Related funding sources include the Corporate Wetlands Restoration Partnership, a source of private money for wetlands restoration, and the Natural Resources Conservation Service of the U.S. Department of Agriculture offers technical and financial assistance programs to restore and protect natural resources and wildlife. The U.S. EPA has a full list of federal funding sources for watershed protection.	Varies depending on Wetlands Restoration Funding source

Source: Rails to Trails Conservancy, Economic Development Administration, National Park Service and U.S. Department of Agriculture

Table 3.6-C: State and Local Government Funding

Program	Description
Municipal Allocations	The most common sources of funding at the municipal and county level include allocations from a specific department, such as the park and recreation department, or a line item in a consolidated capital improvement program (CIP) budget. Raleigh, N.C., for example, provides supplemental funding for Adopt-a-Greenway projects through its Park and Greenway Improvement Program.
Bond Issues	Local revenues may also be raised through bond issues. Mounting a successful bond campaign is like running any other campaign: you need strong citizen support, participation by local officials and business leaders and hard work. Some communities have also passed referenda to specifically fund trail and greenway projects. The Trust for Public Land maintains LandVote, a database of these local and state referenda.
Heritage Trusts	Many states have set up heritage trusts as funding sources to protect land. For example, the North Carolina Natural Heritage Trust, which is supported in part by fees for vanity license plates, awards funds for conservation and recreation to state agencies, which include funds for trail projects. The Indiana Heritage Trust places a priority on greenway acquisition. Many of these trusts focus on land conservation, so a rail-trail by itself is often not enough to justify funding.
Impact Fees	Regulated by county and municipal subdivision policies, impact fees require residential, industrial and commercial development project leaders to provide sites, improvements and/or funds to support public amenities such as open space and trails. Impact fees may be allocated to a particular trail from land development projects if the fund is a dedicated set-aside account established to help develop a county- or city-wide system of trail projects. Growth impact ordinances are enforced by counties and cities to estimate the impact of all residential, industrial and commercial development on public park and recreational facilities within a development project's local and regional service zones. The ordinance makes provisions whereby the project developer will set aside the lands or monies necessary to offset the project's specific park and recreational impacts. Another method of raising funds is through a direct property tax. (Note: In Mississippi there is no enabling legislation, and existing ordinances have been ruled illegal.)

Source: Rails to Trails Conservancy

Table 3.6-D: Private Funding Sources

Program	Description
Campaigns and Donations	Communities across the country have raised money for development and maintenance of their trails and greenways through various fundraising campaigns. Some groups have "sold" pieces of trail, providing each donor with a "deed" for their segment of the trail. Other groups have also sold trail amenities, such as benches and trees. But donations can be creative – use whatever resources you have! For example, RTC has been working with Bob Whittaker, who also manages the rock group REM, to advance the progress of California's Ferry County Rail Trail. As a part of his fundraising effort, Whittaker asked the band for an autographed guitar to auction off for the trail, and the sale on EBay earned about $1,500 for the Ferry County Trail.
Trust Funds or Endowments	These can be set up to aid funding for acquisition, construction or maintenance and can be administered by a nonprofit group or local commission. Funds can be contributed to a trust fund from government sources, private grants and gifts. One contributor to the RTC listserv notes that transparency is important with a trust fund. "If you do set up a dedicated endowment for land management, I would recommend keeping the endowment's books open to the public and providing members and donors with annual financial reports for the endowment."
Foundation and Company Grants	Many foundations and companies provide grants for trail and greenway projects, open space preservation, community development and community health. To obtain larger contributions from foundations or corporations, you will need a full-fledged funding proposal that illustrates the community-wide value of the trail and describes how it will be developed and maintained. Examples include, but are not limited to: Bikes Belong Coalition, Kodak American Greenways Awards Program, National Trails Fund, Conservation Alliance and Wal-Mart Foundation

Source: Rails to Trails Conservancy

Table 3.6-E: Additional Funding Mechanisms

Program	Description
Partnerships	Explore the possibility of creating partnerships to build and maintain your trail or greenway, potentially through an "Adopt-a-Trail" program. These can be important for not only constructing and maintaining your project, but also building community pride. Try contacting businesses in your area to see if they offer any kind of community support programs. Whole Foods Market, for example, hosts four 5-percent Community Support Days annually, at each store, to support the work of community nonprofits. RTC's national office partnered with a Whole Foods in Rockville, Md., in January 2008. Lastly, don't be shy about appealing to local clubs for volunteer assistance. The Boy Scouts, Girl Scouts, the Sierra Club, biking and trail clubs, birding clubs and local civic clubs are all potential sources of help.
Events	In June 2008, the Lassen Land Trails and Trails Trust put on Bridgefest, a two-day music festival in Susanville, Calif. The proceeds were donated to the trust's Trails Endowment Fund, which is working to raise money to rebuild a bridge along the Bizz Johnson Trail that burned in a 2000 wildfire. Trail builders and managers might organize fundraising events such as dinners, parties, festivals, fairs, raffles or concerts to raise funds nearby. Or try events along the trail route itself, such as a hike-a-thon, walk-a-thon, bike race or foot race. One RTC Listserv contributor suggested holding a "poker run" along the length of the trail, where trail supporters collect cards along the way, and the finisher with the best hand wins a prize.
Volunteer Opportunities	Military units with construction expertise are sometimes willing to assist with construction of trails on federal land. One RTC Listserv contributor with the Foothills Trail in Pierce County, Wash., worked with the Washington Air National Guard and the 864th Engineering Battalion out of Fort Lewis to completely refurbish railroad bridges. The Take Pride in America program, operated by the Department of the Interior, serves to mobilize civilian volunteers to help improve federal lands. The Corporation for National and Community Service runs numerous volunteer programs, including AmeriCorps, which could provide useful labor for your trail.
Public Art Funding Sources (State and Federal)	Many trails feature the arts as a core component, such as along the Steel Valley Trail section of the Great Allegheny Passage near Pittsburgh. Funding sources for public art can often be found at the state level; arts agencies in Maryland and Iowa, for example, offer grant programs for public art. The National Assembly of State Arts Agencies can direct you to your state's arts agency with their national map. On the federal level, one of the most well-known resources is the National Endowment for the Arts, which operates numerous grant programs supporting public art. Federal transportation Enhancement funds (see above, "Federal Transportation Funding") can also be used to support public art and beautification along trails, such as Colorado's America the Beautiful Trail. The National Trails Training Partnership features a section on art for trails and greenways

Source: Rails to Trails Conservancy

Table 3.6-F: State and Federal Bicycle and Pedestrian Improvement Funding Programs

	STP	NHS	RTP	TEA	CMAQ	SRTS	TCSP	FLHP	FTA	TE	NSBP	HSIP	JARC	HEP	RHC	402	HBRRP
ON ROAD IMPROVEMENTS																	
Surface Improvements	X	X		X	X	X						X					
Sidewalk Improvements	X	X		X	X	X	X	X	X	X	X	X		X	X		X
Crosswalk Improvements	X	X		X	X	X	X	X	X	X	X	X		X	X		
Traffic Calming	X					X	X					X	X	X	X		
ON ROAD BIKE FACILITIES																	
Bike Lanes	X	X		X	X	X	X	X	X	X	X	X		X	X		X
Paved Shoulders	X	X		X	X	X	X	X			X	X		X	X		X
Bridge only/Bridge and/or Tunnel*	X	X		X	X												
INTERSECTION TREATMENTS																	
Curb Radii Revisions	X	X		X	X	X		X				X		X	X		
Sight Distance Improvements	X	X		X	X	X		X				X		X			
MAINTENANCE																	
Major	X	X	X												X		
Repetitive/Short Term	X	X	X														
TRAILS/SHARED-USE PATHS																	
Separate Shared Use Paths	X	X	X	X	X	X	X	X									X
Hike/Bike Trails			X														
Path Intersection Treatments	X	X	X	X	X	X					X	X		X			
Bridge only/Bridge and/or Tunnel*	X	X	X	X	X			X									
SIGNAGE/SIGNALIZATION																	
Pavement Markings	X	X		X	X	X						X		X			
Signal Improvements	X	X		X	X	X						X		X	X		
Sign Improvements	X	X		X	X	X		X			X	X		X	X		
EDUCATION/ENFORCEMENT																	
Bicycle Safety Education**	X		X	X	X	X										X	
Police Patrols	X															X	

	STP	NHS	RTP	TEA	CMAQ	SRTS	TCSP	FLHP	FTA	TE	NSBP	HSIP	JARC	HEP	RHC	402	HBRRP
SUPPORT FACILITIES																	
Bike Parking/Storage	X			X	X	X	X		X	X	X		X				
Training	X		X	X	X	X										X	
Transit Access	X			X	X				X	X			X				
Easement/Right of Way Acquisition	X	X	X	X	X						X				X		

Source: George Washington Region Bicycle and Pedestrian Plan and Federal Highway Administration
Disclaimer: Though bicycle and pedestrian projects are eligible for funding through all of these programs, some funding programs will be more difficult/unlikely to attain funding through as bikeway/pedestrian projects rank low on the programs priority lists.
* Bridge Program funds are used ONLY on existing bridges in need of rehabilitation or replacement
** Bicycle Safety Education – Funding sources may be limited to certain eligible safety related projects. Ex. some programs provide funding for a Safety Coordinator, whereas others do not, but provide for safety brochures and training.

KEY

STP – Surface Transportation Program
NHS – National Highway System
RTP – Recreational Trails Program
TEA – Transportation Enhancements Activities
CMAQ – Congestion Mitigation/Air Quality
SRTS – Safe Routes to School
TCSP – Transportation and Community and System Preservation Program
FLHP – Federal Lands Highway Program
FTA – Federal Transit Capital, Urban and Rural Funds
TE – Transit Enhancements
NSBP - National Scenic Byways Program
HSIP – Highway Safety Improvement Program
JARC - Job Access and Reverse Commute Grants
HEP – Hazard Elimination Program
RHC – Rail Highway Crossing Program
402 – State and Community Highway Safety Program
HBRRP – Highway Bridge Replacement and Rehabilitation Program

Chapter 7

Construction and Maintenance

3.7.1 Cost Factors

The costs associated with the design and construction of a bikeway facility varies based on numerous factors. The bikeways location, length, type, width and connectivity should be considered when planning for development. Each of these factors can increase or decrease the cost associated with the construction of a proposed facility. Also, once the facility location and type have been identified a determination should be made as to what types of support facilities are needed?

Based on the location, length and width of the trail, several factors need to be considered.

- Will right of way need to be acquired?
- How much space will need to be cleared?
- Will the area need to be graded?
- Will drainage ditches need to be created?
- How much material is required to accommodate the length and width of the trail?
- What type of signage and/or pavement markings will be needed to mark the trail and how much will be needed?
- Will bridges need to be constructed?
- Will existing bridges need to be modified for bike and pedestrian use?
- Will rest areas be created along the trail?
- How far should the trail extend to promote connectivity with future trails?
- What type of bikeway (Ex. Class 1, 2 or 3) will be built?
- When, if necessary, will existing bike routes be upgraded to bike paths or bike lanes?
- What types of support facilities are needed?

Local conditions, trail type and maintenance services should be factored in during the planning phase of any bikeway facility as well. These factors can increase the upfront, as well as recurring and future costs of a bikeway. Bikeway design and location can be affected greatly due to a varying amount of environmental issues, including the presence of Yazoo clay.

3.7.2 Environmental Factors

Environmental factors can cause pavement to heave and swell. The heaving is caused when moisture accumulated by the pavement freezes. This causes additional stress to

the pavement, which in turn causes the pavement to heave. Also the presence of Yazoo Clay can cause a bikeway route to be relocated or, if not identified before construction increases the probability for future repair and maintenance of a bikeway facility. Yazoo clay is an expansive soil that causes extreme shifts in pavement and can wreak havoc on a transportation facility. When an excessive amount of Yazoo clay has been discovered it must be removed before construction can continue. This is a major concern in Mississippi which has caused numerous roadway construction projects to fall behind schedule.

3.7.3 Construction Costs

The following chart lists the cost of the materials that would be required to construct a new bikeway facility. These costs are based on year 2007 construction estimates.

Table 3.7-A: Bikeway Construction Cost Estimates

			Company A		Company B		Company C		Company D	
Description	Unit	Quantity	Unit Cost	Total Cost	Unit Cost	Total Cost	Unit Cost	Total Cost	Unit Cost	Total Cost
Mobilization/Demobilization	LS	1.0	$45,000.00	$45,000.00	$55,000.00	$55,000.00	$78,000.00	$78,000.00	$42,380.00	$42,380.00
Clearing and Grubbing	Hectare	0.75	$35,000.00	$26,250.00	$7,700.00	$5,755.00	$45,000.00	$33,750.00	$19,750.00	$14,812.50
Removal of Curb, All Types	Meter	30.0	$50.00	$1,500.00	$25.00	$750.00	$40.00	$1,200.00	$36.00	$1,080.00
Removal of Asphalt	SQ Meter	25.0	$70.00	$1,750.00	$14.00	$350.00	$10.00	$250.00	$12.00	$300.00
Sawcutting curb	Meter	30.0	$75.00	$2,250.00	$35.00	$1,050.00	$55.00	$1,650.00	$20.00	$600.00
Roadway Excavation	Cubic Meter	230.0	$30.00	$6,900.00	$16.00	$3,680.00	$5.50	$1,265.00	$10.00	$2,300.00
Borrow for Fill (Offsite)(CF)(PM)	Cubic Meter	11,900.0	$21.00	$249,000.00	$21.00	$249,900.00	$26.00	$309,400.00	$30.00	$357,000.00
Placed Riprap, CL2, W/Geotech Fabric	Metric Ton	7.25	$100.00	$725.00	$96.00	$696.00	$70.00	$507.50	$92.00	$667.00
Aggregate Base, Class 5, Group C	Cubic Meter	500.0	$40.00	$20,000.00	$36.00	$18,000.00	$35.00	$17,500.00	$65.00	$32,500.00
Furnishing & Placing of Topsoil, 100 mm Depth	Cubic Meter	1,425.0	$21.00	$29,925.00	$31.00	$44,175.00	$18.50	$26,362.50	$28.00	$39,900.00
Turf Establishment, Seeding	Hectare	1.3	$7,000.00	$9,100.00	$2,700.00	$3,510.00	$2,975.00	$3,867.50	$2,965.00	$3854.50
Roadway Obliteration, Removal of Existing Bike Path	SQ Meter	830.0	$10.00	$8,300.00	$14.00	$11,620.00	$6.00	$4,980.00	$18.00	$14,940.00
Asphalt Surface Course	Metric Ton	340.0	$120.00	$40,800.00	$109.00	$37,060.00	$110.00	$37,400.00	$127.00	$43,180.00
600 mm Reinforced Concrete Pipe CLIII	Meter	56.0	$180.00	$10,080.00	$271.00	$15,176.00	$210.00	$11,760.00	$176.00	$9,856.00
Concrete Headwalls	EA	4.0	$1,500.00	$6,000.00	$6,000.00	$24,000.00	$1,400.00	$5,600.00	$1,770.00	$7,080.00
Portland Cement, Concrete Curb, 450 mm Depth	Meter	15.0	$175.00	$2,625.00	$65.00	$975.00	$70.00	$1,050.00	$135.00	$2,025.00
Portland Cement, Concrete Curb and Gutter, 300 mm Depth	Meter	15.0	$175.00	$2,625.00	$65.00	$975.00	$80.00	$1,200.00	$135.00	$2,025.00
Silt Fence	Meter	1,800.0	$12.50	$22,500.00	$15.00	$27,000.00	$9.00	$16,200.00	$9.00	$16,200.00
Hay Bales	EA	80.0	$10.00	$800.00	$13.00	$1,040.00	$7.00	$560.00	$7.00	$560.00
Concrete Bike Path (4”)	SQ Meter	510.0	$50.00	$25,500.00	$104.00	$53,040.00	$38.00	$19,380.00	$56.50	$28,815.00
Construction Signs	EA	16.0	$200.00	$3,200.00	$33.00	$528.00	$210.00	$3,360.00	$210.00	$3,360.00
Type III Barricade	EA	2.0	$200.00	$400.00	$730.00	$1,460.00	$300.00	$600.00	$140.00	$280.00
TOTAL BID				$516,130.00		$555,760.00		$575,842.50		$623,715.00

Source: City of Ridgeland Relocation of Multi-Use Trail Project July 2007 project bids.

3.7.4 Maintenance

Several questions often arise when planning for a new bikeway facility. Once the facility has been constructed, who will maintain the facility? What type of equipment will be required? How much will maintenance of equipment cost? How often should maintenance of the facility and its support facilities take place? How much funding is available for maintenance? When, if needed at all, will the facility be upgraded (from bike route to bike lane for example)?

As is the case with construction, funding becomes a major issue when attempting to maintain and keep a bikeway facility viable. If there is a lack of available funding for facility maintenance other options are always available. Explore the possibility of creating partnerships to maintain the facility through the creation of an "Adopt-a-Trail" program. This type of group can consist of a myriad of individuals from cycling enthusiasts to homeowners associations. Also contact local businesses and see if they offer community support programs. For example, see if a local business would be willing to host a Bikeway Support Day to raise money for equipment and/or maintenance of the facility. Also, consider contacting local clubs for volunteer assistance. The Boy Scouts, Girl Scouts and local civic clubs are all potential sources of help.

Each municipal or county jurisdiction which has an existing or proposed bikeway facility should identify and dedicate an individual as a single point of contact for the public. As with any type of municipal or county infrastructure, though there may be a routine maintenance schedule in place, additional unexpected maintenance problems occur. Designating a single point of contact for the cyclists and pedestrians will cut down on confusion and delays on any repair, maintenance, safety and/or security issues that may arise. This contact person should also be responsible for periodic monitoring of each facility to make it possible to mitigate any possible issues as mentioned above.

Also each jurisdiction should establish a routine maintenance schedule for all bikeway facilities in their area. These types of schedules currently exist in most municipal and county jurisdictions for other infrastructure maintenance, such as scheduled grass cutting/trimming of overgrown vegetation, debris removal, roadway restriping and repainting of municipal buildings and facilities. Therefore, it is necessary to create a similar type of maintenance schedule for bikeway facilities to ensure their sustenance.

Chapter 8

Best Practices

3.8.1 Introduction

Though this plan was established to serve as a guide for the creation of a seamless bikeway network for the Jackson Urbanized Area (JUA) and as such, only select roadway corridors have been identified for the creation of bikeway facilities, it is important to understand that by law all roads in the state of Mississippi (except where prohibited – example: interstates) are available for bicycle usage. That being said, bikeway facilities in the JUA are not and should not be considered limited to only the corridors proposed in this plan, but any and all roadway segments that have the ability to improve bicycle and pedestrian mobility and circulation throughout the JUA should be considered as potential bikeway facilities.

This section outlines certain ideas and actions necessary to create a seamless and user beneficial bikeway network which that is part of the overall transportation network. These "best practices" involve a range of treatments and considerations to include in planning, design, and engineering, awareness and education, and political decision-making. Moreover, these best practices emphasize effectively collaborating with stakeholders, improving multi-modal connectivity utilizing the existing (and planned) transportation infrastructure, and working with municipal and county official to capitalize on any and all potential opportunities to improve bicycling conditions in the JUA when they arise.

3.8.2 Collaboration

For this plan to truly achieve its vision and goals and objectives it is crucial to foster strong private/public multi-jurisdictional partnerships. Working with both private and public partners can help to bring about not only an infrastructure change, but also a change in attitude and perception towards the use and installation of bikeway facilities. Early involvement of the private sector on bikeway projects can bring creativity, efficiency, and capital necessary to design and implement a sustainable bikeway network in the JUA. Equally of note, collaboration of multiple public partners can help to fill in gaps between proposed bikeway facilities in multiple jurisdictions and also increase potential for funding opportunities on proposed projects.

Creating these partnerships can help in the application process for attaining grant funding. Grant applications demonstrating a strong multi-jurisdictional partnership for a project have a greater chance of being approved as opposed to those with a single entity requesting funds. Some funding sources, though not all, allow for the granting of easements as an in kind contribution which can be used to satisfy local matching fund requirements for the project, therefore these partnerships should work together to

identify public/private landowners willing to grant these easements to improve the probability of constructing new bikeway facilities and potentially reduce the local match out of pocket costs. These multi-jurisdictional partners should also work together to identify existing abandoned rail road corridors and discuss the potential for converting these abandoned lines to bikeway and pedestrian facilities similar to the rails to trails program in Hattiesburg.

3.8.3 Promote Multi-Modalism

Promoting interconnectivity across transportation modes should be a focus not only for this plan, but for similar plans across the country. This is an essential element in creating a viable, sustained transportation network for the JUA. Integrating bikeway facilities with transit services allows cyclists to use their bicycles on one or both ends of their daily commute, allowing greater flexibility and expanding their range of travel.

When looking at the overall picture for improving bikeway facility connections to transit services, a couple of key determining components to consider for selecting an appropriate route are to know who the primary existing users of transit services are and who would benefit most by providing a bikeway connection to transit stops. The predominant existing users of the JATRAN system are captive transit riders. These transit users must rely on mass transit because they do not have an alternative way to travel for some or all of their trips because an automobile is required but none is available or because they cannot drive or cannot afford an automobile. These individuals, for the most part though not always, live in economically distressed areas, therefore, providing a bikeway connection to transit stops for these individuals will not only makes it easier for the existing users to access the transit system, but also will make it easier for additional users in the area to have access. By constructing these facilities that connect to the economically distressed areas it would provide a possible increase in ridership for JATRAN due to the increased connectivity; and the new bikeway/transit connection that would be created would be reaching the people that would benefit most from it.

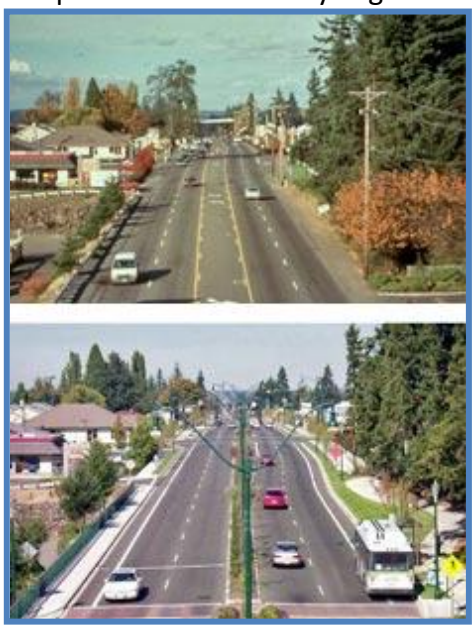
Collaboration with local transit providers will allow planners to better determine the best possible locations to construct bikeway facilities to connect to transit routes and stops; and the Union Station Multi-Modal facility in order to attempt to create a more seamless transportation network. (The 2010 Jackson Urbanized Area Bike and Pedestrian Walkway Map shows the current JATRAN routes and stops and the location of the Union Station facility.) The installation of support facilities should also be included in the bikeway facility design. Long term/short term parking facilities, as well as, on bus bike racks should be made available to cyclists wishing to access the transit systems. These facilities should be added to buses and provided at transit stops and the Union Station Multi-modal Facility. As part of an interim/pilot project municipal/county leaders should

submit a request to JATRAN to add, at a minimum, on bus bike racks on buses that travel along primary transportation corridors, State St. for example. After a specified amount of time has elapsed, the municipal/county leaders should reconvene with JATRAN officials to determine whether the added support facilities improved transit ridership and whether or not it would be beneficial to add additional support facilities on other buses and at JATRAN transit stop locations.

While working with transit officials, an additional priority should be to identify several locations along transit routes in the JUA for the creation of Park and Ride lots which would include access for cyclists and pedestrians and provide bikeway support facilities. By designating park and ride lots along transit routes it will provide an additional mechanism, along with bikeway facilities, aimed at reducing emissions and traffic congestion in the JUA.

3.8.4 Complete Streets

The Complete Streets Program is a set of adopted policies for designing attractive, comfortable and convenient shared roadway networks that allows pedestrians, bicyclists, motorists and public transit users of all ages and abilities to be able to safely move along and across a roadway segment. Not all complete street roadway segments are the same; there is no "one design fits all" mold. Complete streets can contain a myriad of transportation types which may include any combination of the following: sidewalks, bike lanes, bus lanes, transit stops, pedestrian crossing opportunities, pedestrian signals, curb extensions, on street parking lanes and more. A complete street should be designed with the intent to balance safety and convenience for all users, regardless of age, ability, or mode of transportation.



Incorporating complete streets principles in the design process of new or expanded roadways often costs about the same as incomplete streets, but improves accessibility to a broader range of users. Advocates claim that complete streets makes their communities more livable by providing a roadway network that improves personal health, property values and the overall economic vitality of said community.

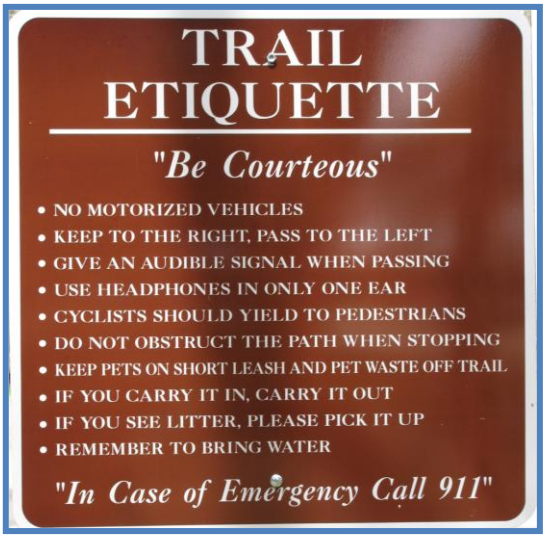
All municipal and county jurisdictions in the JUA should be encouraged to research and implement the long term benefits of incorporating complete street principles into all of their future transportation projects. By implementing these principles now on all roadway construction projects, a municipal or county jurisdiction will save money and

time in the future by not having to come back and add these facilities, which is a current trend taking place all across the country.

Chapter 9

Education and Outreach

3.9.1 Education



In order to have an efficient bicycle educational program, the first thing that should be done is to determine who it is the program is trying to reach and educate. Effective educational programs do not follow the "one size fits all" model. One of the most often overlooked components to developing a successful bicycle transportation system is neglecting to develop educational programs to reach all audiences. Bicyclists and motorists alike need education on the proper way to safely share and navigate through traffic. Most cyclists are not familiar with the rules of the road and/or safety measures necessary to mitigate traffic incidents. Another major issue when designing an effective educational and outreach program is to find funding to implement the programs. An effective educational program makes all transportation system users aware of their rights on the road and their responsibilities toward each other when sharing the roadway. The program should promote, inform and educate the public of the benefits of using bicycle and pedestrian facilities and show them that biking or walking is a safe, healthy, environmentally conscious, connected, viable alternative to motorized transport.

For purposes of establishing and designing an effective educational and outreach program for the Jackson Urbanized Area's Bicycle and Pedestrian Plan, the target audiences have been divided into five (5) user types. These audiences are:

1) Young Cyclists
2) Parents
3) Adults
4) Law enforcement
5) Motorists

Young Cyclists

In order to lay a solid foundation for the education of cyclists it is imperative to begin the process at a young age. Providing informational materials, activity booklets and events aimed at cycling awareness (Ex. bicycle rodeo, bike to school week, bike safety month, MDOT safety fair etc.) to children at a young age will only improve the

knowledge that is currently lacking in a number of adult cyclists due to lack of these programs in the past. It has been found that young cyclists lack basic bicycle knowledge and bicycle handling skills necessary to mitigate and/or prevent accidents. Educational programs and informational materials for young cyclists should be designed to improve children's understanding of the following:

- Always wear a helmet and how to determine if the bicycle helmet is on correctly using the Eyes, Ears, Mouth Test (Appendix D)
- Importance of being seen when riding by wearing bright clothing and a bright helmet
- Importance of using hand signals when making a turn
- Bicycle maintenance by using the "ABC Quick Check" method (Appendix C)
- Knowledge of the rules, laws and safe bicycle driving tips
- Importance of riding with traffic
- Importance of stopping, looking and yielding before entering or crossing a roadway/intersection

One thing to always keep in mind when providing educational materials and training activities for young cyclists is that the materials should be geared towards children not young adults. Too often children are blamed for cycling accidents and the point that is often overlooked is that they do not think like adults. They do not think or react like young adults, because they are not young adults they are children. That being said the materials and training for young cyclists need to reflect this point.

Parents

The best way to educate children on the rules of riding a bike and the safety measures to take is to educate the parents first. Though most parents when teaching their children to ride a bicycle for the first time feel confident in their ability to do so, not all parents fully understand and/or know the laws for riding a bicycle, nor do they have a firm enough grasp of bicycle safety to allow them to competently pass it on to their children. Parents should take a more active role with teaching their children the necessary safety measures to ensure that when their children are riding their bicycles their trips do not result in harmful and/or even tragic results. Educational materials and training and/or awareness events should be designed with parents of young cyclists in mind. The courses should be designed in a manner to ensure the parents have a comprehensive understanding of bicycle safety and the importance of properly conveying this knowledge on to their children. By improving a parents understanding of the laws and safety measures of cycling, it will also improve their riding techniques and understanding. Parents should be made aware of the following skills and bicycle safety measures which include many of the items listed above that their children should be required to understand:

- Bicycle handling techniques (quick stops using back/front braking, emergency turning techniques and quick starts)
- Proper bicycle fitting
- Always wear a helmet and how to determine if the bicycle helmet is on correctly using the Eyes, Ears, Mouth Test (Appendix D)
- Bicycle maintenance by using the "ABC Quick Check" method (Appendix C)
- Importance of stopping, looking and yielding before entering or crossing a roadway/intersection
- Importance of using hand signals when making a turn
- Importance of being seen when riding by wearing bright clothing and a bright helmet
- Importance of riding with traffic
- Knowledge of the rules, laws and safe bicycle driving tips
- Common causes of crashes
- Setting a good example
- Know where your child is going and how long it takes to get there

Adults

A common misconception is that adults, since they have been riding bicycles since they were children, fully understand how to properly ride a bicycle and understand the safety measures and laws regarding biking. The first thing adult cyclists should understand is that a bicycle is a vehicle and should be operated according to all traffic laws. Adult cyclists should also understand that the "share the road" rule doesn't only apply to motorists. Cyclists must share the road with motorists, as well as pedestrians and should treat each, especially pedestrians with a certain level of courtesy that cyclists expect from motorists. Adults should also follow the same safety measures as children when cycling, which include wearing of a helmet and bicycle maintenance checks. Appendix B lists the Mississippi State Laws regarding the rights and responsibilities of not only cyclists, but motorists as well.

Adult educational and training programs should include:

- Bicycle handling techniques (quick stops using back/front braking, emergency turning techniques and quick starts)
- Proper bicycle fitting
- Always wear a helmet and how to determine if the bicycle helmet is on correctly using the Eyes, Ears, Mouth Test (Appendix D)
- Bicycle maintenance by using the "ABC Quick Check" method (Appendix C)
- Importance of stopping, looking and yielding before entering or crossing a roadway/intersection
- Importance of using hand signals when making a turn

- Importance of being seen when riding by wearing bright clothing and a bright helmet
- Importance of riding with traffic
- Knowledge of the rules, laws and safe bicycle driving tips

Law Enforcement

Having a law enforcement unit on bicycle makes it possible for officers to respond quicker than officers in a patrol car in downtown areas. Bike patrol officers can also be used in heavily congested areas or to patrol parks and/or recreational trails that are hidden away from the vision of officers in patrol cars. When an officer is on a bike it makes them more accessible to the public, thus they are more in touch with what is going on in the community, due to the interaction opportunities patrolling on a bike provides. Police officers, like other bicycle users, need to have bicycle training and understand bicycle safety measures that would prevent the possibility of injury and also allow them to more efficiently and effectively do their jobs. The education of officers is critical in promoting the use of bicycles in the Jackson Metro Area. Many members of the area may feel a greater sense of security in riding bicycles and walking back and forth to work or school if they see that law enforcement officials are out and patrolling bicycle designated facilities. According to the Bicycling and Walking in the United States 2010 benchmarking report the State of Mississippi currently requires its officers to complete bicycling enforcement training at the police academies and provides continuing training to the officers as well. It also shows that bicycling enforcement is included in the states Police Officer Standards and Training or POST.

The Law Enforcement Bicycle Association (LEBA), which was formed in 1987, provides on its website http://www.leba.org/, a listing of bicycle law enforcement training that it provides along with a schedule of upcoming training dates and locations by training type. The courses provided by LEBA include:

- Class A Certification (32-hours / minimum)
- Class B Certification (24 hours / minimum)
- Class C Certification (16 hours / minimum)
- Advance Training Course (24-32 hours in Advanced Techniques / minimum)
- Instructor Course (48+ hours / minimum)
- Public Order-Crowd Control (Response Training)
- Bicycle Officer Survival Training
- Bicycle Mechanics / Repair Training

If the state sponsored a statewide bicycle conference, part of the conference could be geared toward providing continuing education courses, like the ones listed above for law enforcement officials.

Every effort should be made to work with and include law enforcement officials in the presentation of educational programs and meetings to not only children, but also adults. This joint collaboration will increase awareness of the traffic laws that affect not only motorists, but also bicycle users and pedestrians.

Motorists

Most motorists view cyclists as nothing more than nuisances that are slowing up traffic and should not be on the road. The thing that the majority of motorists fail to realize is that cyclists have just as much right to the road as motorists. According to Mississippi Code of 1972 Section 63-3-207 "*Every person riding a bicycle or an animal or driving any animal drawing a vehicle upon a highway shall have all of the rights and all of the duties applicable to the driver of a vehicle under this chapter, except those provisions of this chapter which by their nature can have no application."* Most motorists are not aware of this or any of the other laws that apply to cyclists being on the roadway and think that they are allowed ONLY on roadways designated by signage. What motorists need to understand is that the "Share the Road" signs are there as a courtesy to make them aware that the likelihood of cyclists riding along that particularly section of roadway is potentially higher than in other areas and to proceed with caution.

On July 1, 2010 the state enacted the John Paul Frerer Bicycle Safety Act. This act makes it a state law for motorists to give cyclists 3 feet of space while passing. This provides a safe distance for several factors, including unexpected movement of cyclists, safe distance from side mirror, and many other unforeseeable occurrences. The law also made it a finable offense for motorists who use improper conduct towards cyclists, such as maliciously taunting and harassing. The fine for the first offense is $100, the second offense is $500, and the third offense is $2,500 and imprisonment in the county jail for 7 days. Learning how to safely and considerately pass an individual or group of bicyclists is an important skill for motorists. Motorists should wait-like they do when passing other motor vehicles-until traffic conditions are clear and safe enough to comfortably pass.

In educating motorists, an effective program should list the laws and requirements for not only motorists, but also for cyclists as well. The following skills and awareness information should be included in educational materials or training courses designed and intended for motorists:

- Rights of cyclists to share the road
- Motorists should look for cyclists like they would other motorists when turning, changing lanes or passing
- Increase awareness of the potential for accidents with cyclists by improper turning movements
- Include bicycle and pedestrian information in driver education courses

3.9.2 Outreach

Increasing the amount of bikeway facilities available and creating a seamless bikeway network throughout the JUA alone is not going to improve the use of the facilities. That's why not only are educational programs needed, but outreach programs are needed as well. These programs can be included in educational materials to "educate" the public on the benefits associated with bicycling and walking as an alternative to using motorized transport. The outreach programs should not focus solely on the distribution of informational materials, but also design and promote outreach activities and/or conferences aimed at encouraging children and adults alike, that currently do not bike or walk on a regular basis of the benefits of doing so, which include improved quality of life, less energy consumption and reduction in emissions. These activities can include a myriad of event types including but not limited too:

Bike to Work Day/Week/Month

In 1956, the League of American Bicyclists organized the first Bike to Work Day. Since that time the program has become an annual event, not only in the United States, but in Canada as well. The event is typically the third Friday of May and the month of May is considered National Bike Month. The League of American Bicyclists has information on their website, http://www.bikeleague.org/programs/bikemonth for the year 2011. The League has already designated the May 20th as bike to work day.

Bike and/or Walk to School Day/Week/Month

In Hertfordshire, England in 1995, the first Walk to School Day was organized. Since then the event has become a worldwide event with over 40 countries participating in 2009. The event is held in October annually and is used to promote and encourage kids to walk and bike to school. Communities across the world can choose to celebrate the event by walking/biking to school for a day, week or even a month. The goals of this even are not just to encourage parents and children to walk to school for one month out of the year only as a special event, but to bring permanent change in transportation patterns. For more information about the event go to the, I walk to school website at http://www.iwalktoschool.org.

Sunday Streets

Sunday Streets is a program that temporarily shuts down a portion of connected streets on Sundays to motorized vehicles and are open to people who wish to run, walk, ride their bicycle, and/or skate. This type of event typically takes place one (1) Sunday out of the month for a designated portion of the day (Example: Sunday August 15th between 10:00 a.m. and 3:00 p.m.)

Bicycle Rodeo

A bike rodeo should provide a fun and safe environment for children to practice and learn various cycling skills and allow them the opportunity to practice them until they can ride with confidence and experience. The primary focus of a bike rodeo is to teach

young cyclists about cycling safety. Bicycle rodeos typically include several different stations which are dedicated to different bicycle learning activities. These stations can include bicycle inspection, how to properly park and secure a bicycle, use of hand signals, how to properly and safely enter a roadway and/or cross an intersection and proper bicycle handling techniques, just to name a few.

Bicycle rodeos should be held in area where there is plenty of room for children to move around and practice riding their bicycles such as a large parking lot. Most bicycle rodeos provide a driving course which is used to simulate actual road conditions to put children in every day situations to prepare them for when they are riding alone, which is why a large area, such as a parking lot is needed. The area is chalked off to simulate an actual roadway and participants are usually escorted through the course by knowledgeable adult cyclists and are shown where and how to apply the rules they have learned. At the end of a bicycle rodeo children should have an improved understanding of how to:

- Wear a helmet and how to determine if the bicycle helmet is on correctly
- Dress appropriately when riding to make sure they are seen by motorists
- Use hand signals
- Inspect and maintain their bicycle
- Understand the rules and laws of cycling
- Be aware of safety hazards while riding
- Understand where and how to park a bike safely and legally
- Ride with traffic without swerving
- Importance of stopping, looking and yielding before entering or crossing a roadway/intersection
- Improve their understanding of all bicycle safety measures

For more information on how to organize a bike rodeo go to:
http://www.bike.cornell.edu/pdfs/Bike_Rodeo_404.2.pdf

Promotional Bicycle Rides/ Walking Events

These events can include marathons, half-marathons, biking and/or walking events for charity and bicycle rallies, just to name a few. States, municipalities and advocacy groups sponsor these types of events in an effort to raise awareness about bicycle routes, issues and groups in the area and to promote bicycling and walking as healthy, environmentally conscious, alternatives to motorized transport. Promotional bicycle rides/walking events are, for the most part, single day events. However, these types of events do not have to be relegated to single day events only. Promoting a statewide event, in which, bicyclists would be able to begin riding in North Mississippi, (in Southaven for example) and rode to South Mississippi, (Gulfport, Biloxi, Moss Point, etc.) could be an event that lasted anywhere from 5 to 10 days. Special events like this could have a profound effect on bicycling in Mississippi.

Bicycle Maps and Brochures

Many, though not all, experienced cyclists know of the existing bikeway facilities located in the JUA, however, inexperienced/new cyclists and pedestrians may not be aware of where these facilities are located or where they connect to other bikeways. Developing a map of the entire bikeway network in the JUA is a critical component for promoting the concept of biking and walking to school or work. In order to achieve the goal of reaching out to the public and showing the viability of biking and walking to work and school the maps should, at a minimum, show the locations of all schools, parks, JATRAN bus stops (to promote multi-modalism), major employers and existing bikeway routes. Additional items for the map could include the location of historic sites, camping areas, destinations and ancillary facilities.

Bikeway brochures should not be designed with a "one size fits all" mentality. Brochures should be developed for user specific groups whether the groups are advanced, basic or children. The user specific brochures should provide educational materials concerning safety such as proper helmet fitting, ABC Quick Check; awareness information outlining the rules of the road and laws that cyclists and pedestrians must adhere to; upcoming and annual biking and walking events, activities and promotions; and a list of bicyclist and pedestrian websites for additional information.

Cycling/Walking and Social Networking Websites

Cycling and walking websites and social networking sites provide a major outreach tool that promotes cycling and walking in the JUA and throughout the state. These sites provide bikeway facility users and potential users with educational and safety information, upcoming biking and cycling events, locations of bikeway facilities, as well as information concerning potential legislation pertinent to cyclists and pedestrians. These sites, especially the social networking sites, are also great ways for new cyclists to get information on biking and walking groups that they may be interested in joining. In the information technology age, these websites are greatly beneficial in promoting the use of bikeway facilities. One site in particular, the Visit Mississippi site, http://www.visitmississippi.org/outdoor_rec/outdoor_biking.asp , provides a search engine allowing visitors to the site to search for trails by name of trail, city, county or region of the state.

Bicycling/Walking Clubs and Organizations

There are several cycling and walking clubs throughout the state and locally in the JUA. Joining a cycling or walking club is a great way for someone with little or no experience to learn from experienced cyclists and walkers about rules of the road and proper safety precautions to adhere to. These groups also know where the majority, if not all bikeway networks across the state and in the JUA are located and can help novice users to find these locations. Riding or walking with a club is an excellent way to educate new users and to help promote biking and walking as viable alternatives to motorized transport.

There are also bicycling and walking advocacy groups located in the JUA and across the state. These established groups, along with cycling and walking clubs, not only make available to the public educational materials, but also help sponsor and promote biking and walking events across the state. Bicycling and Walking Clubs and Organizations in the JUA include:

- Jackson Metro Cyclists
- Jackson Bike Advocates
- Ridgeland Cycling Club
- Tri-County Mountain Bike Association
- Bike Walk Mississippi
- Mississippi Safe Routes to School
- Mississippi Track Club
- Magnolia State Volkssport Club

Statewide Conference

A statewide conference promoting cycling and walking could be used to not only promote the concept of biking and walking as viable alternative modes for getting back and forth to work and school, but also serve as a site for networking between cycling professionals and advocates. This conference could be used for educational, safety and outreach purposes, as well as provide continuing educational credits for law enforcement professionals needing to fulfill their annual requirements. Presently, the Mississippi Department of Transportation hosts the MDOT Safety Fair, the Mississippi Transportation Institute Conference and the Safe Routes to School Conference. Though each provides informational sessions about bike and pedestrian walkways, the Safe Routes to School conference is presently the only one that focuses solely on cycling and walking. The Bicycling and Walking in the United States 2010 Benchmarking Report identifies that presently only 16 states host annual statewide bicycle and pedestrian conferences.

APPENDICES

APPENDIX 3-A: Bicycling and Walking Statistics

Table 1
2009 Estimated Workers Age 16 and Over by Transportation to Work

	Jackson MSA	Percentage	Mississippi	Percentage	United States	Percentage
Estimated Total Workers	242,921	-----	1,231,336	-----	143,319,589	-----
Drove Alone	197,526	81.3%	984,526	80.0%	109,167,856	76.2%
Car Pooled	33,459	13.8%	182,253	14.80%	17,377,960	12.1%
Public Transportation	1,372	0.6%	6,578	0.5%	6,350,912	4.4%
Walked	3,273	1.4%	21,354	1.7%	3,989,967	2.8%
Motorcycle	99	0.04%	693	0.06%	161,377	0.1%
Bicycle	68	0.03%	1,035	0.08%	518,617	0.4%
Other Means	1,708	0.7%	10,558	0.9%	1,000,173	0.7%
Worked at Home	5,416	2.2%	24,339	2.0%	4,752,727	3.3%

Source: PCensus for Mapinfo

Table 2
2000 Workers Age 16 and Over by Transportation to Work

	Jackson MSA	Percentage	Mississippi	Percentage	United States	Percentage
Estimated Total Workers	198,530	-----	1,164,118	-----	128,279,228	-----
Drove Alone	161,298	81.2%	924,506	79.4%	97,102,050	75.7%
Car Pooled	27,368	13.8%	176,465	15.2%	15,634,051	12.2%
Public Transportation	1,230	0.6%	6,587	0.6%	6,067,703	4.7%
Walked	2,839	1.4%	21,868	1.9%	3,758,982	2.9%
Other Means	1,518	0.8%	12,093	1.0%	1,532,219	1.2%
Worked at Home	4,277	2.2%	22,599	1.9%	4,184,223	3.3%

Source: 2000 Census

Table 3
1990 Workers Age 16 and Over by Transportation to Work

	Jackson MSA	Percentage	Mississippi	Percentage	United States	Percentage
Estimated Total Workers	179,027	-----	1,028,014	-----	115,070,274	-----
Drove Alone	143,552	80.2%	777,422	75.6%	84,215,298	73.2%
Car Pooled	25,923	14.5%	184,019	17.9%	15,377,634	13.36%
Public Transportation	2,243	1.25%	8,020	0.8%	6,069,589	5.3%
Other Means	1,375	0.8%	12,791	1.2%	1,512,842	1.3%
Walked or Worked at Home	5,934	3.3%	45,762	4.5%	7,894,911	6.9%

Source: 1990 Census

Table 4
1990 – 2009 Jackson MSA Workers Age 16 and Over by Transportation to Work Comparison

	1990	Percentage	2000	Percentage	2009	Percentage
Estimated Total Workers	179,027	-----	198,530	-----	242,921	-----
Drove Alone	143,552	80.2%	161,298	80.0%	197,526	81.3%
Car Pooled	25,923	14.5%	27,368	14.80%	33,459	13.8%
Public Transportation	2,243	1.25%	1,230	0.5%	1,372	0.6%
Walked	N/A	N/A	2,839	1.7%	3,273	1.4%
Motorcycle	N/A	N/A	N/A	N/A	99	0.04%
Bicycle	N/A	N/A	N/A	N/A	68	0.03%
Other Means	1,375	0.8%	1,518	0.8%	1,708	0.7%
Worked at Home	5,934	3.3%	4,277	2.2%	5,416	2.2%

Source: U.S. Bureau of the Census and PCensus for Mapinfo

Table 5
1990 – 2009 Mean Travel Time to Work

Year	Jackson MSA	Mississippi	USA
1990	20.2*	20.6*	22.4
2000	23.2	24.6	25.5
2009	25.8	26.0	27.8

Source: U.S. Bureau of the Census and PCensus for Mapinfo
* Not provided by Census Bureau, numbers calculated using available 1990 Census

APPENDIX 3-B: Mississippi State Law Relating to Bicycles

MISSISSIPPI LAWS RELATING TO BICYCLES

The use of any controlled access facility by pedestrians, bicycles, hitchhikers, ridden or herded animals and animal drawn vehicles is prohibited.

Source: Minutes of Meeting of Highway Commission, April 14, 1970.

MISSISSIPPI CODE OF 1972

As Amended

SEC. 63-3-207. Applicability of chapter to persons riding bicycles or animals or driving animal-drawn vehicles.

Every person riding a bicycle or an animal or driving any animal drawing a vehicle upon a highway shall have all of the rights and all of the duties applicable to the driver of a vehicle under this chapter, except those provisions of this chapter which by their nature can have no application.

SOURCES: Codes, 1942, Sec. 8149; Laws, 1938, ch. 200; 1983, ch. 350, Sec. 2, eff from and after July 1, 1983.

MISSISSIPPI CODE OF 1972

As Amended

SEC. 63-3-603. Driving on roadways laned for traffic.

(e) Persons riding bicycles upon a roadway shall not ride more than two (2) abreast except on paths or parts of roadways set aside for the exclusive use of bicycles. Persons riding two (2) abreast shall not impede the normal and reasonable movement of traffic and, on a laned roadway, shall ride within a single lane. SOURCES: Codes, 1942, Sec. 8187; Laws, 1938, ch. 200; 1977, ch. 321, Sec. 1; 1983, ch. 350, Sec. 3, eff from and after July 1, 1983.

MISSISSIPPI CODE OF 1972

As Amended

SEC. 63-7-13. Requirements as to lighting equipment.

(4) Lamps on bicycles. Every bicycle shall be equipped with a lighted white lamp on the front thereof visible under normal atmospheric conditions from a distance of at least five hundred feet in front of such bicycle and shall also be equipped with a reflex mirror reflector or lamp on the rear exhibiting a red light visible under like conditions from a distance of at least five hundred feet to the rear of such bicycle.

SOURCES: Codes, 1942, Sec. 8229-01; Laws, 1938, ch. 200; 1948, ch. 343, Sec. 9; 1956, ch. 381; 1968, ch. 543, Sec. 1, eff from and after passage (approved May 15, 1968).

MISSISSIPPI CODE OF 1972

As Amended

SEC. 63-7-65. Horns and other warning devices.

(3) No vehicle shall be equipped with nor shall any person use upon a vehicle any siren, whistle, or bell, except as otherwise permitted in this section. No bicycle shall be equipped with nor shall any person use upon a bicycle any siren or whistle.

SOURCES: Codes, 1942, Sec. 8250; Laws, 1938, ch. 200; 1994, ch. 324, Sec. 1, eff from and after July 1, 1994

SEC. 63-3-1112. Duty of driver to avoid collision with pedestrian or person propelling human-powered vehicle; warning signal.

Notwithstanding other provisions of this chapter or the provisions of any local ordinance, every driver of a vehicle shall exercise due care to avoid colliding with any pedestrian or any person propelling a human-powered vehicle and shall give an audible signal when necessary and shall exercise proper precaution upon observing any child or any obviously confused, incapacitated or intoxicated person.

SOURCES: Laws, 1983, ch. 350, Sec. 6, eff from and after July 1, 1983

APPENDIX 3-C: ABC Quick Check

ABC Quick Check

A is for air:

- Inflate tires to the rated pressure as indicated on the sidewall of the tire. A bicycle pump is recommended. Use a pressure gauge to ensure proper tire pressure. (Bicycle tires need to be re-inflated more often than car tires, and properly inflated tires reduce the chance of flats.)
- Check for damage to tire tread and sidewall; replace tire if worn.

B is for brakes:

- Rotate wheels to check that nothing is rubbing.
- Inspect brake pads for wear; replace is there is less than 1⁄4" of pad left.
- Check adjustment on brake pads; make sure they do not rub tire or dive into spokes.
- Check adjustment of brake levers. When applied, there should be least 1" between each lever and the handlebar.

C is for cranks, chain, and cassette:

- Chain should be clean, lubricated, and quiet — not chattering, squeaking, or squealing! Use a lubricant that's specifically designed for bicycles.
- If your chain skips while riding, you might need a new chain, a new cassette, and/or an adjustment.
- Make sure that your crank bolts are tight.

Quick is for quick releases:

- Wheels need to be tight in the frame, with the hub's quick-release lever fully engaged at 90° angle.
- Your hub quick release should point back to insure that nothing catches on it.
- Inspect brake quick releases to insure that they are engaged.

Check is for check it over:

- Inspect the bike for loose or broken parts; tighten, replace or fix them.
- Check to make sure that your helmet is snug and level on you head, with straps snugly adjusted.
- Take a quick ride to check if derailleurs and brakes are working properly.
- Pay extra attention to your bike during the first few miles of the ride.

APPENDIX 3-D: Eyes, Ears, Mouth Safety Test

Eyes, Ears, Mouth Safety Test

When a bicyclist is checking his/her helmet to see if it is fitting properly, the individual should follow the eyes, ears, mouth safety test. If a bicyclist helmet is not on correctly, it will not protect the user from injury. The eyes, ears, mouth safety test is as follows:

Eyes – Check to make sure you can see the edge of the brim of the helmet. The helmet should be level across the middle of the forehead. To test, the bottom of the helmet should be about two (2) fingers width above the eyebrows.

Ears – Check to make sure that the helmet straps form a "Y" just below the earlobe and slightly to the front. A user can use a mirror or feel the straps with his/her fingers to make sure they are aligned properly.

Mouth – The user, when opening his/her mouth should feel the chin strap pull the helmet down tightly on the head. The straps should fit snugly without pinching. To test, the user should be able to fit no more than two (2) fingers between the chin strap and his/her chin.

An instructional video of the eyes, ears mouth test has been provided by Safe Kids USA and can be found on Youtube at http://www.youtube.com/watch?v=Y5zE6Xtjf_Y.

APPENDIX 3-E: Bikeway Projects

Short-Term Bikeway Facility Projects (2010 – 2015)

Location	Beginning Termini	Ending Termini	County	Municipality or Responsible Jurisdiction	Bikeway Facility Type
Cynthia Rd	Arrow Dr.	Northside Dr.	Hinds	Clinton	Lane
Arrow Dr.	Clinton High School	Pinehaven Rd	Hinds	Clinton	Path
Pinehaven Rd.	Arrow Dr.	Northside Dr.	Hinds	Clinton	Lane
Proposed Byram-Clinton Corridor	I-20	Siwell Rd	Hinds	Hinds	Path
N. State St.	Hartfield St	Meadowbrook Rd	Hinds	Jackson	Lane or Route
Lynch St	Wiggins St	City Limits	Hinds	Jackson	Path
Belhaven Trail	High St	Jackson City Limits	Hinds	Jackson	Path
Timber Falls Pkwy	Forest Hill Rd	Existing Path	Hinds	Jackson	Path
Mill St	Amite St	Mitchell Ave	Hinds	Jackson	Route
Mitchell Ave	Mill St	State St	Hinds	Jackson	Route
State St	Mitchell Ave	Meadowbrook Rd	Hinds	Jackson	Route
Duling St	State St	Old Canton Rd	Hinds	Jackson	Route
Natchez Trace Pkwy	Livingston Rd	Osburn Stand	Hinds	National Park Service	Path
Natchez Trace Pkwy	Osburn Stand	Arrow Drive	Hinds	National Park Service	Path
Natchez Trace Pkwy	Arrow Dr.	Clinton Wayside	Hinds	National Park Service	Path
Morgan Dr.	Frontage Rd	Park	Hinds	Terry	Route
Proposed Path	Morgan Dr.	Claiborne St.	Hinds	Terry	Path
Claiborne St.	Raymond St.	Proposed School Connector	Hinds	Terry	Route
Proposed School Connector	Claiborne St.	Terry High School	Hinds	Terry	Path
Natchez Trace Pkwy	Reservoir Overlook PA	West Florida PA	Madison	National Park Service	Path
George Washington Ave	King Ranch Rd	MLK Dr.	Madison	Canton	Path
MLK Dr	George Washington Ave	North St	Madison	Canton	Path
Old Canton Rd	Nichols Dr	Hoy Rd	Madison	Madison	Path

Location	Beginning Termini	Ending Termini	County	Municipality or Responsible Jurisdiction	Bikeway Facility Type
Madison Ave	Church St	Existing Path	Madison	Madison	Path
Madison Ave	Old Canton Rd	St. Ives Blvd	Madison	Madison	Path
Rice Rd	Trace Vineyard Blvd	Madison Ave Elementary School	Madison	Madison	Path
Post Rd	Carriage Lane	Old Trace Park	Madison	PRVWSD	Path
Old Trace Park Route	Old Trace Park Entrance	Dyke Rd	Madison	PRVWSD	Route
Dyke Rd	Old Trace Park	W. Ramp Rd	Madison	PRVWSD	Route
W. Ramp Rd	Dyke Rd	Breakers Lane	Madison	PRVWSD	Route
Breakers Lane	W. Ramp Rd	Spillway Rd	Madison	PRVWSD	Route
Lake Harbor Dr. Connector	Existing Path	Existing Path	Madison	Ridgeland	Path
Highland Colony Pkwy	Steed Rd	Old Agency Rd	Madison	Ridgeland	Path
Proposed Steed Rd/I-55 Interchange	Highland Colony Pkwy	Sunnybrook Rd	Madison	Ridgeland/MDOT	Path
Highland Colony Pkwy	Steed Rd	Proposed Colony Park Blvd	Madison	Ridgeland	Path
Proposed Colony Park Blvd	Highland Colony Pkwy	Cotton Hill Rd	Madison	Ridgeland/MDOT	Path
Harbor Pointe Crossing	Spillway Rd	Northpark Dr	Madison	Ridgeland	Lane
Avery Blvd	City Limits	Town Center Blvd	Madison	Ridgeland	Lane
Town Center Blvd	S. Wheatley St	Northpark Dr	Madison	Ridgeland	Lane
Northpark Dr	Pear Orchard Rd	Lake Harbor Dr	Madison	Ridgeland	Route
E. Jackson St	Hwy. 51	Jackson Ave	Madison	Ridgeland	Path
Lake Harbor Dr	Hwy. 51	Pear Orchard Rd	Madison	Ridgeland	Path
Lake Harbor Dr Extension	Hwy. 51	Highland Colony Pkwy	Madison	Ridgeland	Path
Richardson Rd	Steed Rd	Highland Colony Pwky	Madison	Ridgeland	Route
County Line Rd	I-220	Highland Colony Pkwy	Madison	Ridgeland	Route
W. Ridgeland Ave.	Sunnybrook Rd	N. Wheatley St.	Madison	Ridgeland	Path
Old Agency Rd	Livingston Rd	Highland Colony Pkwy	Madison	Ridgeland	Route
Livingston Rd	City Limits	Natchez Trace Pwky	Madison	Ridgeland	Route
East Brandon Bypass Rd	Louis Wilson Rd	Hwy. 80	Rankin	Brandon	Path
Louis Wilson Rd	Hwy. 18	Mary Ann Dr	Rankin	Brandon	Lane
Mary Ann Dr	Louis Wilson Dr	Felicity St	Rankin	Brandon	Route
Felicity St	Mary Ann Dr	Tamberlin St	Rankin	Brandon	Route
Tamberlin St	Felicity St	North St	Rankin	Brandon	Route

Location	Beginning Termini	Ending Termini	County	Municipality or Responsible Jurisdiction	Bikeway Facility Type
North St	Tamberlin St	West St	Rankin	Brandon	Route
West St	North St	Armstead Dr	Rankin	Brandon	Route
Armstead Dr	West St	Easthaven Dr	Rankin	Brandon	Route
Easthaven Dr	Armstead Dr	Trickham Bridge Rd	Rankin	Brandon	Route
Shiloh Rd	Louis Wilson Dr	East Brandon Bypass Rd	Rankin	Brandon	Lane
Crossgates Dr	Woodgate Dr	Crossgates Blvd	Rankin	Brandon	Route
Hwy 471 (Possible)	Hwy 25	Hwy 80	Rankin	Brandon/Rankin County	Lane
East Metro Access Rd	Hwy. 25	Cooper Rd	Rankin	Flowood	Lane
Old Fannin Rd	Flowood Dr.	Spillway Rd	Rankin	Flowood/Rankin County	Lane
Liberty Rd	Liberty Park	Old Fannin Rd	Rankin	Flowood	Lane
Wirtz Rd	Old Fannin Rd	Hugh Ward Pkwy	Rankin	Flowood	Lane
Brooks Ave.	Hwy. 80	Yogi Bear Park	Rankin	Pelahatchie	Path
Brooks Ave.	Hwy. 80	Grimes St.	Rankin	Pelahatchie	Route
Grimes St.	Hwy. 43	Brooks Ave.	Rankin	Pelahatchie	Route
Shiloh Rd	Brandon City Limits	Lake Rd	Rankin	Rankin County	Route
Lake Rd	Yogi Bear Park	Haynes Chapel Rd	Rankin	Rankin County	Route
Haynes Chapel Rd	Lake Rd	Holly Bush Rd	Rankin	Rankin County	Route
Holly Bush Rd	Haynes Chapel Rd	Hwy. 471	Rankin	Rankin County	Route
Hwy. 471	Northshore Pkwy	Fannin Landing Circle	Rankin	Rankin County	Route
Fannin Landing Circle	Hwy. 471	Existing Path	Rankin	Rankin County	Route
Grants Ferry Pkwy	Hwy. 80	Hwy. 471	Rankin	Rankin County	Lane
Old Hwy. 49	Harper St	Scarborough St	Rankin	Richland	Route
Southwind Dr.	Harper St	Connection with Path on lake	Rankin	Richland	Route
Ranger Dr.	City Park	High School	Rankin	Richland	Route
Business development	Wilson Dr	Monterey Rd	Rankin	Richland	Route
Industrial Dr	Scarborough St	Cleary Rd	Rankin	Richland	Route
Cleary Rd	Industrial Dr	Old Hwy. 49	Rankin	Richland	Route
Old Hwy. 49	Cleary Rd.	City Limits	Rankin	Richland	Route
Scarborough St.	Old Hwy. 49	Industrial Dr.	Rankin	Richland	Route
Brandon Ave	Industrial Dr.	City Park	Rankin	Richland	Route

Location	Beginning Termini	Ending Termini	County	Municipality or Responsible Jurisdiction	Bikeway Facility Type
Spell Dr	Old Hwy. 49	Elementary School	Rankin	Richland	Path
Town Square	Old Hwy. 49	Scarborough St.	Rankin	Richland	Path

Mid-Term Bikeway Facility Projects (2016 – 2025)

Location	Beginning Termini	Ending Termini	County	Municipality or Responsible Jurisdiction	Bikeway Facility Type
Davis Rd	Siwell Rd	Byram Bulldog Blvd	Hinds	Byram	Path
Byram Bulldog Dr	Davis Rd	Proposed School Rd	Hinds	Byram	Path
Proposed School Rd	Byram Bulldog Blvd	Gary Rd	Hinds	Byram	Path
County Line Rd	Hwy. 51	I-220	Hinds	Jackson	Path
Yandell Ave	Saab Park	Hwy. 43	Madison	Canton	Path
St. Augustine Dr	Old Canton Rd	Brookside Place	Madison	Madison	Path
Drainage Bed Path	St. Augustine Dr	Madison Ave Elementary School	Madison	Madison	Path
Hoy Rd	Old Canton Rd	Honeysuckle Dr	Madison	Madison	Path
Rice Rd	Oak Hollow Dr	North Ridge Blvd	Madison	Madison	Path
Madison Ave	Hwy. 51	Highland Colony Pkwy	Madison	Madison	Path
Highland Colony Pkwy	Ridgeland City Limits	Proposed Colony Park Blvd	Madison	Ridgeland	Path
Ridgewood Rd	E. Centre St	Hwy. 51	Madison	Ridgeland	Lane
Pear Orchard Rd	Town Center Blvd	Northpark Dr	Madison	Ridgeland	Path
Proposed Colony Park Blvd	Cotton Hill Rd	Hwy. 51	Madison	Ridgeland	Path
Sunnybrook Rd	Steed Rd	Proposed Colony Park Blvd	Madison	Ridgeland	Path
East Metro Access Rd	Cooper Rd	Old Brandon Rd	Rankin	Flowood/Brandon	Lane
Lakeland Dr	Old Fannin Rd	R.R. Bridge Crossing	Rankin	Flowood	Path
Lakeland Dr.	R.R. Bridge Crossing	East Metro Access Rd	Rankin	Flowood	Path
Old Fannin Rd.	Flowood Dr	Lakeland Dr.	Rankin	Flowood	Lane
Lakeland Commons Connector	Flowood Dr.	Lakeland Dr.	Rankin	Flowood	Lane
Harper St	Old Hwy. 49	Richland Community Center	Rankin	Richland	Path
City Park Connection	Old Hwy. 49	City Park	Rankin	Richland	Path
Grants Ferry Rd	Spillway Rd	Hwy. 25	Rankin	Rankin County	Lane

Long -Term Bikeway Facility Projects (2026 – 2035)

Location	Beginning Termini	Ending Termini	County	Municipality or Responsible Jurisdiction	Bikeway Facility Type
Gary Rd	Proposed School Rd	Proposed Byram Parkway Connector Rd	Hinds	Byram	Path
Proposed Byram Pkwy Connector Rd	Gary Rd	Byram Parkway	Hinds	Byram	Path
Byram Parkway	Proposed Byram Pwky Connector Rd	Siwell Rd	Hinds	Byram	Path
Proposed Henderson Rd Extension	Siwell Rd	Terry Rd	Hinds	Byram	Path
Proposed Lynch Creek Linear Park Path	Lynch St.	Lynch St.	Hinds	Jackson	Path
Main St.	Hinds Blvd.	Elm St.	Hinds	Raymond	Path
Railroad Route	Hwy. 18	Airport Rd	Hinds	Raymond	Path
River Bed Path	Sumac Dr	Tidewater Lane	Madison	Madison	Path
St. Augustine Dr	Brookside Place	Madison City Limits	Madison	Madison	Path
St. Augustine Dr	Church St	Old Canton Rd	Madison	Madison	Path
Main St	Old Canton Rd	Crawford St	Madison	Madison	Path
North Old Canton Rd	Hoy Rd	Green Oak Lane	Madison	Madison	Path
Ridgecrest Dr	Old Canton Rd	Chelsea Way	Madison	Madison	Path
Hoy Rd	Honeysuckle Dr	Madison City Limits	Madison	Madison	Path
Railroad Path	Main St.	Brentwood Dr	Madison	Madison	Path
Grandview Blvd	Madison Ave	Main St	Madison	Madison	Path
Liberty Park Dr	Madison Ave	Proposed Crawford St Path	Madison	Madison	Path
Galleria Pkwy	Main St	Fontanelle Blvd	Madison	Madison	Path
Main St	Galleria Pkwy	Bozeman Rd	Madison	Madison	Path
Bozeman Rd	Main St	Reunion Pkwy	Madison	Madison	Path
Highland Colony Pkwy	Main St	Madison City Limits	Madison	Madison	Path
Lake Castle Rd	Highland Colony Pkwy	Madison City Limits	Madison	Madison	Path
Madison Middle School Path	Carmichael Blvd	Madison Middle School	Madison	Madison	Path

Location	Beginning Termini	Ending Termini	County	Municipality or Responsible Jurisdiction	Bikeway Facility Type
Hwy. 463	Old Mannsdale Rd	Chatfield Cv	Madison	Madison	Path
Old Mannsdale Rd	Bozeman Rd	Hwy. 463	Madison	Madison	Path
Northpark Mall Connections	Multiple	Multiple	Madison	Ridgeland	Path
Highland Colony Pkwy	City Limits	Old Agency Rd	Madison	Ridgeland	Path
School Creek Run	Lake Harbour Dr	Old Canton Rd	Madison	Ridgeland	Path
Brashear Creek Run	Old Canton Rd	McClellan Dr.	Madison	Ridgeland	Path
Railroad Route	Proposed Lake Harbor Dr Extension	Proposed Colony Park Blvd	Madison	Ridgeland	Path
Purple Creek Run	S. Wheatley St	Lake Harbor Dr	Madison	Ridgeland	Path
Proposed Rd Path	Highland Colony Pkwy	Livingston Rd	Madison	Ridgeland	Path
Proposed Rd Path	Highland Colony Pkwy	Old Agency Rd	Madison	Ridgeland	Path
Spillway Rd	Old Canton Rd	Breakers Ln.	Madison	Ridgeland	Path
Steed Rd. Extension	Sunnybrook Rd	N. Wheatley St.	Madison	Ridgeland	Path
Trickham Bridge Rd	Easthaven Dr	Grants Ferry Pkwy	Rankin	Brandon	Lane
Hwy. 43	Rankin County Line	Hwy. 471	Rankin	MDOT	Path
Proposed Development	Harper St	Center of Development	Rankin	Richland	Path
Railroad Path	Harper St	Scarborough St	Rankin	Richland	Path
Scarborough St	Industrial Blvd	Richland High School	Rankin	Richland	Path
Monterey Rd	City Limits	Hwy. 49	Rankin	Richland	Path

APPENDIX 3-F: Companies with over 500 Employees in Jackson Urbanized Area

Company	Address	County	Total No. of Employees
University of MS Medical Center - Hospital	2500 N. State St. Jackson, MS 39216	Hinds	8000
Nissan North America	300 Nissan Dr. Canton, MS. 39046	Madison	6300
Baptist Medical Center	1225 N. State St. Jackson, MS. 39202	Hinds	3000
University of MS Medical Center - School	2500 N. State St. Jackson, MS 39216	Hinds	2500
MS. State Hospital	3550 Hwy. 468 W. Whitfield, MS. 39193	Rankin	2400
St. Dominic Hospital	969 Lakeland Dr. Jackson, MS. 39216	Hinds	2100
Southern Farm Bureau	1800 E. County Line Rd #400 Ridgeland, MS. 39158	Madison	1900
University Physicians Urology	2500 N. State St. Jackson, MS. 39216	Hinds	1300
Central MS Medical Center	1850 Chadwick Dr. Jackson, MS. 39204	Hinds	1200
River Oaks Hospital	1030 River Oaks Dr. Jackson, MS. 39296	Rankin	1130
Corrections Dept Facility	3794 Hwy. 468 W. Pearl, MS. 39288	Rankin	1000
Koch Foods Inc.	299 Airport Rd. S. Pearl, MS. 39208	Rankin	800
Hudspeth Mental Retardation	875 Hwy. 475 S. Whitfield, MS. 39193	Rankin	800
Eaton Corp	5353 Highland Dr. Jackson, MS. 39206	Hinds	750
Blue Cross & Blue Shield	3545 Lakeland Dr. Jackson, MS. 39215	Rankin	725
MDOT	401 N. West St. Jackson, MS. 39201	Hinds	700
Saks Inc. Operations Center	3455 Hwy. 80 W. Jackson, MS. 39289	Hinds	700
Hudspeth Regional Center	100 Hudspeth Center Dr. Whitfield, MS. 39193	Rankin	700
Verizon Wireless	500 Clinton Center Dr. #2200 Clinton, MS. 39056	Hinds	637
Fountain Construction Co. Inc.	5655 Hwy. 18 W. Jackson, MS. 39289	Hinds	625
Johnson Controls	272 Old Jackson Rd. Madison, MS. 39110	Madison	600
Southern Farm Bureau	1401 Livingston Lane Jackson, MS. 39205	Hinds	600

Company	Address	County	Total No. of Employees
Methodist Rehabilitation Center	1350 E. Woodrow Wilson Ave. Jackson, MS. 39216	Hinds	600
TEC	236 E. Capitol St. #300 Jackson, MS. 39201	Hinds	600
Service Master	1179 Old Brandon Rd. Jackson, MS. 39205	Rankin	600
US Post Office	401 E. South St. #301 Jackson, MS. 39205	Hinds	509
L-3 Vertex Aerospace	555 Industrial Dr. S. Madison, MS. 39110	Madison	500
MS Dept. of Voc Rehab	1281 Hwy. 51 Jackson, MS. 39215	Madison	500
Sysco Jackson	4400 Milwaukee St. Jackson, MS. 39207	Hinds	500
Dept of Education	500 Greymont Ave. Jackson, MS. 39202	Hinds	500
Clarion-Ledger	201 S. Congress St. Jackson, MS. 39205	Hinds	500
Tax Commission	1577 Springridge Rd. Jackson, MS. 39225	Hinds	500
Wal-Mart Supercenter	5520 Hwy. 80 E. Brandon, MS. 39208	Rankin	500
Rankin Medical Center	350 Crossgates Blvd. Brandon, MS. 39042	Rankin	500

APPENDIX 3-G: Bicycle and Pedestrian Websites

American Trails
http://www.americantrails.org/

Rails to Trails Conservancy
http://www.railtrails.org/

National Transportation Enhancements Clearinghouse
http://www.enhancements.org/

The National Center for Bicycling and Walking
http://www.bikewalk.org/

Walkinginfo.org
http://www.walkinginfo.org/

Association of Bicycle and Pedestrian Professionals
http://www.apbp.org/

Alliance for Biking and Walking
http://www.peoplepoweredmovement.org/site/

America Walks
http://www.americawalks.org/

League of American Bicyclists
http://www.bikeleague.org/

National Complete Streets Coalition
http://www.completestreets.org/

Walk 21
http://www.walk21.com/

Pedestrian and Bicycling Information Center
http://www.bicyclinginfo.org/

Bikes Belong Coalition
http://www.bikesbelong.org/

Bikestation
http://www.bikestation.com/

Safe Routes to School National Partnership
http://www.saferoutespartnership.org/

Mississippi Safe Routes to School
http://www.gomdot.com/Divisions/Highways/Resources/Programs/SRTS/Home.aspx

FHWA Safe Routes to School
http://safety.fhwa.dot.gov/saferoutes/guidance/

Walkable Communities
http://www.walkable.org/

Bike Walk Mississippi
http://www.bikewalkmississippi.org/BWM/

International Bicycle Fund
http://www.ibike.org/index.htm

Bicycle Racks for Buses
http://www.bicycleracks.com/busracks.asp

Wear Your Helmet.org
http://www.wearyourhelmet.org/helmets

International Walk to School
http://www.iwalktoschool.org/

Cyclovia
http://www.cyclovia.org/

Sunday Streets San Francisco
http://sundaystreetssf.com/

Law Enforcement Bicycle Association
http://www.leba.org/

An Organizer's Guide to Bicycle Rodeos
http://www.bike.cornell.edu/pdfs/Bike_Rodeo_404.2.pdf

Walkablock Club of America
http://www.walkablock.com/

The Walking Site
http://www.thewalkingsite.com/clubs.html

American Volkssport Association
http://www.ava.org/

Magnolia State Volkssport Club
http://www.magnoliawalkingclub.org/

Mississippi Track Club
http://www.mstrackclub.com/

Let's Go Walkin Mississippi
http://www.letsgowalkinms.com/mississippi-track-club.html

Jackson Metro Cyclists
http://jmc.clubexpress.com/

Jackson Bike Advocates
http://jacksonbikeadvocates.org/

Tri-County Mountain Bike Association
http://www.tricountymtb.org/

Outdoor Biking in Mississippi
http://www.visitmississippi.org/outdoor_rec/outdoor_biking.asp

Mississippi 3 Feet
http://www.mississippi3feet.org/

Women's Cycling
http://www.womenscycling.ca/blog/cycling-events/mississippi-mills-bike-month/

APPENDIX 3-H: Mississippi Bicycle and Pedestrian Facebook Groups

Bike to the Battlefield
http://www.facebook.com/bikewalkmississippi#!/pages/Bike-MS-Bike-to-the-Battlefield/136247249723976

Bike Walk Mississippi
http://www.facebook.com/pages/Bike-MS-Bike-to-the-Battlefield/136247249723976#!/bikewalkmississippi

Mississippi Safe Routes to School
http://www.facebook.com/pages/Mississippi-Safe-Routes-to-School-Network/467654705219

Jackson Bike Advocates
http://www.facebook.com/pages/Jackson-Bike-Advocates/158677233920?ref=ts&v=wall

Tri-County Mountain Bike Association
http://www.facebook.com/group.php?gid=58615096210&ref=search

Jackson Metro Cyclists
http://www.facebook.com/pages/Jackson-Metro-Cyclists/303450094208?ref=ts&v=wall

Let's Go Walking Mississippi
http://www.facebook.com/group.php?gid=2337167766&ref=search

Mississippi Track Club
http://www.facebook.com/pages/Mississippi-Track-Club/167763639599?ref=ts

APPENDIX 3-I: Definitions of Terms

Accessibility – is determined by the distance a facility is from a desired destination, the ease by which the user can reach the destination and the extent to which the bikeway will serve the user's needs to access the greatest number of origins and destinations.

Bicycle - A vehicle consisting of a light frame mounted on two wire-spoked wheels one behind the other and having a seat, handlebars for steering, brakes, and two pedals or a small motor by which it is driven.

Bicyclist - A person who rides a bicycle.

Bicycle Facilities – Refers to all improvements and provisions made by public agencies to accommodate or encourage bicycling, including parking facilities and shared roadways not specifically designated for bicycle use.

Bicycle Traffic Generators – these are areas believed to create the greatest amount of trips for bicyclists, therefore, requiring improved accessibility. These include: major employment centers, retail shopping centers, schools, parks and colleges.

Bike Lane – A portion of a roadway which has been designated by striping, signing and pavement markings for the preferential or exclusive use of bicyclists.

Bike Path – A bikeway physically separated from motorized vehicular traffic by an open space or barrier and either within the highway right of way or within an independent right of way. Also referred to as a shared use path.

Bike Route – A portion of a roadway designated by the jurisdiction having authority by signing as a preferred route for bicycle use. Bike routes have no striping identifying separate lanes for bicycle use only. Bicyclists and motorists "share the road" on this type of facility.

Bikeway – Any road, path or way that is specifically designated for bicycle travel.

Captive Transit Riders - must rely on mass transit; they do not have an alternative way to travel for some or all of their trips because an automobile is required but none is available or because they cannot drive or cannot afford an automobile.

Clearance – Width and/or height required for the safe passage of a bicycle.

Directness – is the most direct and quickest route for a user to access his/her destination.

Highway - A major road for any form of motor transport.

Motor Vehicle – A vehicle that is self-propelled or designed for self-propulsion.

Pavement Markings – Painted or applied lines or legend placed on any pavement surface for regulating, guiding and/or warning traffic.

Pedestrian – any person traveling by foot and any mobility impaired person using a wheelchair.

Right of Way - The strip of land over which facilities such as highways, railroads, or power lines are built.

Roadway – The portion of the highway, including shoulders, for vehicle use.

Shared Use Path – See bike path

Shared Roadway – A roadway used by both motor vehicle users and bicyclists. Also see bike lane and bike route.

Shoulder – The portion of the roadway contiguous with the traveled way for accommodation of stopped vehicles, for emergency use and for lateral support of sub-base, base and surface courses.

Sidewalk – A paved area, usually beside a street or roadway, designed specifically for pedestrians.

Sight Distance – The farthest viewing distance, unobstructed by traffic, a person can see along a roadway surface.

Signed Shared Roadway (Signed Bike Route) – A shared roadway which has been designated by signing as a preferred route for bicycle use.

Traffic Volume – The amount of vehicles that travel a roadway segment.

APPENDIX 3-J: References

SCTA Countywide Bicycle and Pedestrian Master Plan, Sonoma County Transportation Authority, May 2008

George Washington Region Bicycle and Pedestrian Plan, http://www.gwregion.org/bikeandpedestrianplan.html, January 2009

Benefits of Rail-Trails, http://www.railstotrails.org/ourWork/trailBasics/benefits.html

Idaho Bicycle and Pedestrian Transportation Plan, Adopted by the Idaho Transportation Board, January 1995

Bicycling and Walking in the United States 2010 Benchmarking Report, http://www.peoplepoweredmovement.org/site/index.php/site/memberservices/C529, 2010

2005 Bikeway Plan for the Roanoke Valley Area Metropolitan Planning Organization, http://www.rvarc.org/bike/bikefinal.pdf, August 2005

AASHTO – Guide for the Development of Bicycle Facilities, AASHTO Task Force on Geometric Design (1999)

General Funding Requirements, Federal Highway Administration http://www.fhwa.dot.gov/environment/bikeped/bp-guid.htm#bp4

Berkeley Bicycle Plan Data for the Inclusion in the General Plan, Wilbur Smith Associates, December 1998

Programs: Bicycle Safety Education/Injury Reduction, David Mozer, www.ibike.org/education/safety-programs.htm, 1986

Bicycle Rodeos, John Andersen, http://www.bicyclinglife.com/SafetySkills/BicycleRodeo.htm,

Complete Streets Fundamentals, http://www.completestreets.org/complete-streets-fundamentals

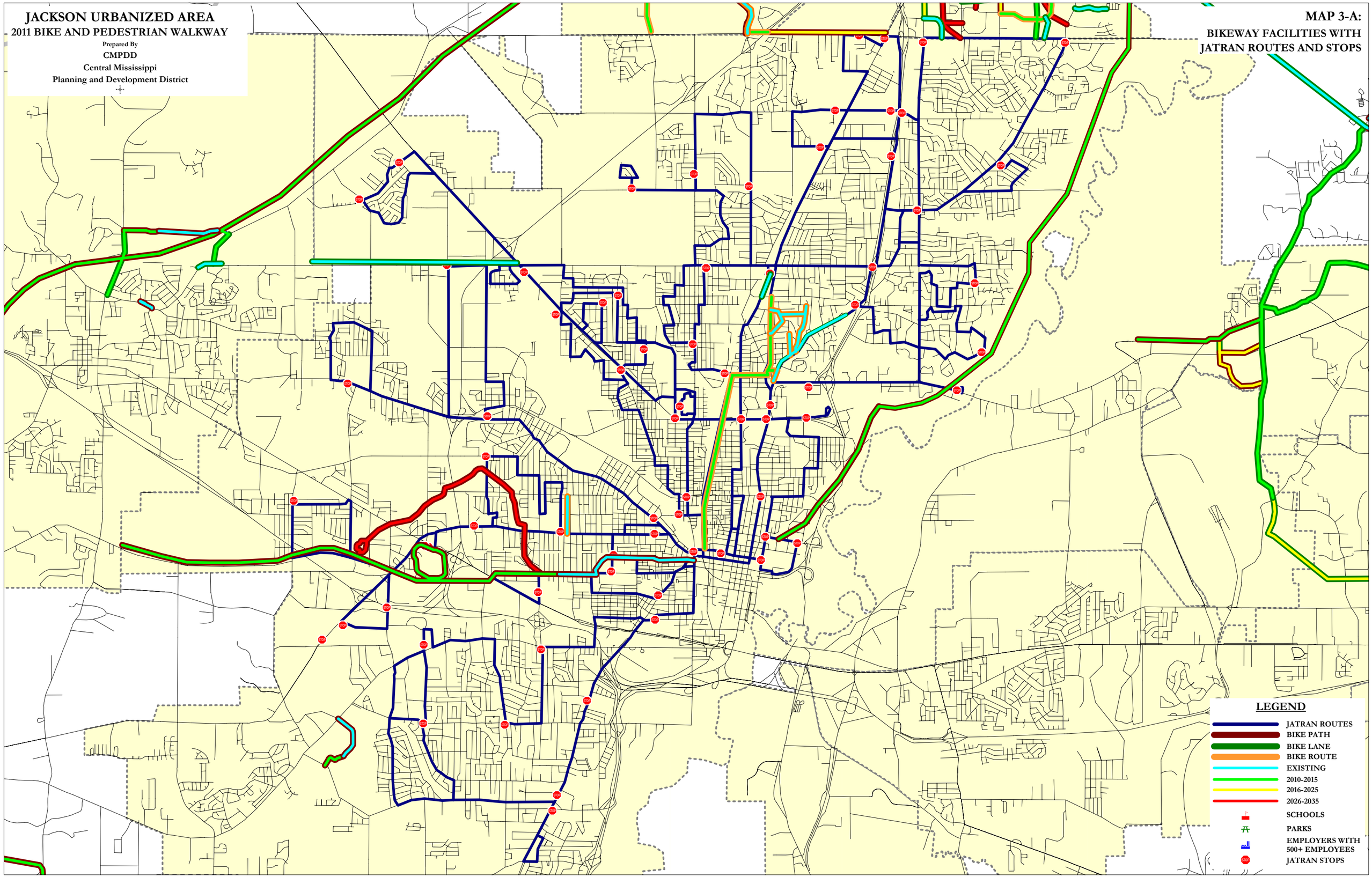
Good Practices Guide For Bicycle Safety Education, Federal Highway Administration, http://www.activelivingresources.org/assets/good_practices_bike_ed.pdf

City of Encinitas Bikeway Master Plan, KTU+A Landscape Architecture + Planning, 2005

JACKSON URBANIZED AREA
2011 BIKE AND PEDESTRIAN WALKWAY

Prepared By
CMPDD
Central Mississippi
Planning and Development District

MAP 3-A:
BIKEWAY FACILITIES WITH JATRAN ROUTES AND STOPS



JACKSON URBANIZED AREA
2011 BIKE AND PEDESTRIAN WALKWAY

Prepared By
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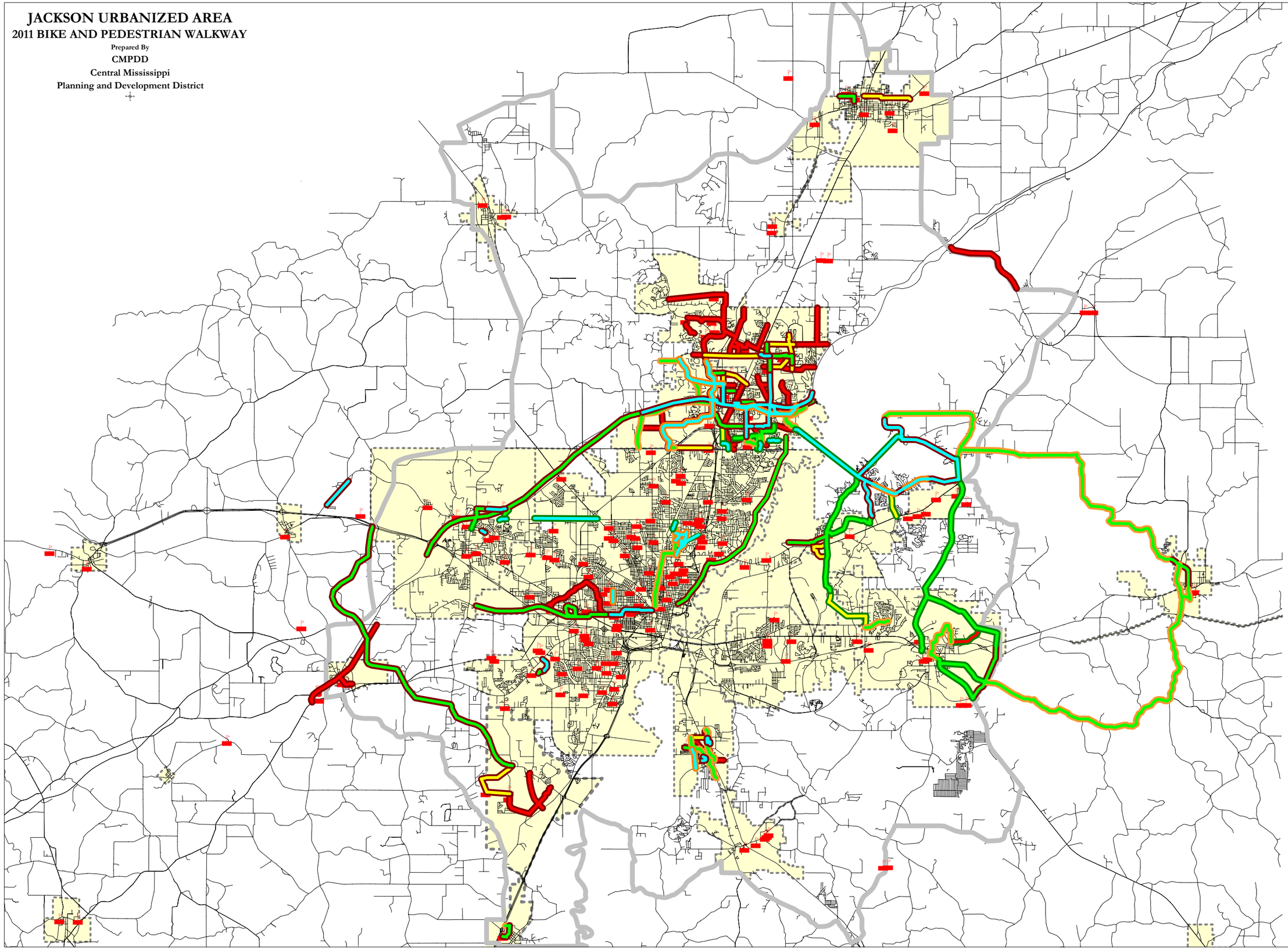
Central Mississippi
Planning and Development District

MAP 3-B:
BIKEWAY FACILITIES WITH SCHOOL LOCATIONS



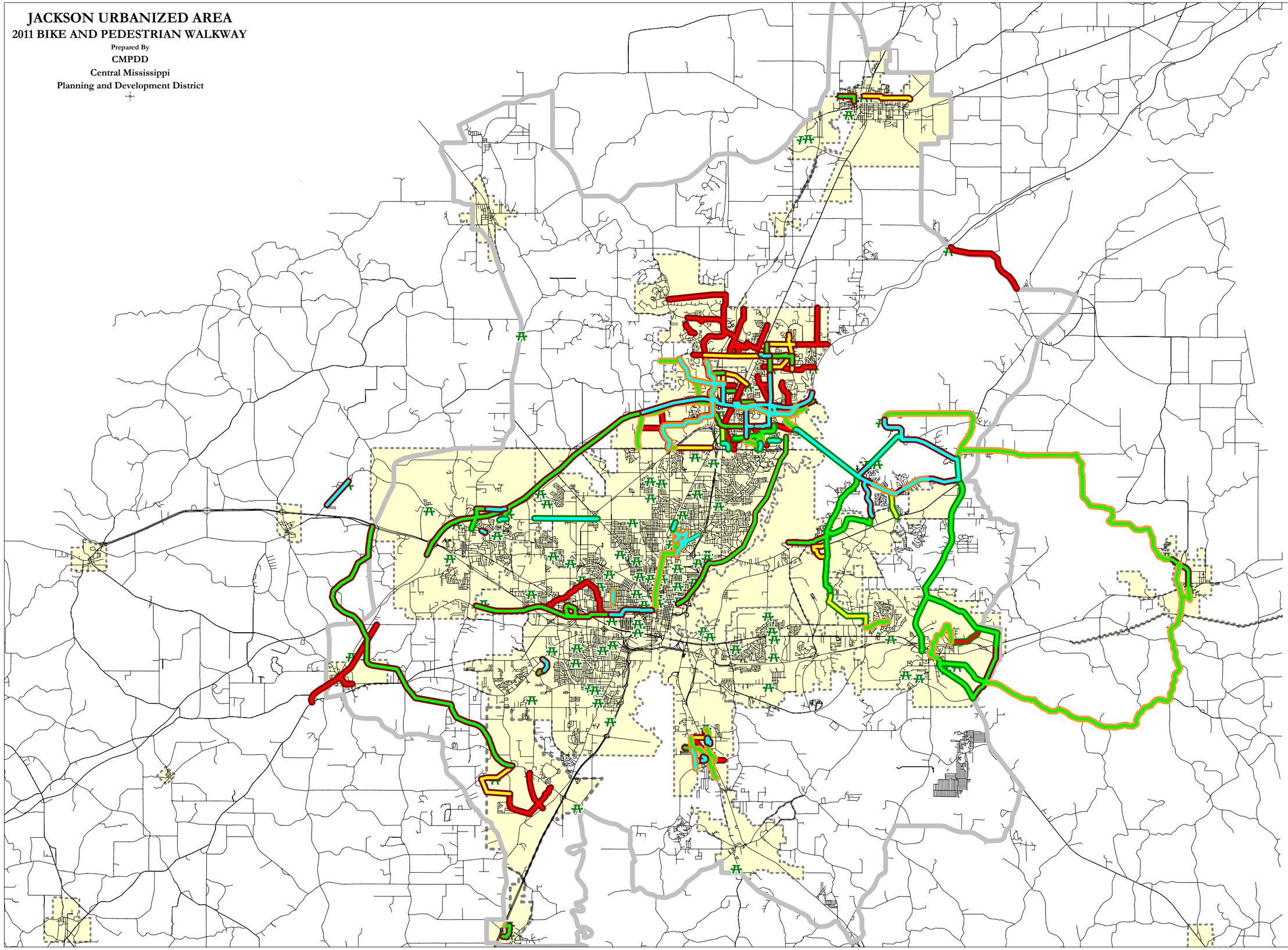
LEGEND

- JATRAN ROUTES
- BIKE PATH
- BIKE LANE
- BIKE ROUTE
- EXISTING
- 2010-2015
- 2016-2025
- 2026-2035
- SCHOOLS
- PARKS
- EMPLOYERS WITH 500+ EMPLOYEES
- JATRAN STOPS

JACKSON URBANIZED AREA
2011 BIKE AND PEDESTRIAN WALKWAY

Prepared By
CMPDD
Central Mississippi
Planning and Development District

MAP 3-C:
BIKEWAY FACILITIES WITH PARK LOCATIONS



LEGEND

- JATRAN ROUTES
- BIKE PATH
- BIKE LANE
- BIKE ROUTE
- EXISTING
- 2010-2015
- 2016-2025
- 2026-2035
- SCHOOLS
- PARKS
- EMPLOYERS WITH 500+ EMPLOYEES
- JATRAN STOPS

JACKSON URBANIZED AREA
2011 BIKE AND PEDESTRIAN WALKWAY

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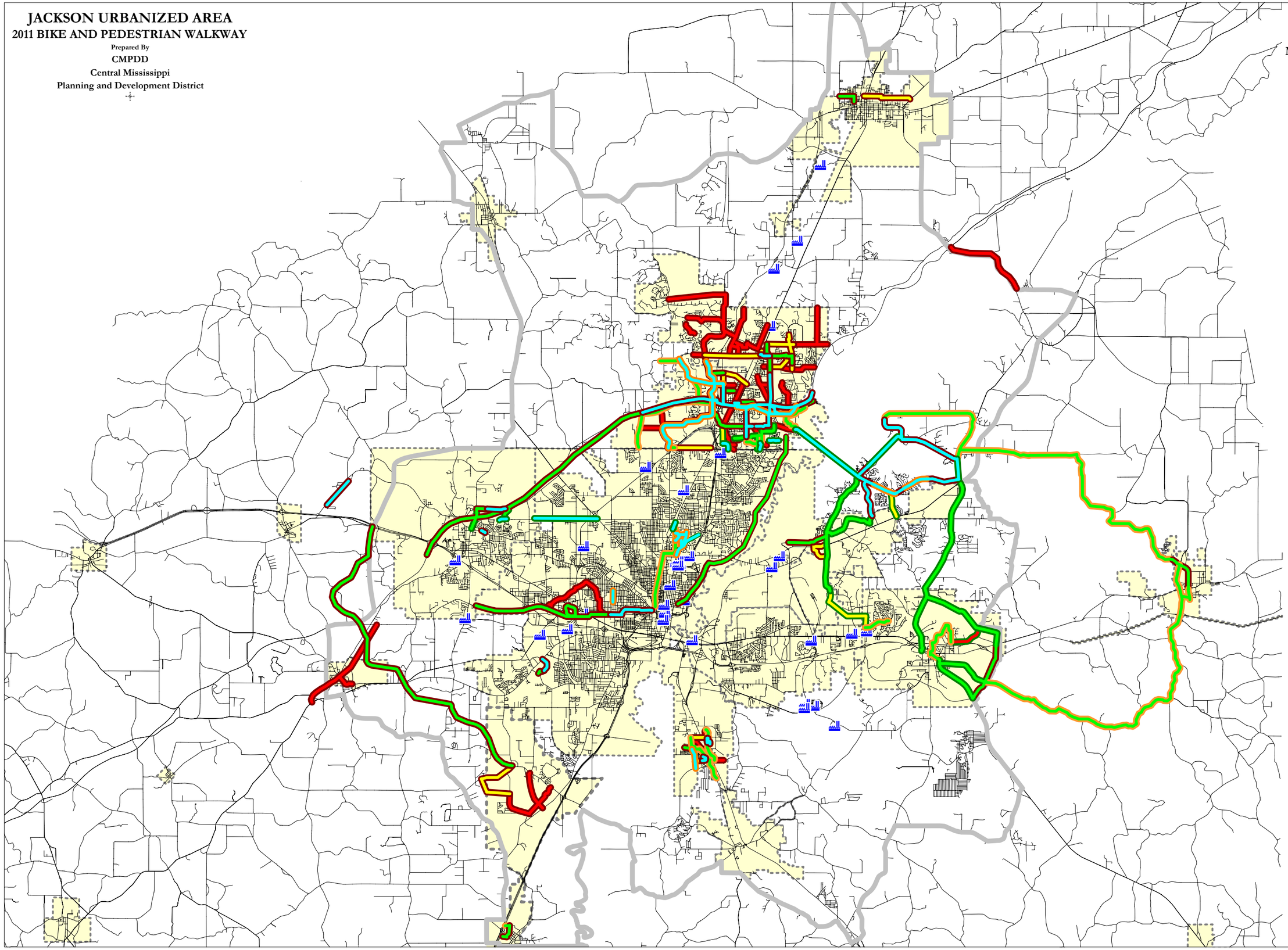
Central Mississippi
Planning and Development District

MAP 3-D:
BIKEWAY FACILITIES WITH MAJOR EMPLOYER LOCATIONS



LEGEND

- JATRAN ROUTES
- BIKE PATH
- BIKE LANE
- BIKE ROUTE
- EXISTING
- 2010-2015
- 2016-2025
- 2026-2035
- SCHOOLS
- PARKS
- EMPLOYERS WITH 500+ EMPLOYEES
- JATRAN STOPS