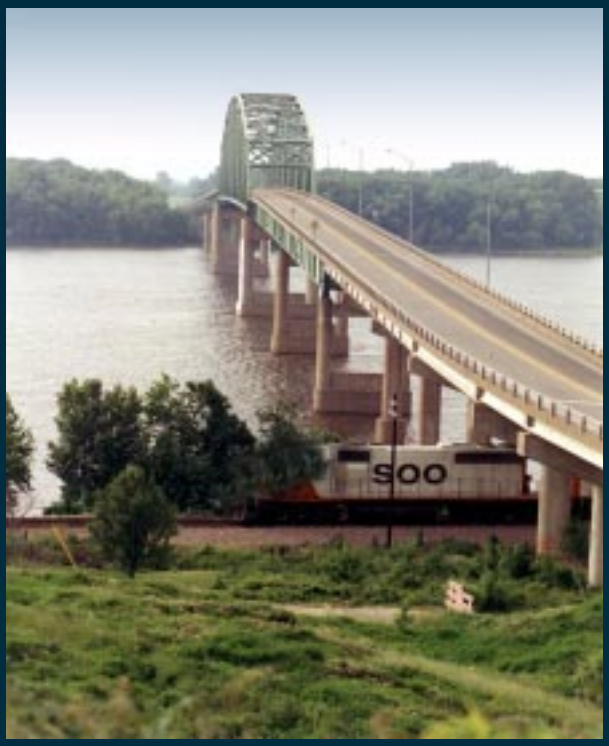
IOWA'S MISSISSIPPI RIVER TRAIL PLAN



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IOWA'S MISSISSIPPI RIVER TRAIL PLAN

CTRE Project 02-104

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TABLE OF CONTENTS

APPENDICES

LIST OF FIGURES

LIST OF TABLES

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EXECUTIVE SUMMARY

Our Nation's Mississippi River Trail

The Mississippi River Trail (MRT) is a world-class bicycle trail that will follow the Mississippi River all the way from its headwaters in Minnesota to the Gulf of Mexico. The trail is partially completed; much of it is still in the planning and development stages. When complete, the MRT will link over 2,000 miles of recreational trails through 10 states, including 280 miles in Iowa.

Designated as a National Millennium Trail, the MRT will preserve precious natural environments along the river, stimulate economic growth in river communities, and provide bicyclists access to a variety of landscapes, history, and culture.

The Iowa Department of Transportation has commissioned the Center for Transportation Research and Education at Iowa State University to develop a plan for a safe, economically beneficial, and scenic MRT route through Iowa.

Benefits of the MRT in Iowa

Safety Benefits

Iowa's Mississippi River Trail will create safe new routes for bicycles and improve safety on existing routes for both bicycles and motor vehicles. The MRT will add bicycle lanes to many roadways and thereby remove cyclists from the same travel path as automobiles and trucks. The additional paved shoulder width required for bicycle lanes has also been shown to reduce motor vehicle crashes.

Economic Benefits

The MRT will also stimulate tourism all along Iowa's eastern border, bringing approximately 20 million additional dollars to the state's economy each year. The trail construction plan is designed to be as cost efficient as possible while maintaining safety as the first priority.

Recreational Benefits

Iowa's MRT will be located as close to the Mississippi River as is practical, never more than 10 miles away, and will provide convenient access to river views, area attractions, and connections to trails in all adjacent states. The MRT will encourage exercise, sightseeing, and appreciation of Iowa's natural, historic, and cultural riches along the Mississippi River.

Iowa's Unique MRT Plan

In Iowa, in-depth analysis has been used to determine the best route for the bike trail and a strategic plan for implementation.

The Route

Iowa's Mississippi River Trail is envisioned to include both off-road bicycle trails and clearly marked bicycle lanes on roadway shoulders.

On-Road Segments

On-road bicycle lanes are generally less costly than off-road bicycle trails. Iowa's MRT will include 255 total miles of bicycle lanes on roadway shoulders, some of which are already existing or planned.

An analysis has determined which roadways along the route are suitable for the addition of bicycle lanes. Eastern Iowa is home to the Great River Road, a National Scenic Byway that follows the Mississippi River from border to border. This and other roadways, with minor improvements, can be made to safely and affordably accommodate bicycles. About 205 miles of paved shoulders will need to be constructed for new MRT bicycle lanes.

All bicycle lanes will be 4 to 6 feet wide and paved with asphalt, which is generally less expensive than concrete. In addition, about two miles of bridges may need to be re-decked in order to accommodate bicycle lanes. The total estimated cost associated with on-road bicycle lanes is $25.3 million.

Off-Road Segments

Iowa's MRT will incorporate already existing or planned off-road bike trails, including the Heritage Trail in Dubuque, the RiverWay Trails in the Quad-Cities, and many others. Only an additional nine miles of new off-road trails will need to be constructed where roadways were found to be unsuitable for bicycle lanes.

The MRT's off-road bike trails will be 10 feet wide to accommodate both bicyclists and pedestrians. The total estimated cost of paving new bicycle trails with asphalt is $920,000.

Implementation

Strategic Phases

Iowa's Mississippi River Trail will be constructed, marked with MRT signs, and publicized in phases, with the order generally determined by the segments' capability to be quickly and affordably completed.

Because the first MRT segments will have a great impact on public interest and support, three initial segments have been chosen for their ability to extend existing trails in the shortest time possible.

By completing these segments for which federal funding will be sought, a network of about 40 miles of bicycle facilities will be created in Allamakee, Scott, and Muscatine Counties. These three segments will run directly along the river and have fantastic views.

Cooperative Effort

Within Iowa, the MRT is a cooperative effort of all the cities and counties along the route, area councils of government, municipal and regional planning organizations, local and regional organizations for economic development, the Iowa Department of Natural Resources, the Iowa Natural Heritage Foundation, the Iowa Department of Transportation, MRT, Inc. (the trail's national nonprofit organization), and many other organizations and individuals.

Of the 280 miles of MRT in Iowa, the state of Iowa will be responsible for about 100 miles, counties will be responsible for about 125 miles, and municipalities will be responsible for the remainder, just over 50 miles.

Biking and recreational organizations and area businesses are expected to derive great benefits from the trail system and are invited to contribute to the implementation of the plan.

Total Cost

The total cost of the 280-mile MRT in Iowa is estimated to be between 25 and 32 million dollars, depending on structural accommodations and site characteristics.

Iowa's Mississippi River Trail will be funded through a variety of existing and new local, state, and federal sources.

What to See on the MRT

Throughout history, the Mississippi River has served as an important passageway, carrying native peoples, explorers, fur traders, steamboats, barges, and much more. The river has also made its way into the hearts and imaginations of Americans through its great power and beauty.

According to Mark Twain, the river "has a new story to tell every day."

Iowa's portion of the MRT offers the following attractions:

- parks and wildlife areas with breathtaking views of the Mississippi River
- national treasures such as Effigy Mounds National Monument and Keokuk National Cemetery
- locks, dams, ports, and riverboat cruises
- museums and historic neighborhoods such as Snake Alley in Burlington
- art galleries and antique shops
- arboretums and botanical gardens
- casinos, sporting events, and entertainment
- restaurants and lodging

CHAPTER 1. INTRODUCTION

Vision Statement

The designated Iowa portion of the Mississippi River Trail (MRT) will consist of a world-class, continuous multi-use, non-motorized, on-road and off-road route running from New Albin at the Minnesota border to Keokuk at the Missouri border. The Iowa portion of the MRT will be well-marked using special MRT signage, will be located as close to the Mississippi River as is practical, and will traverse a scenic landscape. The Iowa portion of the MRT will also provide adequate cultural, recreational, tourism, hospitality, retail, and educational opportunities for users and usable surface, bridge, or ferry connections to other Iowa trails and trails in bordering states. Iowa's MRT will serve as a destination as well as a non-motorized transportation route. The Iowa portion of the MRT will be designated for expedient implementation; there may be temporary routes that are changed at later dates as improvements are made.

This plan for Iowa's portion of the Mississippi River Trail is for rural segments of the trail (portions not within urban boundaries) and is intended to be a dynamic routing. This "recommended" routing of the MRT in Iowa is based upon safety analysis, trail amenities, and trail development concerns, as well as on existing, programmed, or planned facilities and other criteria. This routing includes both bicycle lanes (on-road facilities) and bicycle trails (off-road facilities) and is expected to change over time as new off-road bicycle trails are constructed and joined to the MRT.

Objectives

The following objectives for the Iowa MRT were created by the Mississippi River Trail Advisory Committee for the planning and implementation of the Mississippi River Trail in Iowa.

Continuity

- Designate and improve a system of on-road and off-road trails that run continuously from New Albin to Keokuk.
- Designate routes that allow for surface, bridge, or ferry connections to MRT routes in adjacent states (Minnesota, Wisconsin, Illinois, and Missouri).

Proximity to the Mississippi River

- Designate routes that are as close to the Mississippi River as is feasible (within one mile in urban areas and cities over 10,000 population and no farther than 10 miles from the river otherwise).
- Designate routes only in counties adjacent to the river.

Suitability for Cycling

- Evaluate all potential routes and indicate those that are suitable for average cyclists (Level B) and those that are only for advanced cyclists (Level A).
- Designate on-road routes that have above average bicycle compatibility index (BCI) scores or bicycle level of service (BLOS) ratings.

Safety for Cycling

- Designate routes that should provide reasonable safety conditions, as indicated by measures such as BCI and BLOS.

Feasibility and Constructability

- Designate new routes that can be constructed and maintained at a reasonable cost.
- Determine the most likely governance (e.g., ownership, maintenance, and operation) for all designated segments.

Scenic Quality

- Designate routes that are scenic and that provide a variety of scenery, including already designated scenic byways where possible.

Access to Attractions and Services

- Designate connections that provide access to tourism, recreational, and educational activities.
- Designate routes that provide access to services, hospitality, and retail trade needed by cyclists; services will generally be located in towns, urban areas, and cities.
- Explore the relationship of routes to complementary passenger transportation modes.

Implementation

- Move from planning to action quickly.
- Sign currently suitable routes as quickly as possible.
- Identify gaps that can be filled quickly.
- Tap existing funds for rapid development.
- Identify a list of possible demonstration projects for federal funding.
- Promote a higher level of accommodation on existing and new primary roads, county roads, and city streets.

Implementation and Coordination with Other Trail Systems

This section details the relationships and connections that the Iowa portion of the MRT has to other states' segments of the MRT, other trail systems in adjacent states, and other key bicycling facilities in Iowa.

Implementation in Other States

The Mississippi River Trail is a nationally designated trail, routed through a variety of states from the Minnesota headwaters to the Gulf of Mexico. As such, the trail requires these states to cooperate through the design, implementation, and maintenance of this facility. The MRT states can work together to create a bicycle trail that takes advantage of the most assets each can offer. Connections can be made to adjoining states for cycling tourists to take advantage of multi-state resources, or to link citizens of one state to work or entertainment in another state.

The placement of the Mississippi River Trail in neighboring states can influence the trailheads of the MRT in Iowa. For instance, the state of Minnesota has planned to end the Minnesota segment of the MRT at the Minnesota-Iowa border on State Highway 26. For this reason, the Iowa MRT will begin at the city of New Albin, a city at the Minnesota border and on Highway 26. The Iowa north trailhead of the MRT is clearly a continuation of the Minnesota trail planning efforts; if Iowa had not communicated or connected to Minnesota's trailhead, valuable time and resources would have been used in attempts to link the two mismatched trailheads.

The Iowa south trailhead has not been precisely planned, for the state of Missouri has not completed their Mississippi River Trail plan. The Missouri MRT route currently ends at the city of Hannibal. This Iowa MRT plan recommends that Iowa's south MRT trailhead be located in the city of Keokuk, Iowa. The state of Missouri will be expected to route their trail to Keokuk to match the Iowa segment of the MRT, much like Iowa did to match Minnesota's segment of the trail.

Other Trail Systems in Adjacent States

The Iowa MRT segment could connect to trail networks in other states through careful planning.

The state of Wisconsin, bordered by the Iowa counties of Allamakee, Clayton, and Dubuque, has a dense trail and ride-the-road network that Iowa MRT cyclists may want to access. To better facilitate this action, the ferryboat river crossing at Cassville, Wisconsin is recommended for Iowa MRT cyclists to access the Wisconsin bicycle facilities.

The Iowa counties of Dubuque, Jackson, Clinton, Scott, Muscatine, Louisa, Des Moines, and Lee border the state of Illinois. Illinois also boasts a dense trail network, including the Grand Illinois Trail, a 475-mile-long recommended trail, looping from the Mississippi River to Chicago. There are many possibilities for Iowa MRT cyclists to access these trail networks, either by ferry or bridge crossings. Between the cities of Dubuque, Iowa, and East Dubuque, Illinois, the Julien Dubuque Bridge on U.S. Highway 20 is a possible bridge crossing to Illinois for cyclists. In addition, the future construction of a companion bridge to the Julien Dubuque Bridge could include bicycle and pedestrian accommodations. Another potential river crossing is in the city of Clinton. The North Clinton Bridge on State Highway 136 is a possible crossing to Fulton, Illinois. In the Quad-Cities, the Arsenal and Centennial Bridges may be used as connections to the Illinois Quad-Cities trails. The possible replacement of the existing Interstate 74 Bridge could also include bicycle and pedestrian accommodations to create more linkages between Iowa and Illinois trail systems. In addition to the bridges, the bicycle-friendly Channel Cat ferryboat runs from Bettendorf to the Ben Butterworth Parkway, a two-mile-long park in Moline, Illinois. Finally, in the city of Keokuk, the Highway 136 bridge is a potential river crossing for Iowa MRT cyclists wanting to access Illinois trails.

Other Key Trails in Iowa

The Iowa portion of the Mississippi River Trail is structured to incorporate existing and programmed local and state trails into its design. There are several trails in the vicinity of the recommended Mississippi River Trail that offer MRT cyclists opportunities for unique side trips.

Heritage Trail

The Heritage Trail is a 26-mile trail in Dubuque County, extending from the city of Dyersville to the city of Dubuque. The trail is located in a scenic area of northern Iowa, routing through forests, plains, and prairies. Along with these amenities, the trail also provides a tour of Iowa's geological beauty through nearby caves, bluffs, mines, and river views. The Heritage Trail is being extended into the city of Dubuque and through the Mines of Spain; this trail expansion is recommended to be the MRT routing through Dubuque.

American Discovery Trail

The American Discovery Trail is a planned coast-to-coast non-motorized trail, from San Francisco to Washington, D.C. The American Discovery Trail, like the MRT, is designated as a National Millennium Trail. The trail overlaps the Mississippi River Trail from Davenport to Muscatine. The American Discovery Trail is not completed at this time but may use many of the same routes as the MRT when completed. The routes projected to be shared between the MRT and the American Discovery Trail in this area include urban Quad-Cities trails and selected routes to Wildcat Den State Park in Muscatine County.

Hoover Trail

The Hoover Trail is part of the American Discovery Trail and is a trail project in progress. It is slated to begin in Cedar Rapids and is envisioned to continue south of Burlington, possibly sharing a route with the MRT. However, the southern end of the trail has not been completely planned. The Hoover Trail may not have any overlapping trail with the Iowa MRT, but it does supply another side trail from the MRT for cyclists wanting to travel on a different route.

Urban Trails

In addition to the mostly rural trails outlined above, many cities along the MRT route offer urban trails systems. The larger Iowa cities along the Mississippi River are in various stages of trail development, from a comprehensive network (Quad-Cities) to no major trail system (Fort Madison). However, most of these cities have recognized the importance of providing multi-modal transportation in their communities, and are expanding or developing new trail systems.

Many larger cities along the recommended Iowa MRT are developing or expanding their trail systems. As mentioned previously, the city of Dubuque is expanding the Heritage Trail through its downtown area and through the Mines of Spain. This trail expansion will utilize Dubuque's existing trails and will also open up the downtown area with its many amenities to MRT cyclists. Also, the connection through the Mines of Spain will enable cyclists to learn about the area's first settlers and early mining efforts in the area, as well as enjoy the wildlife and natural beauty of the park.

The city of Clinton currently has a riverfront levee trail and has recently expanded its bicycle facilities by providing a sidewalk alongside U.S. Highway 67/30 through parts of the city. In addition to these facilities, the city has recently constructed a new parkway and has recommended trail construction alongside it in the future.

The Quad-Cities area has been planning major trail expansion projects to complement an existing comprehensive trail network. The cities of Davenport and Bettendorf have an almost-complete riverfront trail system, along with a large off-road trail along Duck Creek in the cities. To complement the finished segments of riverfront trail, the Quad-Cities have programmed the construction of a new riverfront trail to connect the segments and create a complete route along the river through Davenport, Bettendorf, and Riverside. In addition, a trail will connect the western trailhead of the Davenport riverfront trail to the city of Buffalo. Also, trail facilities are being planned in the cities of Le Claire and Princeton to the north of the Quad-Cities.

The city of Muscatine currently has a riverfront trail. Muscatine County has planned a large-scale expansion to the riverfront trail system, but this network is not expected to be completed by the opening of the MRT.

The cities of Burlington, Fort Madison, and Keokuk all have very small amounts of urban trail, if any at all. The city of Burlington has a few small trails and is looking at potentially expanding those facilities. Fort Madison has recently constructed a short trail in a riverfront park but is examining the possibilities of expanding the trails further. The city of Keokuk currently has no trails of notable length, but the city's design favors cyclists who want a view of the Mississippi River; the riverfront is filled with old residential areas and the traffic in these sections of town is low, providing safe on-road facilities for cyclists.

Attractions and Services

This section details the relationships and connections that the Iowa portion of the MRT has to tourist and other attractions and service centers.

Tourist and Other Key Attractions

Each county along the recommended Iowa portion of the MRT offers a wealth of attractions that may interest MRT cyclists. Many varieties of attractions exist along the MRT, from parks to prairies, from riverboat gambling to shopping centers, and from local historic sites to museums.

Allamakee and Clayton Counties offer a variety of forests, refuges, and local, county, and state parks. The MRT will take advantage of these areas, traveling near Yellow River Forest in Allamakee County, Effigy Mounds National Monument in Clayton County, and Bloody Run County Park and Pikes Peak State Park in McGregor. In addition to natural areas, Allamakee County boasts a river history museum and an exotic animal ranch. Clayton County also contains local historic sites, local history museums, specialty museums, a fish and wildlife refuge, and a riverboat casino.

Dubuque County offers a great variety of attractions to MRT cyclists; this metropolitan area contains activities to please most any type of tourist. The main parkland along the Dubuque County segment of the Iowa MRT is the Mines of Spain, as mentioned previously. In addition to parkland, Dubuque County has many other types of entertainment possibilities. Dubuque County also offers historic sites, a farm toy museum, an art museum, Fenelon Place Elevator, Cable Car Square, and the Dubuque Ice Harbor, which holds a riverboat casino and a greyhound park, among other activities.

Jackson and Clinton Counties also provide unique amenities to MRT cyclists. Jackson County has Bellevue State Park south of Bellevue, which houses a unique butterfly garden, and Clinton County offers Eagle Point Park, a large park on the north end of Clinton. Both parks offer fantastic views from bluffs overlooking the Mississippi River. In addition, Jackson County has museums and galleries and Clinton County has museums, professional baseball, an arboretum, and a riverboat casino.

Scott County is much like Dubuque County, for both these counties are metropolitan areas with many types of activities for MRT cyclists. Scott County has Buffalo Shores Park in Buffalo and West Lake Park in Davenport. Besides parkland, the Iowa side of the Quad-Cities offers museums, an IMAX theater, local historic sites, professional baseball, the old East Village of Davenport, Vander Veer Botanical Gardens, and multiple riverboat gambling opportunities.

Muscatine and Louisa Counties each have a wealth of small parks along the Iowa MRT. Muscatine County boasts the Fairport Recreation Area, Saulsbury Bridge Recreation Area, Clark's Ferry Recreation Area, Shady Creek Recreation Area, and Wildcat Den State Park. Louisa County has the Lake Odessa Campground, Flaming Prairie Park, and an old ferry crossing in Oakville. In addition to these parks, these counties offer a wealth of history through local history museums in both counties, specialty museums, and the Toolesboro Indian Burial Mounds.

Des Moines and Lee Counties contain such amenities as the 4th Pumping Plant Recreation Area, Starr's Cave and Nature Center, the Christian Herschler Historic District Winery, museums, local historic sites, professional baseball, and art centers; each county also has its own riverboat casino.

Service Centers

The recommended Iowa segment of the Mississippi River Trail will attract both local and non-local cyclists to ride the trail in Eastern Iowa. Because of this, cyclists will need services along the trail. The Iowa portion of the MRT is unique because its towns are placed relatively close together, therefore eliminating a long trip without needed services. While most small towns located on the MRT will be more than adequate to provide food, rest stops, and lodging, the larger cities along the trail will offer more variety for those cyclists that desire such options.

CHAPTER 2. IOWA MRT MINIMUM DESIGN STANDARDS

The Iowa portion of the Mississippi River Trail will be placed on two types of bicycle facilities, each with unique benefits, costs, and designs. The first such facility is off-road bicycle trails; these are travel paths separate from all motorized vehicles and are expensive to build in large quantities. The other bicycle facility utilized by the Iowa MRT is on-road facilities—bicycle lanes on roadway shoulders. Although bicycle lanes do place bicycles on the same overall travel facility as automobiles and trucks, bicycle lanes provide a safer alternative than sharing the road with motorized vehicles, and the additional paved shoulder used in their construction provides added safety benefits to both motorists and cyclists. The topic of bicycle lanes and motorist safety is discussed in more detail in Chapter 6.

This chapter is an overview of bicycle facility standards and costs for the Iowa Mississippi River Trail. *Iowa Trails 2000*, the state trails resource document developed by the Iowa Department of Transportation (Iowa DOT 2000), was used for standards and cost information. This chapter provides general cost information for the Iowa MRT; a more detailed analysis of Iowa MRT costs by corridor and type of improvements needed is provided in Tables 4.7 and 4.8 in Chapter 4. This costing information does not include the cost of land or right-of-way needed to accomplish the improvement projects for the MRT. The cost of land or right-of-way must be considered in addition to these estimated costs of improvements, for these costs will alter project costs drastically if needed.

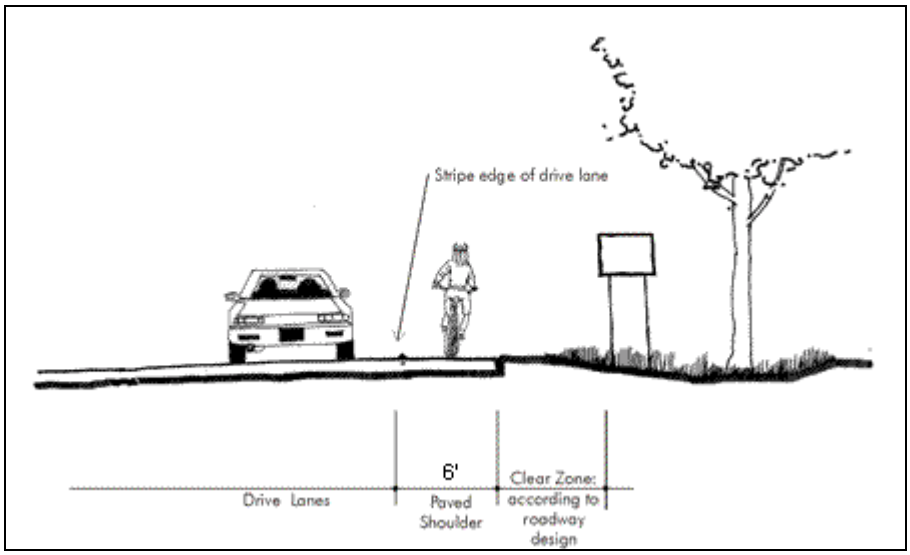
On-Road Standards, Cross Section, and Costs per Mile

On-road bicycle lanes will be the basis for rural segments of the Iowa MRT. Most rural segments of the MRT will be placed on bicycle lanes, except for road segments that were found to be unsuitable for bicycle lanes through the bicycle level of service study, discussed in detail in Chapter 3 and Appendix A. The BLOS measure is based upon average annual daily traffic (AADT) counts, percentages of heavy trucks, roadway width, shoulder characteristics, and other roadway and user data.

Bicycle lanes are generally less costly than off-road bicycle trails. One reason for this is bicycle lanes generally use right-of-way for roadway shoulder expansions, which may already be owned by the agency that has jurisdiction for the roadway. In terms of overall construction, bicycle lanes are an addition to the roadway and do not require the extensive preparatory engineering that bicycle trails do. If a bridge does not have shoulders and the cost to widen the bridge and/or culvert is prohibitive, a bicycle lane could still be constructed up to the bridge; when that route is programmed for improvements, the bridge widening and/or culvert extension could be completed at that time.

The Iowa DOT details the characteristics and requirements for off-road bicycle lanes in the *Iowa Trails 2000* report. The document also recommends on-road bicycle facilities such as shared roads, paved shoulders, and bicycle lanes, but the Iowa MRT has opted to

use both bicycle lanes and off-road trails in rural areas for the added safety of cyclists. Both *Iowa Trails 2000* and the American Association of State Highway and Transportation Officials (AASHTO) *Guide for the Development of Bicycle Facilities* recommend that bicycle lanes be at least 4 feet in width but should be wider if the lane is to be placed on a facility with speeds over 50 miles per hour (AASHTO 1999). Because a large portion of the Iowa MRT is located on high-speed rural highways, the Iowa MRT should have bicycle lanes that are a minimum of 6 feet in width. In areas with higher traffic volumes, a paved shoulder wider than 6 feet may be desirable. In addition, Iowa MRT lanes will be paved with asphalt, a less expensive material than concrete. Asphalt pavement provides a smoother ride than a granular surface. Figure 2.1 is a typical cross-section of a 6-foot-wide MRT bicycle lane.



Source: Iowa DOT, *Iowa Trails 2000.*

Figure 2.1. Typical MRT Bicycle Lane Cross Section

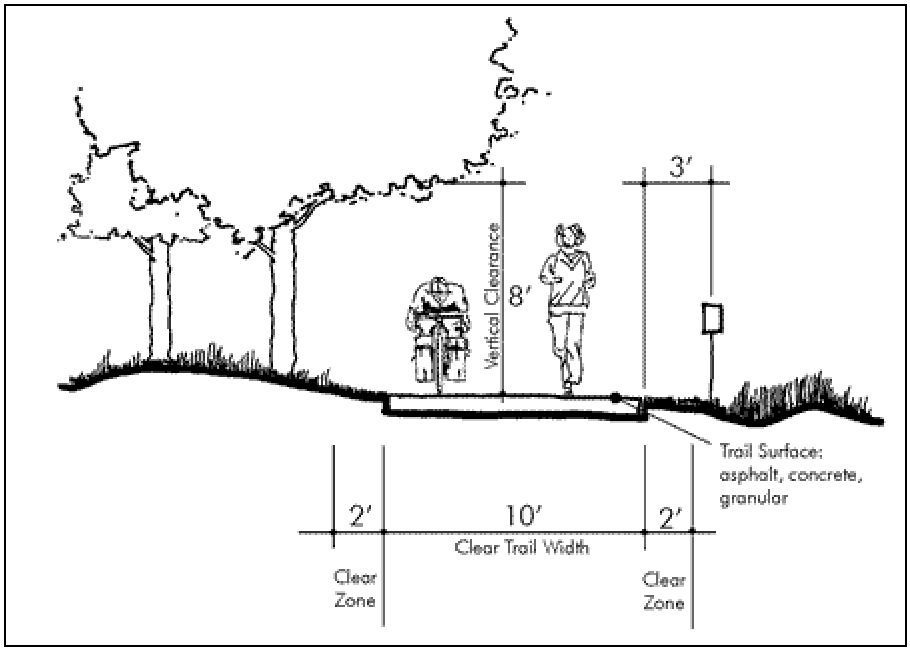
The Iowa MRT will use 6-foot-wide paved shoulders on which to build bicycle lanes. According to the Iowa DOT, these paved shoulders cost approximately $107,000 per mile, plus other costs and contingency costs (Iowa DOT 2000). Other costs, such as signage, are 10 percent of the estimated cost of construction. Contingency costs, such as regional differences in construction costs, are calculated at 15 percent of the estimated cost of construction. Select road sections slated for bicycle lanes currently have paved shoulders; these corridors will need very little work to be signed and striped for the MRT. The rural segments of the Iowa MRT contain approximately 205 miles of roadway that need paved shoulders constructed, out of the approximately 255 total new miles of the Iowa MRT. The estimated cost for paving shoulders on these roads is roughly $22 million. However, in addition to the shoulder paving projects, there are just over two miles of roadway structures that may need to be re-decked in order to accommodate bicycle lanes. Structural accommodations cost roughly $50 per square foot; for slightly over two miles of structural accommodations of 6 feet in width, the estimated cost is $3.3 million.

Off-Road Standards, Cross Section, Costs per Mile

Off-road bicycle trails will be used as an alternative for bicycle lanes in rural areas when lanes are found to be unsuitable. The construction of new bicycle lanes is encouraged in urban areas to complement existing and programmed bicycle facilities as well as to connect the rural segments of the Iowa MRT. However, as the trail progresses and more trail development opportunities arise, some segments of rural bicycle lanes could potentially be replaced with off-road bicycle trails.

Bicycle trails incur more costs than bicycle lanes, notably in land acquisition, design, and construction costs. Generally, land for the trail must be purchased if the agency constructing the trail does not already own the land. In addition to land acquisition costs, bicycle trail construction costs are considerably higher when compared to bicycle lane costs. Bicycle trails require background engineering to make the trail site suitable, which adds extra time and cost to the project.

The Iowa DOT outlined the basic accepted characteristics of off-road trails used by both bicyclists and pedestrians in *Iowa Trails 2000*. Trails to be used by both cyclists and pedestrians present a challenge when designing for the safety of both parties (Iowa DOT 2000). To provide enough space for slow-moving pedestrians and faster-moving cyclists, *Iowa Trails 2000* recommends a trail width of 10 feet. Figure 2.2 details the dimensions of such a trail.



Source: Iowa DOT, *Iowa Trails 2000.*

Figure 2.2. Typical AASHTO-Recommended Bicycle and Pedestrian Shared Use Path Cross Section

The Iowa MRT Advisory Committee recommends the construction and use of 10-foot-wide asphalt trails for the non-motorized vehicle sections of the MRT. The Iowa DOT estimates the cost of this type of facility at $85,344 per mile, plus other costs and contingency costs (Iowa DOT 2000). The rural segments of the Iowa MRT recommended for trails not yet existing, programmed, or planned are approximately 8.65 miles in length and will therefore cost approximately $920,000. (Descriptions of each trail corridor, as well as trail length, project status, and estimated costs are given in Chapter 4.) However, each city along the recommended Iowa MRT route is expected to create bicycle facilities or provide adequate share-the-road facilities in urban areas to connect rural segments of the MRT. The urban trails will incur more costs, but each municipality will assume cost responsibility for their own bicycle facilities. The costs of bicycle trail construction also do not include the cost of land on which to build the trail, an important added expense.

CHAPTER 3. IOWA MRT ROUTE ANALYSIS

While many potential routes were adequate for inclusion in the recommended routing of the Mississippi River Trail, some areas of Eastern Iowa did not contain adequate road facilities for bicycle lanes. Because of this, a number of gaps in the potential trail appeared. An assessment system was created to ensure that all potential gaps were accounted for, and gaps were then filled with either on-road bicycle lanes or off-road bicycle trails.

Suitability Assessment of Potential On-Road Routes Required to Fill Gaps

The Iowa MRT Advisory Committee recommended on-road bicycle lanes rather than the more expensive off-road trails, so each corridor was analyzed for its suitability for a bicycle lane. This was done through four methods: (1) bicycle level of service (BLOS) study, (2) a shoulder improvements study, (3) field reviews, and (4) public input.

BLOS and bicycle compatibility index represented a data-driven effort to design the Iowa portion of the MRT with the concept of bicyclist comfort and safety in mind. While both provide a good measure for bicycle lanes, the MRT Advisory Committee chose to use BLOS rather than BCI because BLOS seemed to be more relevant for rural roads. The League of Illinois Bicyclists and the Chicagoland Bicyclist Association (2002) derived the BLOS used for MRT planning. BLOS is used to evaluate the potential safety and comfort of the cyclist. The BLOS scale ranges from A (extremely high compatibility) to F (extremely low compatibility); however, MRT trail planners and advisors determined the lowest acceptable BLOS for the MRT could be a level of C.

BLOS uses roadway data to determine whether a paved corridor is suitable for an on-road bicycle lane. Important roadway data used in the BLOS calculation include number of lanes, lane width, paved shoulder width (where the bicycle lane would be placed), AADT counts, percentage of heavy vehicles, and speed limit.

Route Evaluation and Mapping Using GIS

Geographic information systems (GIS) were used to compile all information about the MRT to create the recommended route. First, project area maps were made using base geographic information for the 10 counties. After this, attribute maps of trail amenities and areas of trail development concern were created. These maps included trail amenities such as recreation areas, campgrounds, points of interest, hotels and motels, and other services. Indicators used to assess areas of trail development concern included such things as topography and railroad lines. Then, the BLOS analysis was performed within GIS to graphically display the BLOS rankings of individual corridors to make safe decisions on trail placement. To further analyze the safety of the potential routing, a shoulder improvements analysis was performed to determine each corridor's feasibility to carry a bicycle lane after adding paved shoulders. The recommended route was chosen by

comparing results from the above-listed analyses. For more information on the GIS analysis, refer to Appendix A.

Alternatives Available to Fill in Gaps

The Mississippi River Trail is mostly composed of bicycle lanes, on-road bicycle facilities that could be constructed on paved shoulders. When road corridors were found to be unsuitable for bicycle lanes, off-road bicycle trails were another option to fill in gaps. However, many existing, programmed and planned bicycle facilities have been included in the recommended MRT, which reduced the need to build a large number of new off-road bicycle trails. The following bicycle trails and lanes can also be seen in Figures 3.1–3.10, the recommended Iowa MRT routings by county.

Existing Routes to Incorporate

Existing trail and bicycle lane facilities were given top priority in the recommended routing, and every attempt was made to include these in the MRT. There are a number of existing urban trails in Eastern Iowa, especially in larger cities along the river. Specifically, there is potential for the Mississippi River Trail to include existing urban trails in the cities of Dubuque, Clinton, Bettendorf, Davenport, and Muscatine. In addition to the existing urban trails, the Heritage Trail, a 26-mile, limestone trail extending from Dyersville to north of Dubuque (Trails from Rails 1999) is an important trail connection to the MRT. Finally, an existing bicycle lane from Montrose to Keokuk on County Road X28 completes the final section of the Iowa MRT.

Programmed Routes to Incorporate

Potential for further trail connections also exists with Eastern Iowa programmed trails and bicycle lanes. Many of these programmed trails are within urban areas, especially in the Quad-Cities area. For instance, a new riverfront trail system is being developed in Riverdale, Bettendorf, and Davenport that will ultimately connect segments of trail in this area. Also, an expansion of the Heritage Trail in Dubuque County is being developed that will connect the trail to downtown Dubuque and to the Mines of Spain. Another important link in the recommended Mississippi River Trail is the programmed bicycle lane on Highway 26 from Lansing to New Albin, the connection to the Minnesota MRT section.

Planned Routes to Incorporate

Bicycle routes planned for future development are also significant to the MRT alignment. These routes include urban trails, county trails, and bicycle lanes. Notable planned urban trails include the trail expansion plan for Clinton, which may create future additional trail facilities along the recently constructed Mill Creek Parkway. The Quad-Cities area has planned additional trail facilities in the cities of Buffalo, Princeton, and Le Claire. Also,

the cities of Marquette and McGregor have secured Vision Iowa funds for the development of an intercity bicycle trail, tentatively named the Trail of Two Cities. This trail will be invaluable to the MRT; its inclusion will take the MRT off the unsuitable corridor of State Highway 76 in and near Marquette and McGregor. In addition to these urban trails, the cities of Burlington, Fort Madison, and Keokuk are in the process of planning their urban trail systems.

Remaining Gaps

Although important links in the MRT have been established with existing, programmed, and planned bicycle facilities, there remain gaps where there must be new bicycle facilities constructed to complete the recommended trail. These bicycle facilities are recommended as either on-road bicycle lanes or off-road bicycle trails.

Remaining Gaps to Be Filled with On-Road Bicycle Lanes

The following is a list of gaps to be filled with on-road bicycle lanes after utilizing existing and programmed bicycle facilities to create portions of the recommended MRT. These routes can be seen in Figures 3.1–3.10, the recommended alignment of the Iowa MRT by county. However, it must be noted that these gaps do not include gaps within municipal boundaries, only those in rural areas.

- *Lansing to State Highway 364:* After the recommended MRT ends on State Highway 26 at Lansing, it can continue south on County Road X52 to the city of Clayton. After Clayton, the Iowa MRT can be routed south on State Highway 364 until its junction with State Highway 76. At this point, there is a gap in the MRT, because Highway 76 has been deemed unsuitable for bicycle lanes in the BLOS and shoulder improvements studies; an off-road trail will need to be built here.
- *State Highway 340 to Sageville:* After the aforementioned gap on State Highway 76, the MRT can safely resume as bicycle lanes south on State Highway 340, south of the city of McGregor. The MRT may then route on County Road X56 after it meets Highway 340 near Pikes Peak State Park. The MRT may continue on X56 until the city of Guttenberg, where it can then be routed on U.S. Highway 52 until the city of Millville, where it can be routed onto County Road C9Y. It may continue on C9Y until just after the city of Millville, where it may be routed on State Route 90 E1/Reigler Road, then Haberkorn Road on County Road C65 to the city of Sherrill. After Sherrill, the MRT may be routed back on C9Y, or Sherrill Road to Mud Lake Road, to the city of Sageville. The only viable route to exit Sageville to the south is State Highway 3. At this point, there is a gap in the MRT since Highway 3 has been deemed unsuitable for bicycle lanes in the BLOS and shoulder improvements studies; an off-road trail will also need to be built here.
- *Dubuque to Clinton:* After the gap on State Highway 3, the MRT can then use the Heritage Trail extension through Dubuque as previously described. The trail extension is projected to terminate south of the Mines of Spain, south of

Dubuque. From here, the MRT may be routed west on State Route 88 E3/Olde Massey Road, to its intersection with U.S. Highway 52. The MRT can be routed south on U.S. 52 until about the city of Sabula; BLOS and shoulder improvements studies have shown that segments of U.S. 52 from Sabula to Clinton are not suitable for bicycle lanes. Therefore, the southbound MRT must leave U.S. 52 at County Road Z40 in Jackson County. It continues on Z40 through the city of Miles and into Clinton County, where it is then routed east on County Road E44. From there, the MRT is routed south on County Road Z50 through the city of Andover; then, it is routed east on County Road E50. When E50 intersects U.S. Highway 67, the MRT takes U.S. 67 south to the north city limits of Clinton.

- *Clinton to Princeton:* Because U.S. Highway 67 immediately south of Clinton and U.S. Highway 30 west of Clinton were found not suitable to carry bicycle lanes, the recommended MRT is recommended to exit Clinton on County Road F12 west. This routing may bypass some downtown Clinton bicycle trails, but it is by far the safest route in the area. From F12, the MRT continues south on County Road Z36, through the city of Low Moor to near the Scott County border, where it continues south on U.S. 67 through the cities of Princeton and Le Claire to Bettendorf. The cities of Princeton, Le Claire, and Bettendorf have existing, programmed, or planned bicycle facilities within municipal boundaries, so the recommended MRT could be intermittently routed on these facilities, rather than on U.S. 67.
- *Buffalo to Muscatine:* The Quad-Cities area has many existing, programmed, or planned bicycle facilities that the recommended MRT will utilize. After the recommended MRT is routed through the Quad-Cities, it will resume westbound out of the city of Buffalo on State Highway 22. From this point, the recommended MRT can take advantage of Wildcat Den State Park by turning north onto State Route 77 E1/Wildcat Den Avenue in Muscatine County. Then, it will turn west onto New Era Road, and then south on Sweetland Road. Finally, at the intersection with Highway 22, the trail will continue to the city of Muscatine by heading west on Highway 22. Portions of this route are currently used and endorsed by Muscatine County cyclists.
- *Muscatine to Burlington:* The recommended MRT will exit the city of Muscatine going south on County Road X61. It will continue south on X61 into Louisa County, then switch to State Route 7402/E Avenue. This is currently an unpaved road but is scheduled for paving within the next five years. From here, the Iowa MRT will continue south back onto X61. The trail will then continue south on State Highway 99 where it intersects X61. The recommended MRT will continue on Highway 99 through Des Moines County, to the city of Burlington. However, due to the extensive levees in this area, future versions of the Iowa MRT could include bicycle trails built on levees.
- *Burlington to Fort Madison:* The recommended MRT will exit the city of Burlington going south on Summer Street/County Road X62. When X62 intersects U.S. Highway 61, the MRT will continue south on U.S. 61 into Lee County. The route will continue west on 178th Street/County Road J48, and then south on 330th Avenue/County Road X38. From here, the recommended MRT will rejoin U.S. 61 before heading into the city of Fort Madison. U.S. 61 in this

area may not be a safe route for bicycle lanes in the future; it is a four-lane divided highway with speed limits at 65 mph. However, at this time, there are no other solutions for this gap. A recommended possible solution to this gap in the future could be the construction of an off-road bicycle trail, or the use of levee trails to route the MRT away from U.S. 61.

- *Fort Madison to Montrose:* The recommended MRT will exit the city of Fort Madison on U.S. Highway 61, and then route south on County Road X23, or 263rd Avenue. From here, the MRT will follow U.S. 61 south to State Route 404 east into the city of Montrose. Like the gap from Burlington to Fort Madison, this gap may need to be rerouted once U.S. 61 is expanded to a four-lane divided facility in the future. Area officials have examined the possibility of installing a bicycle facility along the U.S. 61 expansion, but possible alignments of such a facility have not yet been explored. If there is no possibility of U.S. 61 bicycle accommodations, then potential solutions south of Fort Madison may be to build levee trails and other off-road trails to replace segments where U.S. 61 is recommended for the MRT.

Remaining Gaps to Be Filled with Off-Road Bicycle Trails

If the BLOS and shoulder improvements studies leave gaps in the recommended MRT that cannot be filled with bicycle lanes, another alternative is to plan and construct off-road bicycle trails to fill the gaps. These trails can be seen in Figures 3.2 and 3.3, the recommended routing of the Iowa MRT in Clayton and Dubuque Counties.

- *State Highway 364 to State Highway 340:* As seen in Figure 3.2, the cities of Marquette and McGregor are located along State Highway 76, an unsuitable route for bicycle lanes due to high levels of heavy truck traffic. Because of this, all effort was made to keep the MRT off this undesirable corridor. The Trail of Two Cities, a planned trail between Marquette and McGregor, is a better alternative; however, because Highway 76 extends well beyond the municipal boundaries of both Marquette and McGregor, it is unlikely that the use of the Trail of Two Cities would permit the MRT to completely avoid Highway 76. Consequently, an off-road trail should be constructed to join State Highway 364 to the planned Trail of Two Cities, and another off-road trail should be constructed to join the Trail of Two Cities to State Highway 340.
- *Sageville to the Heritage Trail:* As seen in Figure 3.3, the city of Sageville is located on State Highway 3, a corridor that is not suitable for bicycle lanes. The Heritage Trail is located less than a mile from where the MRT would junction Highway 3. Because this is a short distance, an off-road trail should be constructed along Highway 3 to connect the MRT on County Road C9Y to the Heritage Trail.

Recommended Alignment Maps and Jurisdictional Responsibilities

The recommended alignments for the Mississippi River Trail contain road segments needing various levels of improvements to adequately carry bicycle lanes. In addition, there are many trail projects to include in the MRT; some trails are complete and ready for inclusion, while some trails are yet to be constructed. This section features maps of individual counties within the study area, highlighting the recommended alignment of the Mississippi River Trail, as well as necessary projects required to complete the trail, and the jurisdiction of each roadway project recommended for improvements for the MRT.

The recommended MRT alignment by county is shown in Figures 3.1–3.10. These maps not only show the recommended trail route, but also divide the corridors and trails in the recommended routing by each section's project status. The term "project status" is used to describe the level of completion of each corridor and how much work each corridor needs until it is adequate for inclusion in the Mississippi River Trail recommended alignment. The project status groups are divided into bicycle trail projects and bicycle lane projects. To describe the current status of each project, the bicycle lane projects and bicycle trail projects are classified by existing trails or lanes, programmed trails or lanes, planned trails or lanes, and trails or lanes to build. Existing trails or lanes refer to existing bicycle trails or road segments with at least a 6-foot-wide paved shoulder that is ready for bicycle lanes. These trails and lanes are referred to as "existing" because they are ready for inclusion in the Mississippi River Trail with no or very little additional work. Programmed trails or lanes refer to trail projects or roadway shoulder paving projects that have been planned and have been programmed for funding. Programmed trails or lanes will be completed in a short period of time and will soon be ready for inclusion in the MRT. Planned trails, however, have been planned by municipalities, counties, or the state but have not yet been programmed for funding. Because these projects have not yet been funded, they will be completed in a longer period of time than programmed projects. The recommended alignment of the Iowa MRT does not contain any planned roadway shoulder paving projects. The remaining projects on the recommended Iowa MRT alignment that are not existing trails or lanes, programmed projects, or planned projects, are classified as trails or lanes to build. The bicycle lane or trail projects that need to be built have not been planned, nor have any programmed funding.

The agencies responsible for the development of the Iowa portion of the Mississippi River Trail include the Iowa DOT, county governments, and municipal governments. The Iowa MRT plan does not specifically address trail development processes for municipal governments but rather focuses on development for state and county agencies. These agencies have created the existing bicycle lanes and trails, have created funding programs for the programmed projects, and have created the planned projects. However, to fully develop the Mississippi River Trail in Iowa, these agencies must work to plan for and fund the remaining bicycle lanes and trails projects. Figures 3.11–3.20 display the jurisdictional split along the Iowa MRT by county. County jurisdiction is generally found on county roadway shoulder paving projects and county off-road trail projects, while the Iowa DOT has jurisdiction on state and U.S. highway shoulder paving projects.

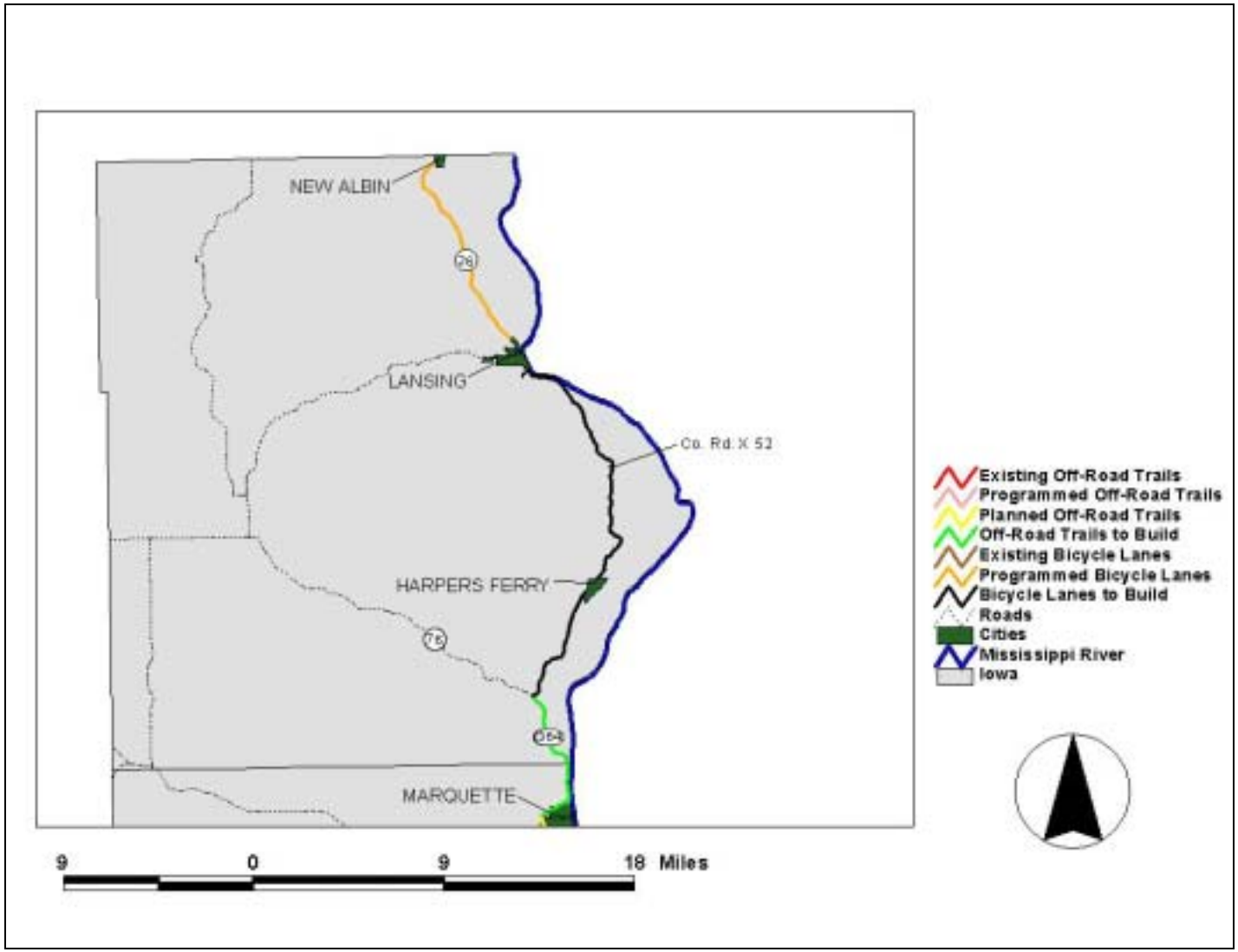


Figure 3.1. Recommended MRT Alignment and Project Status: Allamakee County

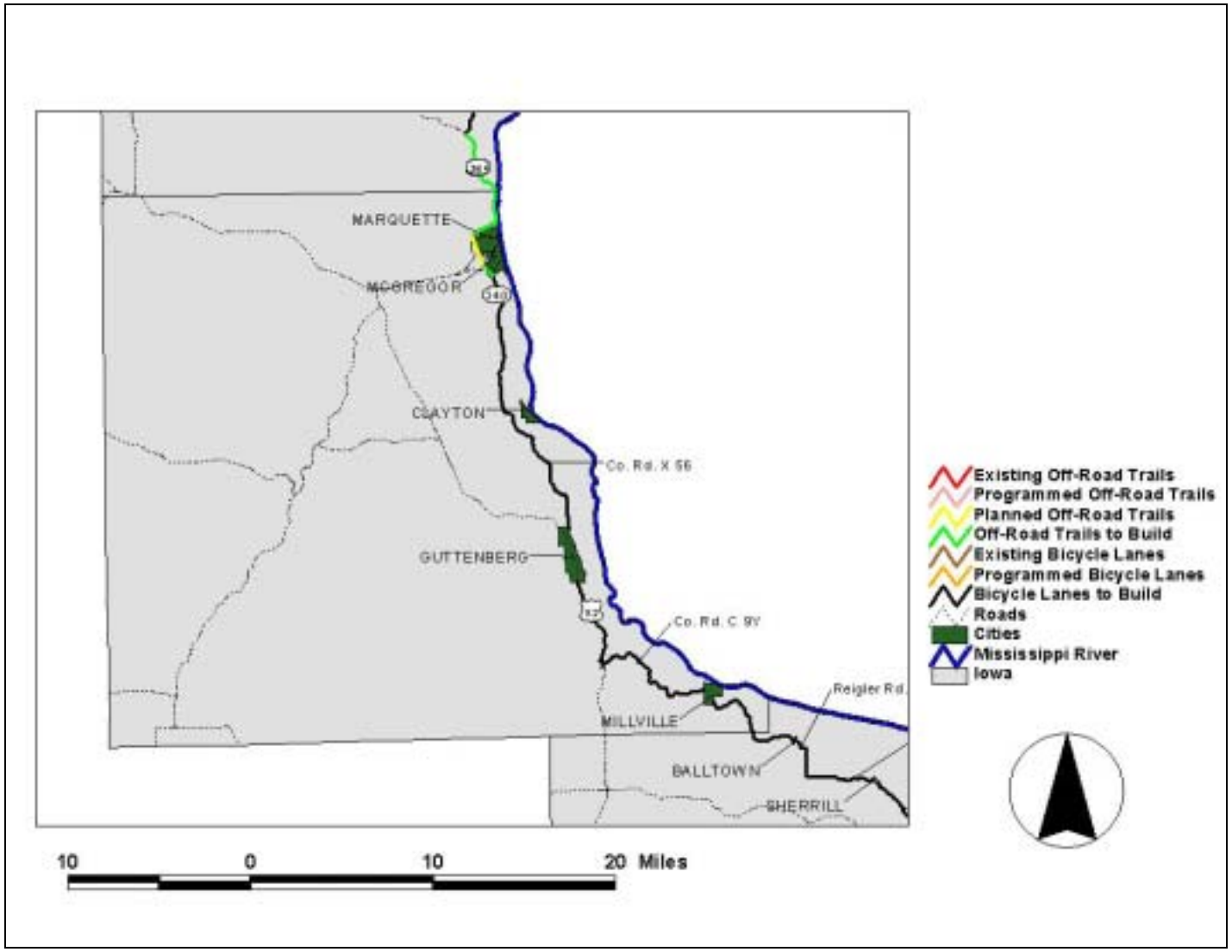


Figure 3.2. Recommended MRT Alignment and Project Status: Clayton County

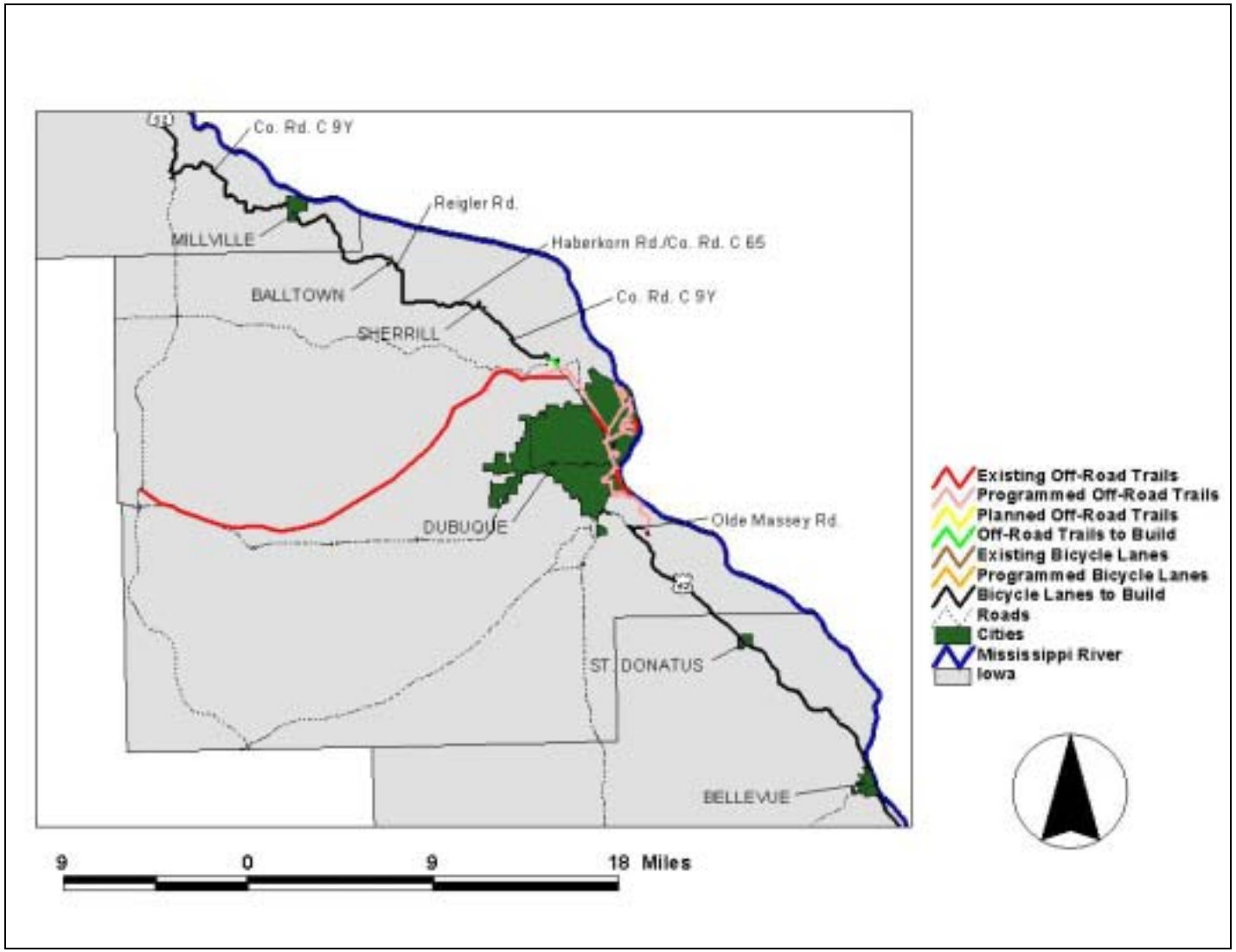


Figure 3.3. Recommended MRT Alignment and Project Status: Dubuque County

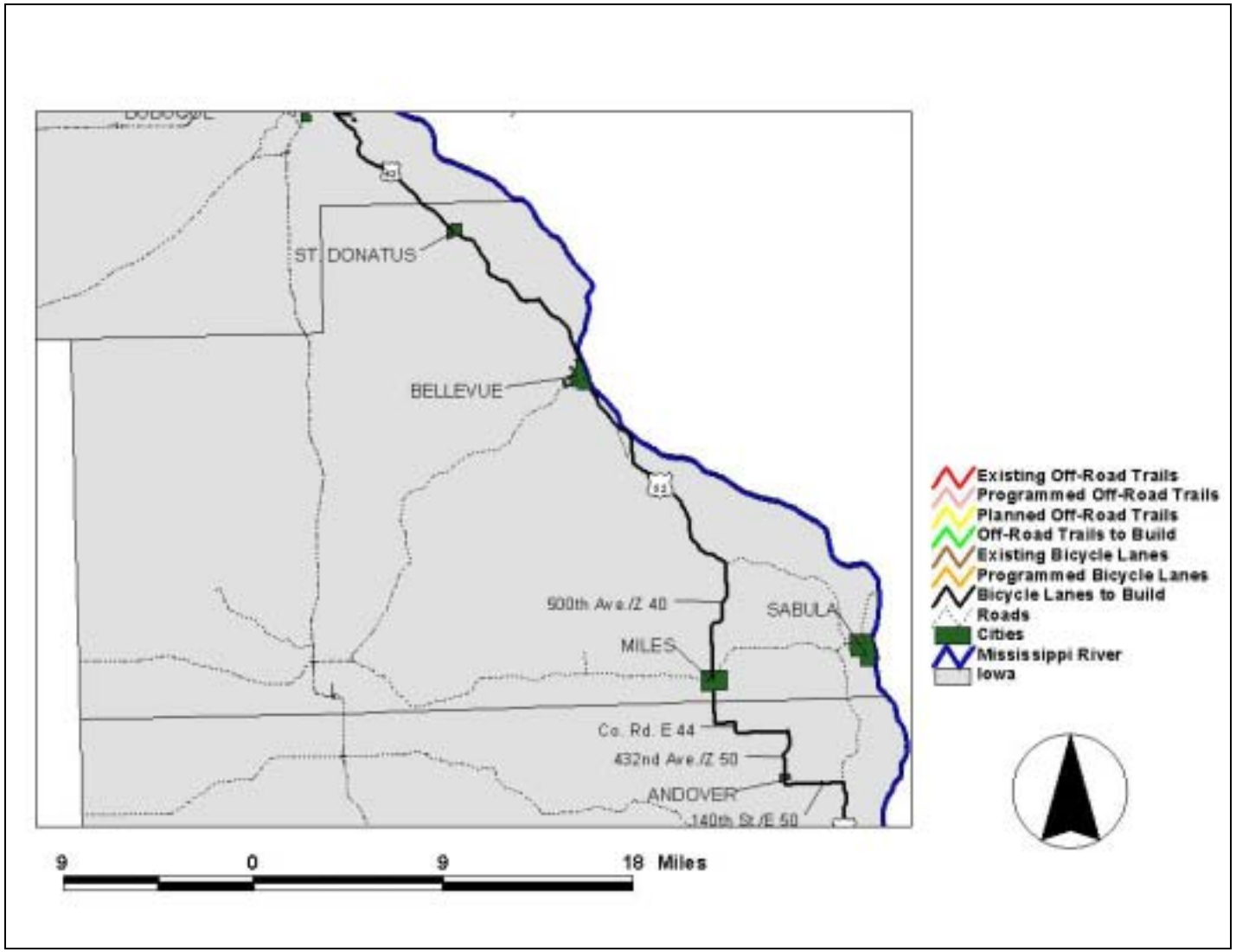


Figure 3.4. Recommended MRT Alignment and Project Status: Jackson County

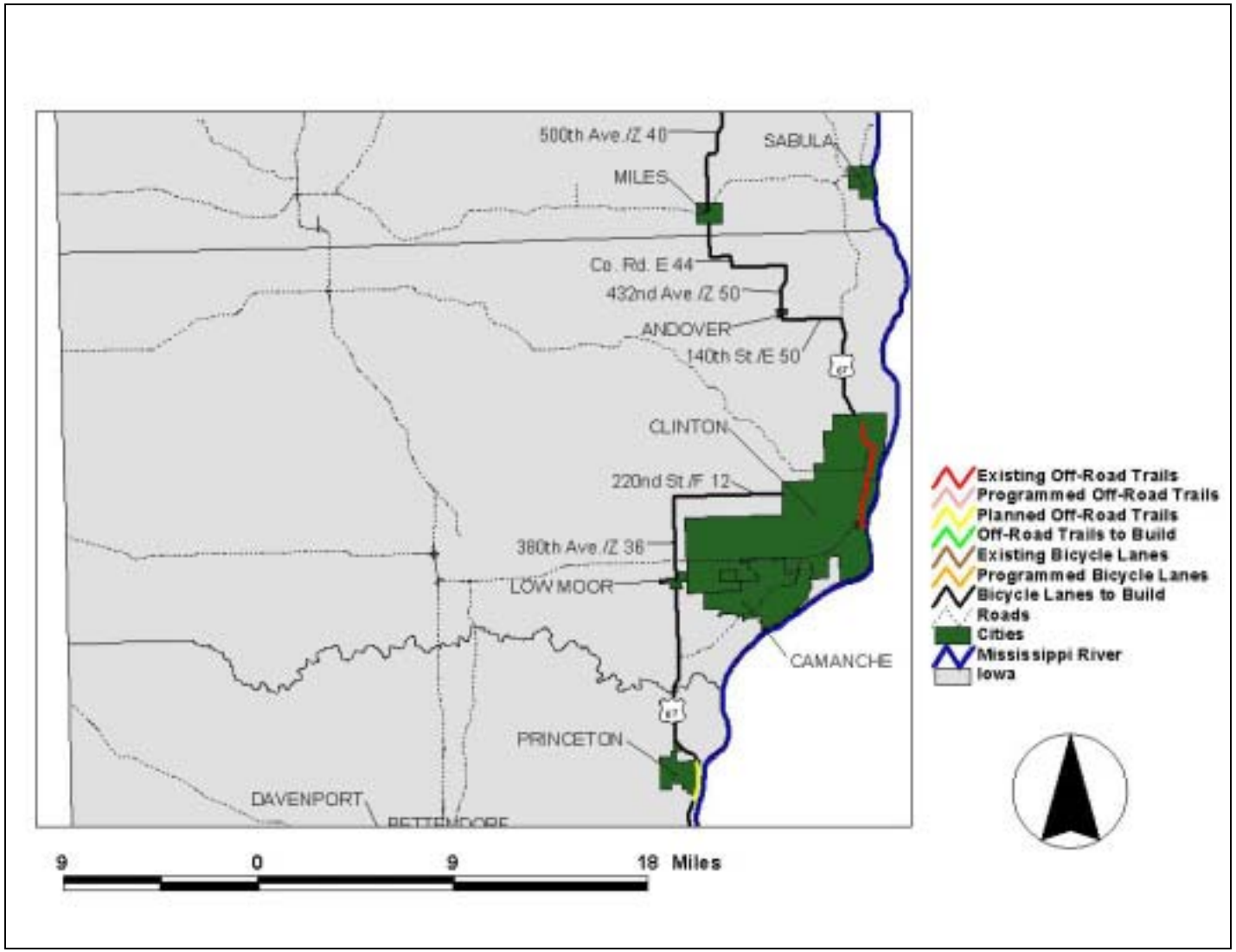


Figure 3.5. Recommended MRT Alignment and Project Status: Clinton County

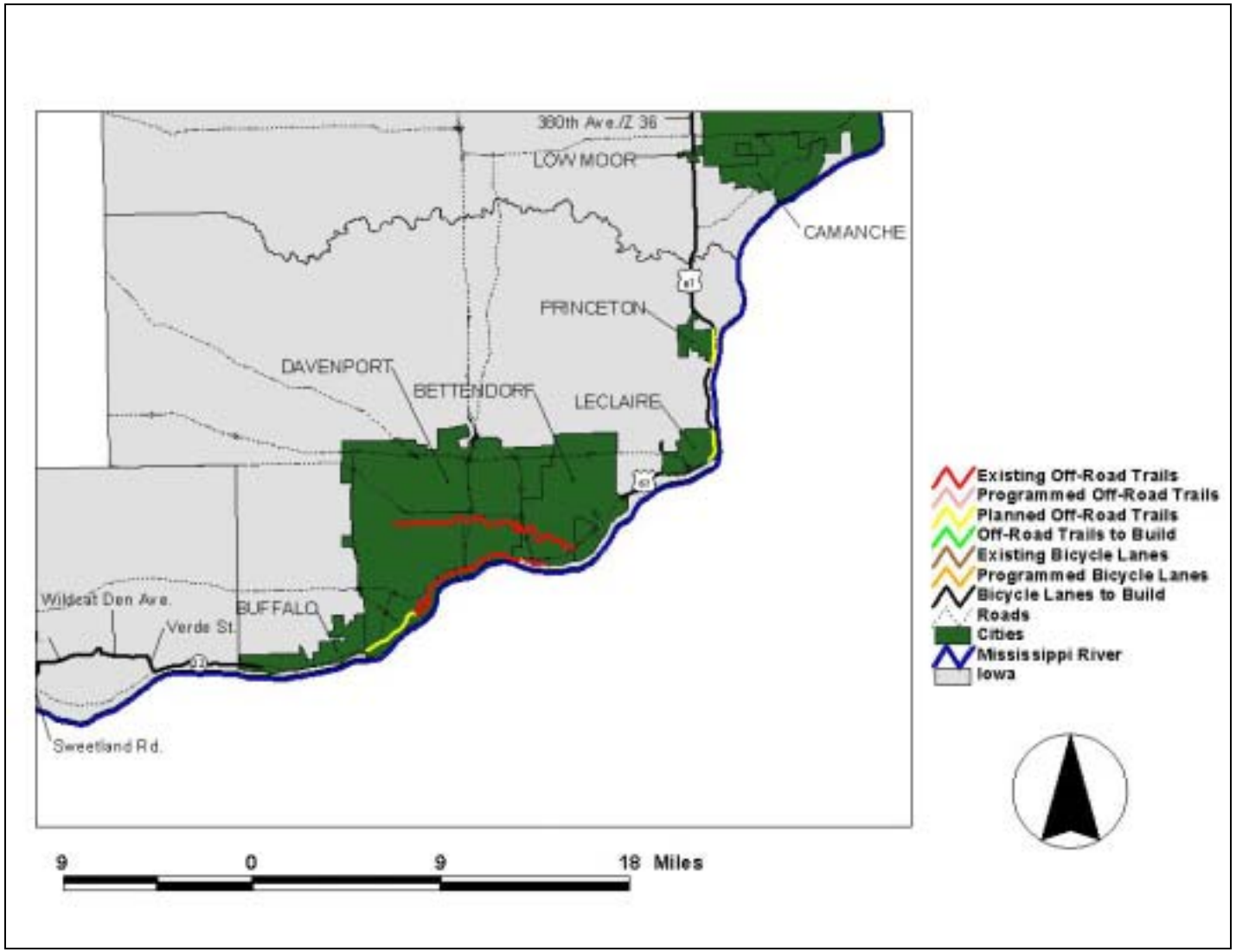


Figure 3.6. Recommended MRT Alignment and Project Status: Scott County

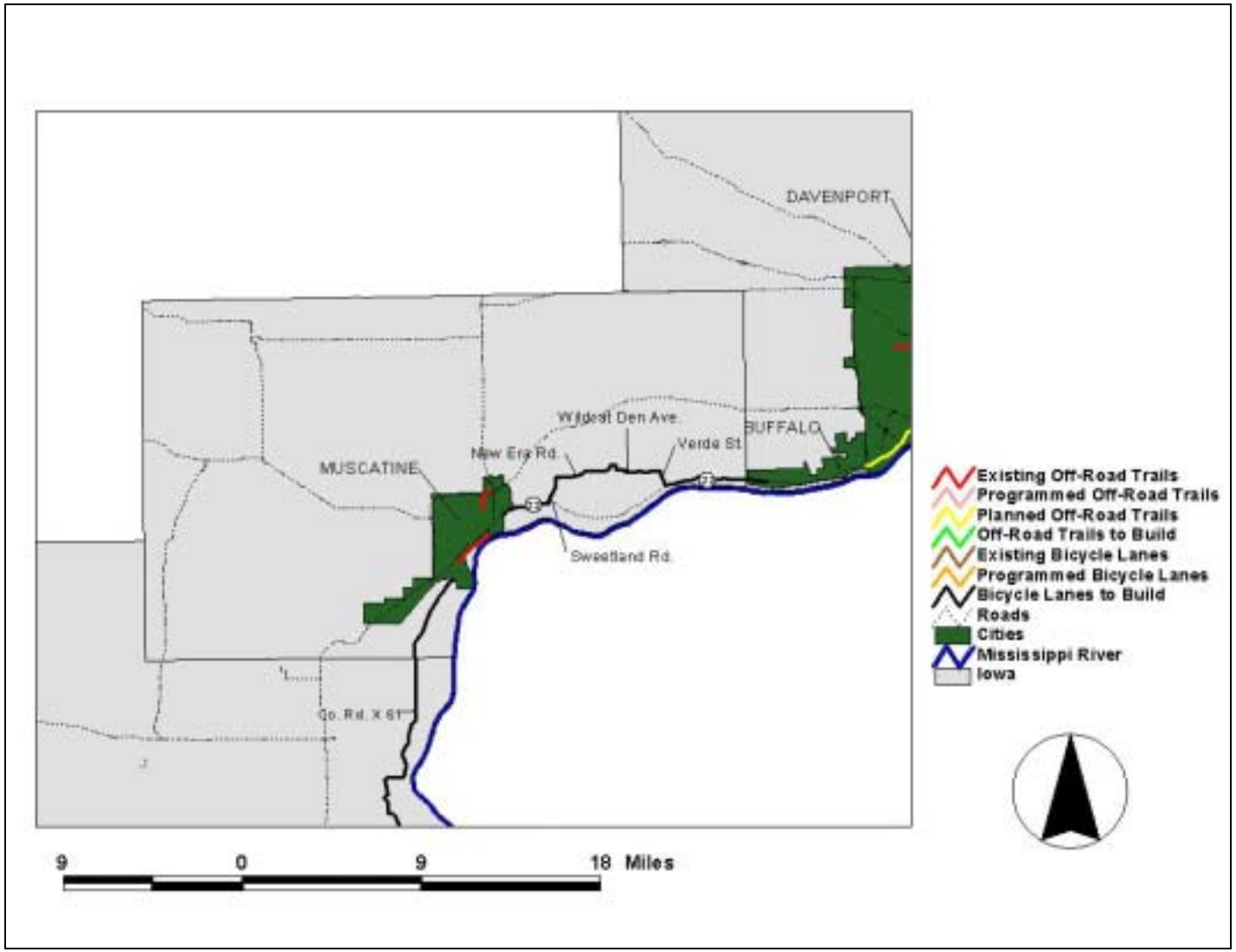


Figure 3.7. Recommended MRT Alignment and Project Status: Muscatine County

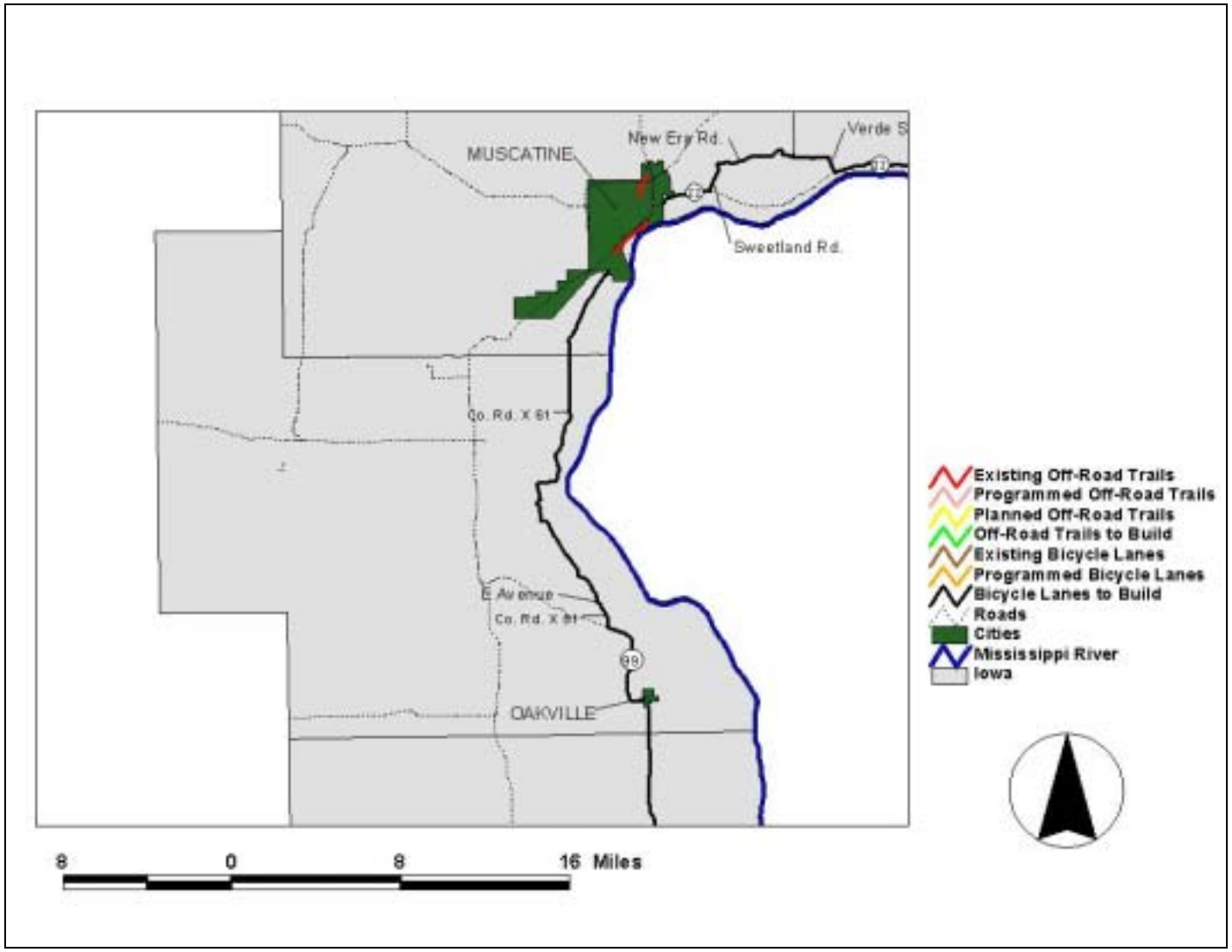


Figure 3.8. Recommended MRT Alignment and Project Status: Louisa County

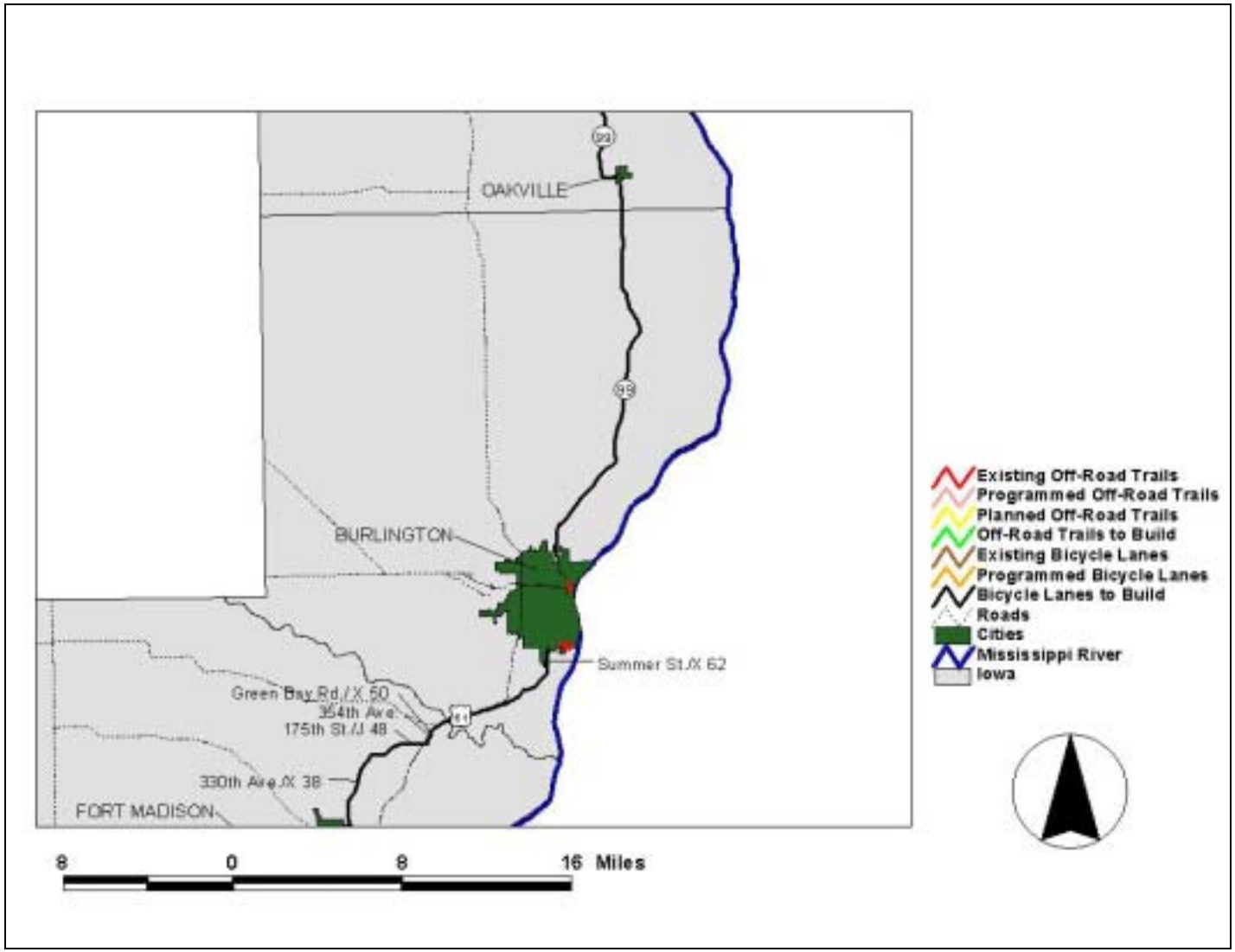


Figure 3.9. Recommended MRT Alignment and Project Status: Des Moines County

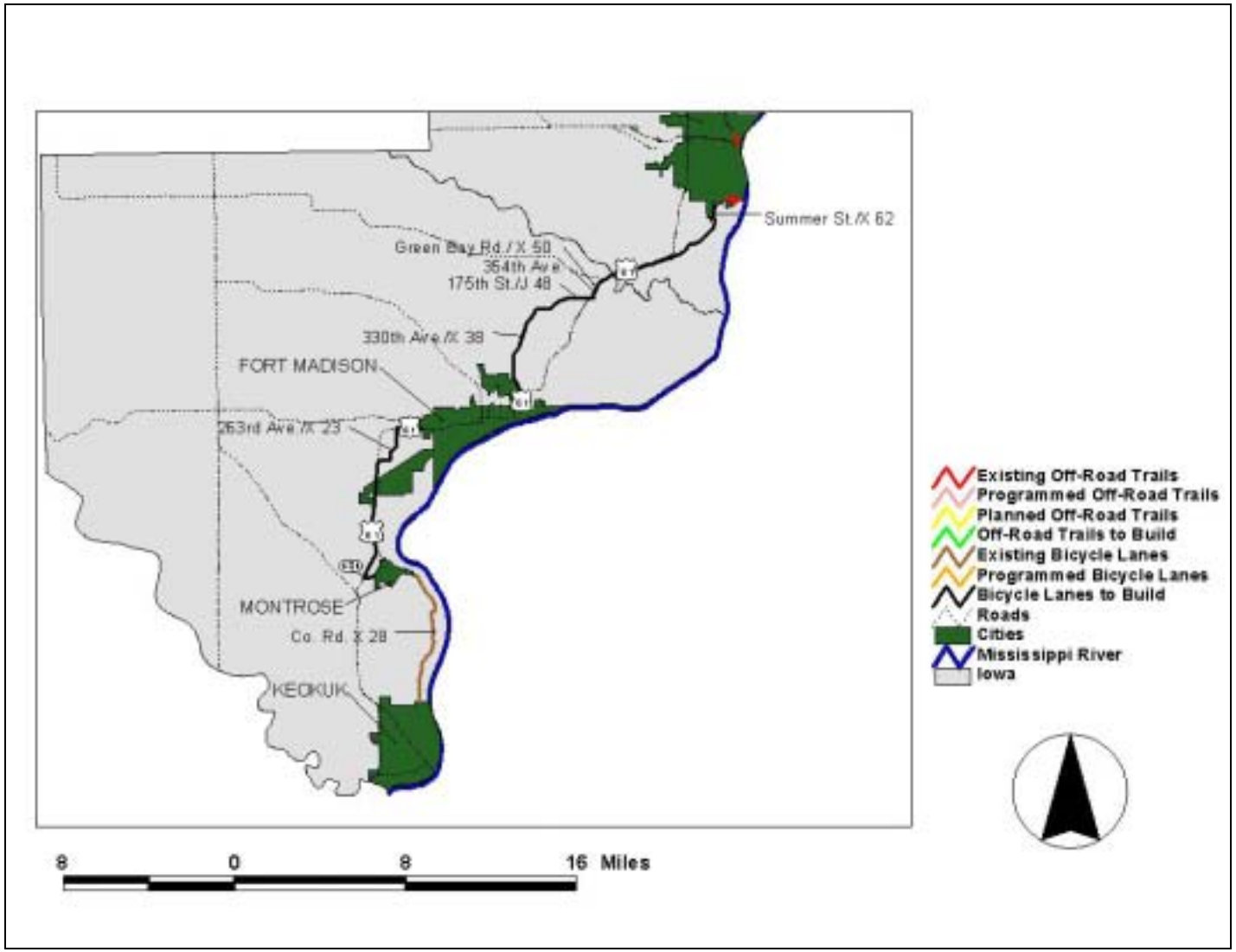


Figure 3.10. Recommended MRT Alignment and Project Status: Lee County

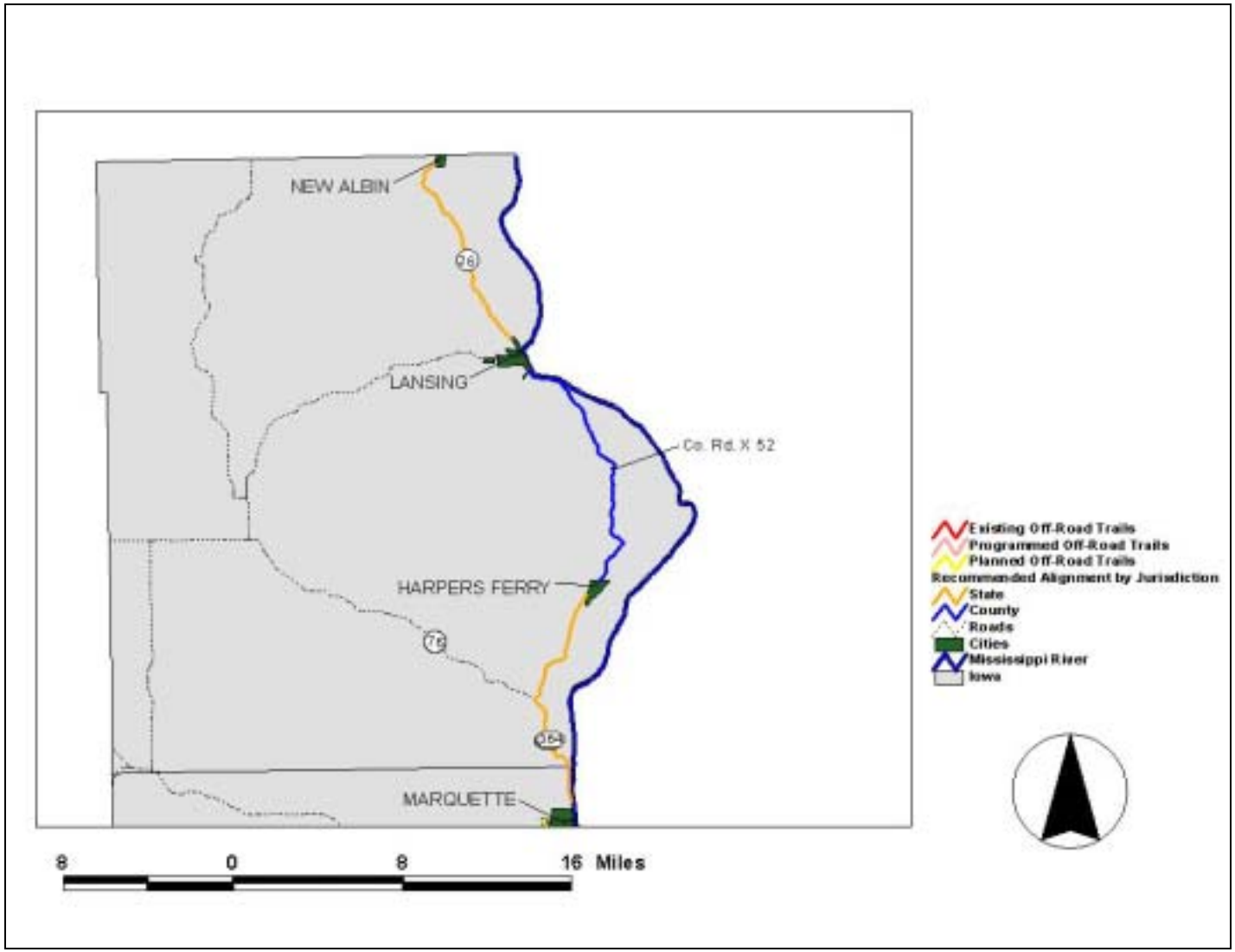


Figure 3.11. Recommended MRT Alignment by Jurisdiction: Allamakee County

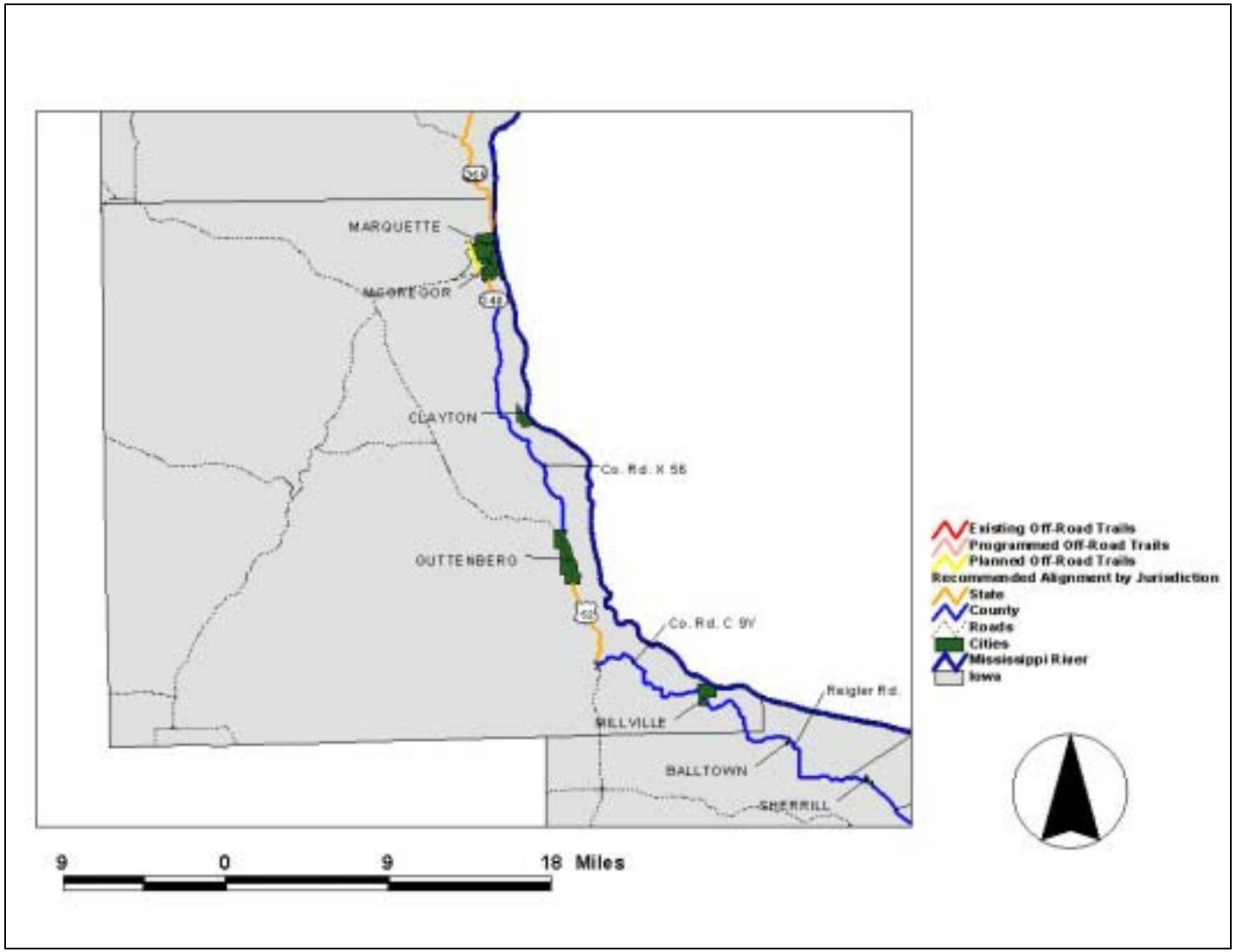


Figure 3.12. Recommended MRT Alignment by Jurisdiction: Clayton County

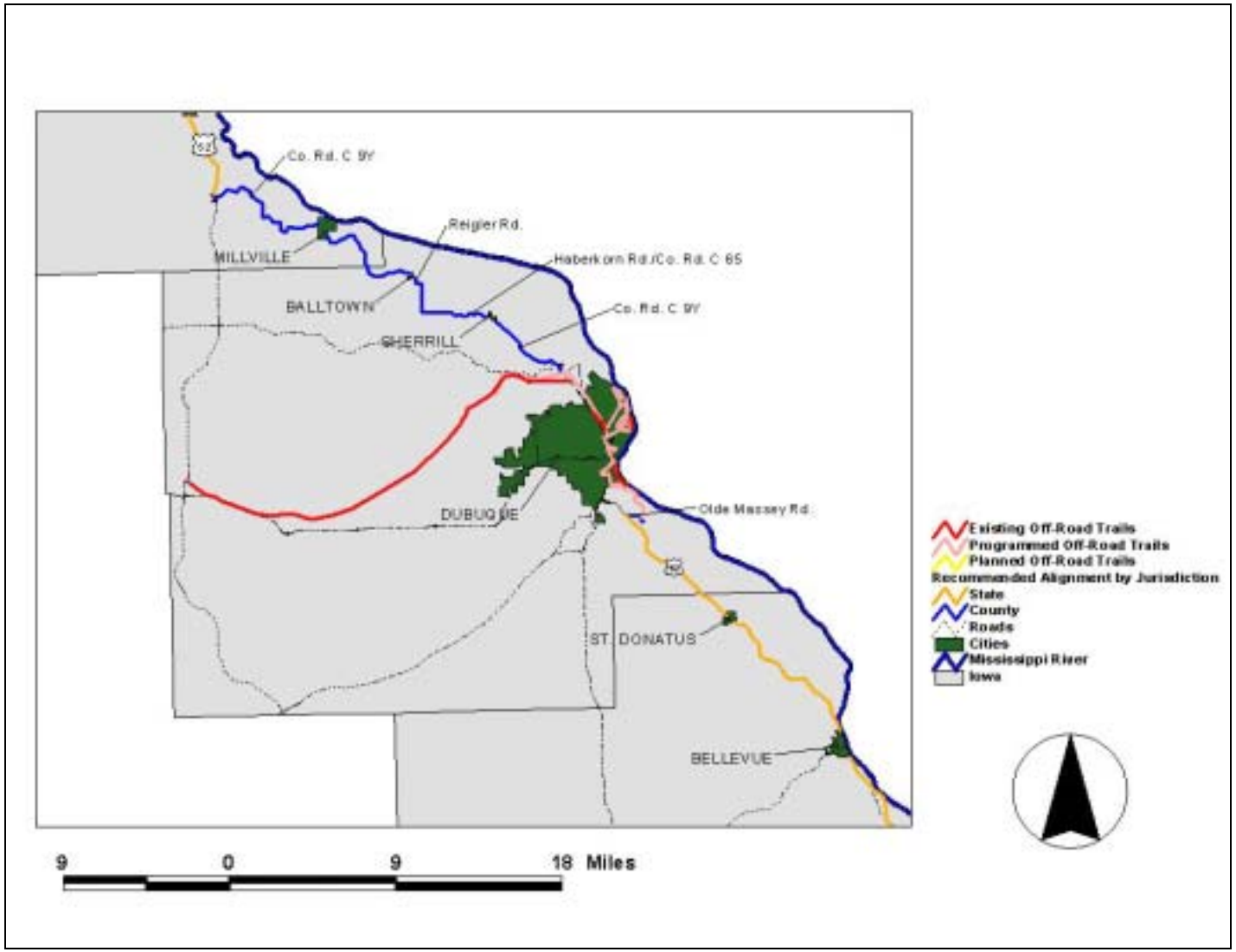


Figure 3.13. Recommended MRT Alignment by Jurisdiction: Dubuque County

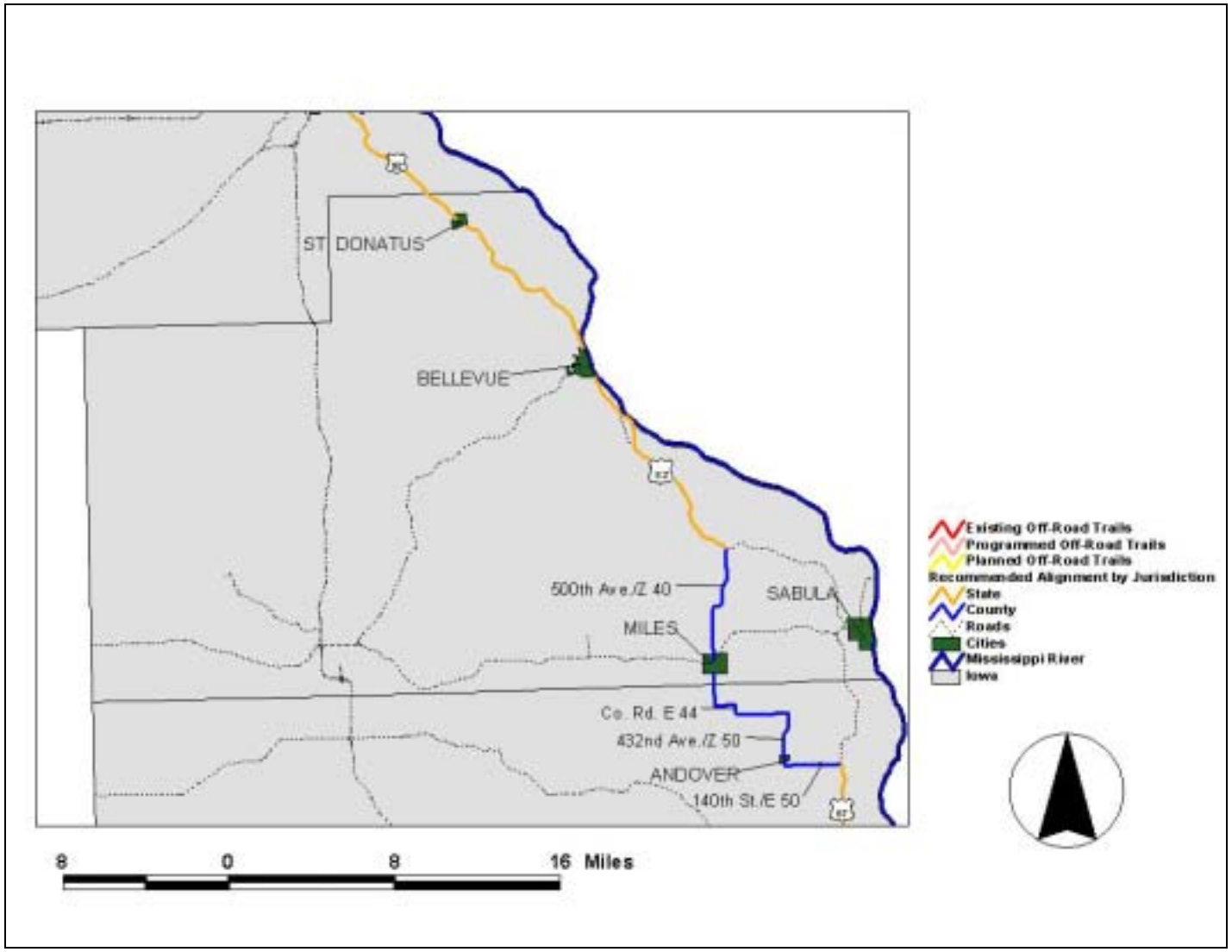


Figure 3.14. Recommended MRT Alignment by Jurisdiction: Jackson County

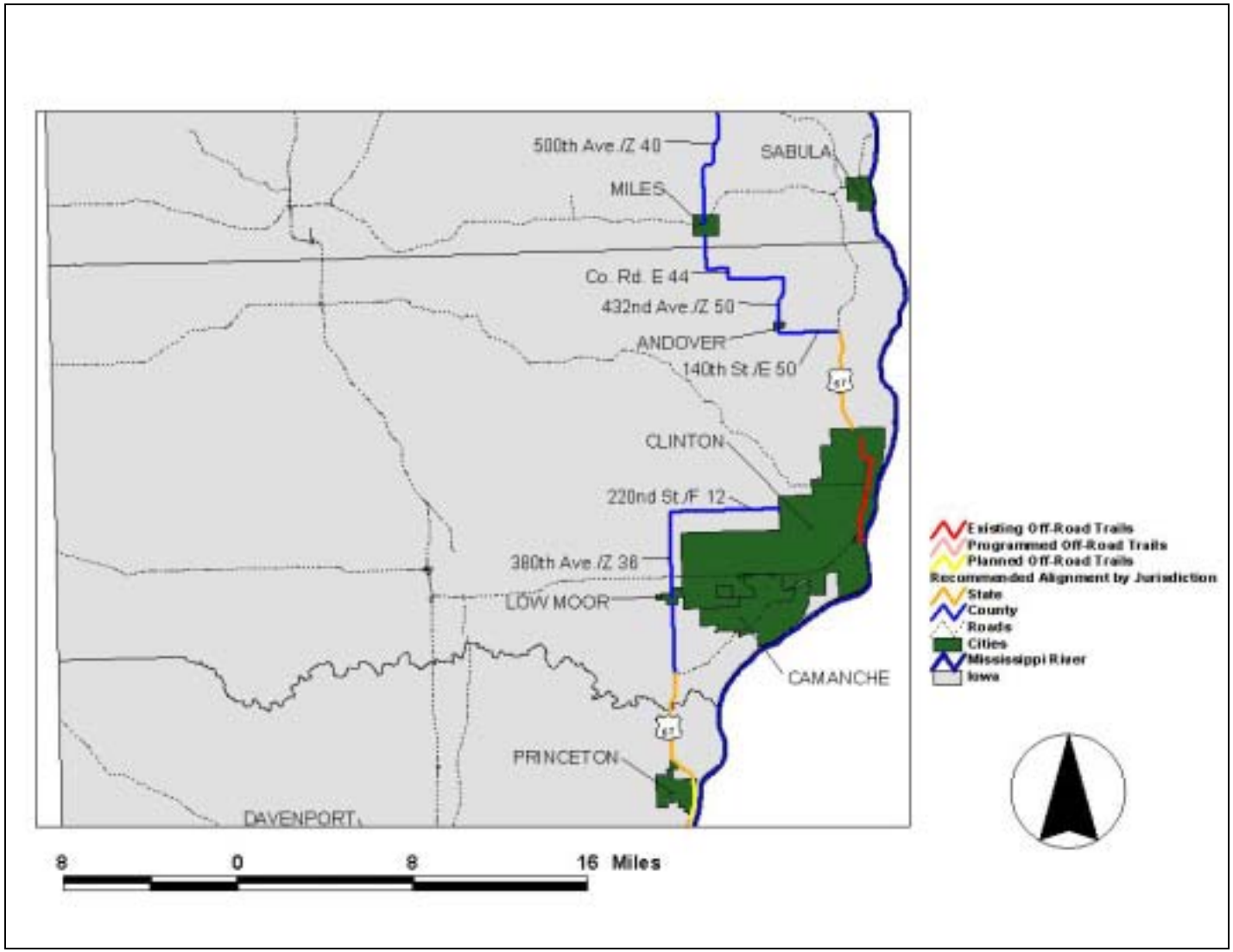


Figure 3.15. Recommended MRT Alignment by Jurisdiction: Clinton County

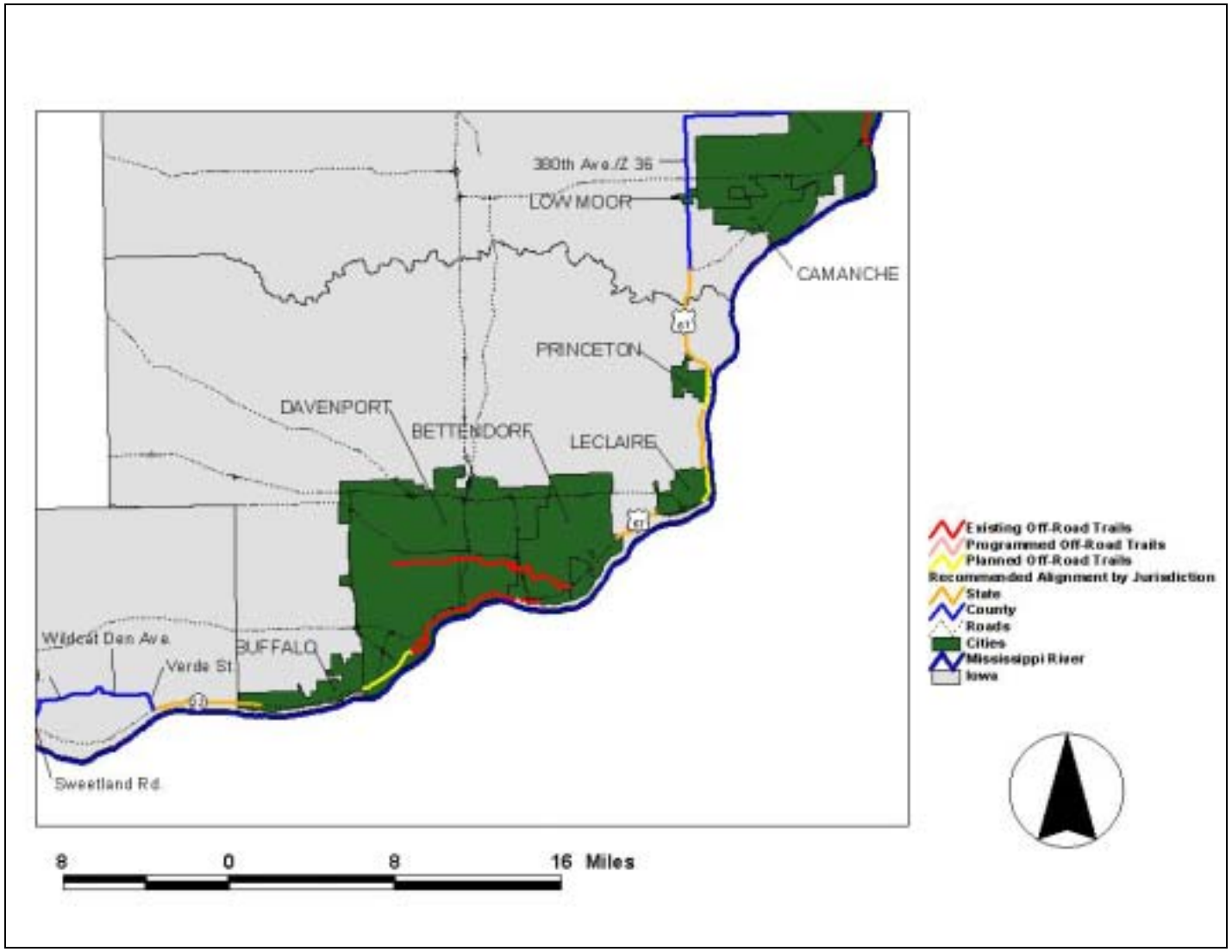


Figure 3.16. Recommended MRT Alignment by Jurisdiction: Scott County

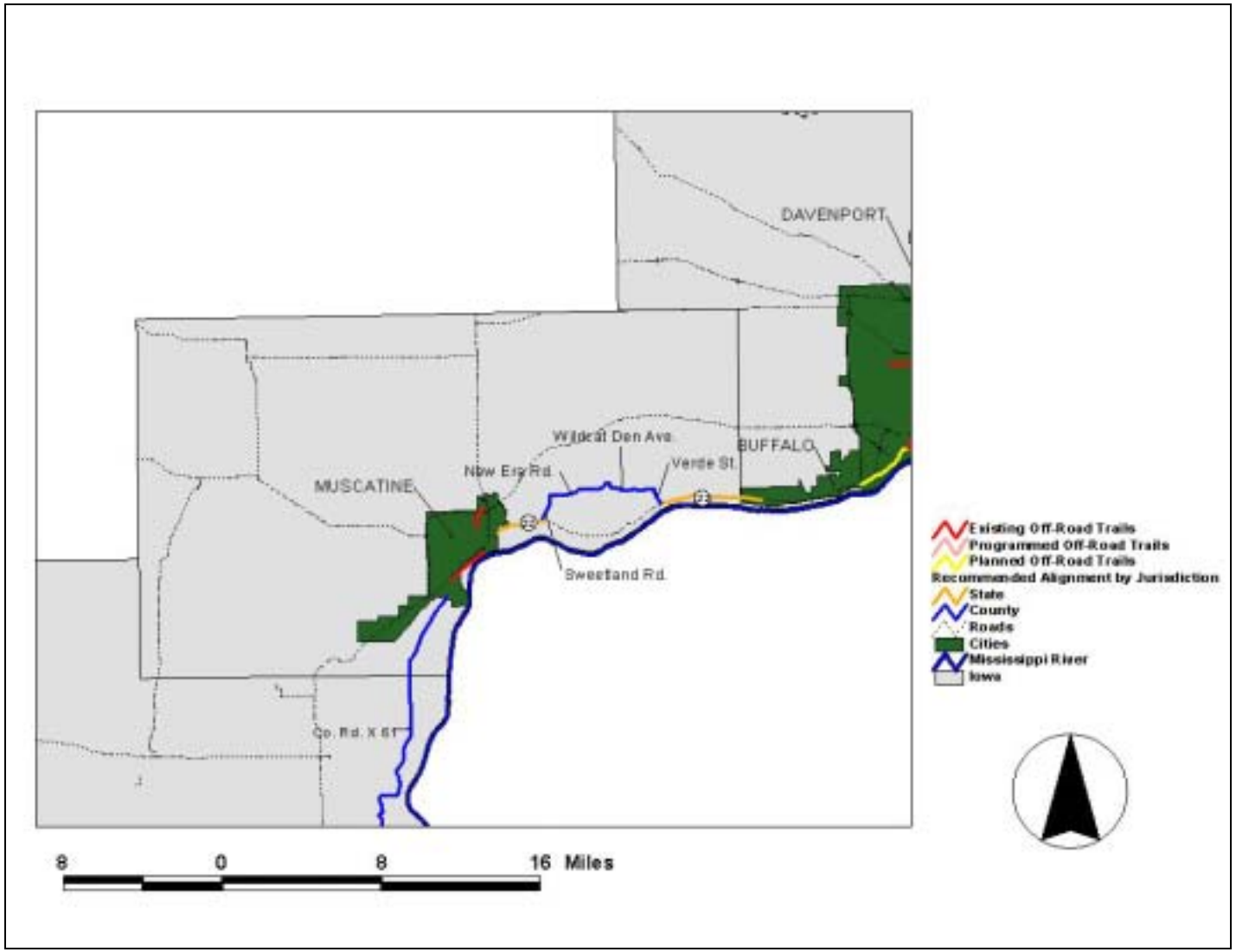


Figure 3.17. Recommended MRT Alignment by Jurisdiction: Muscatine County

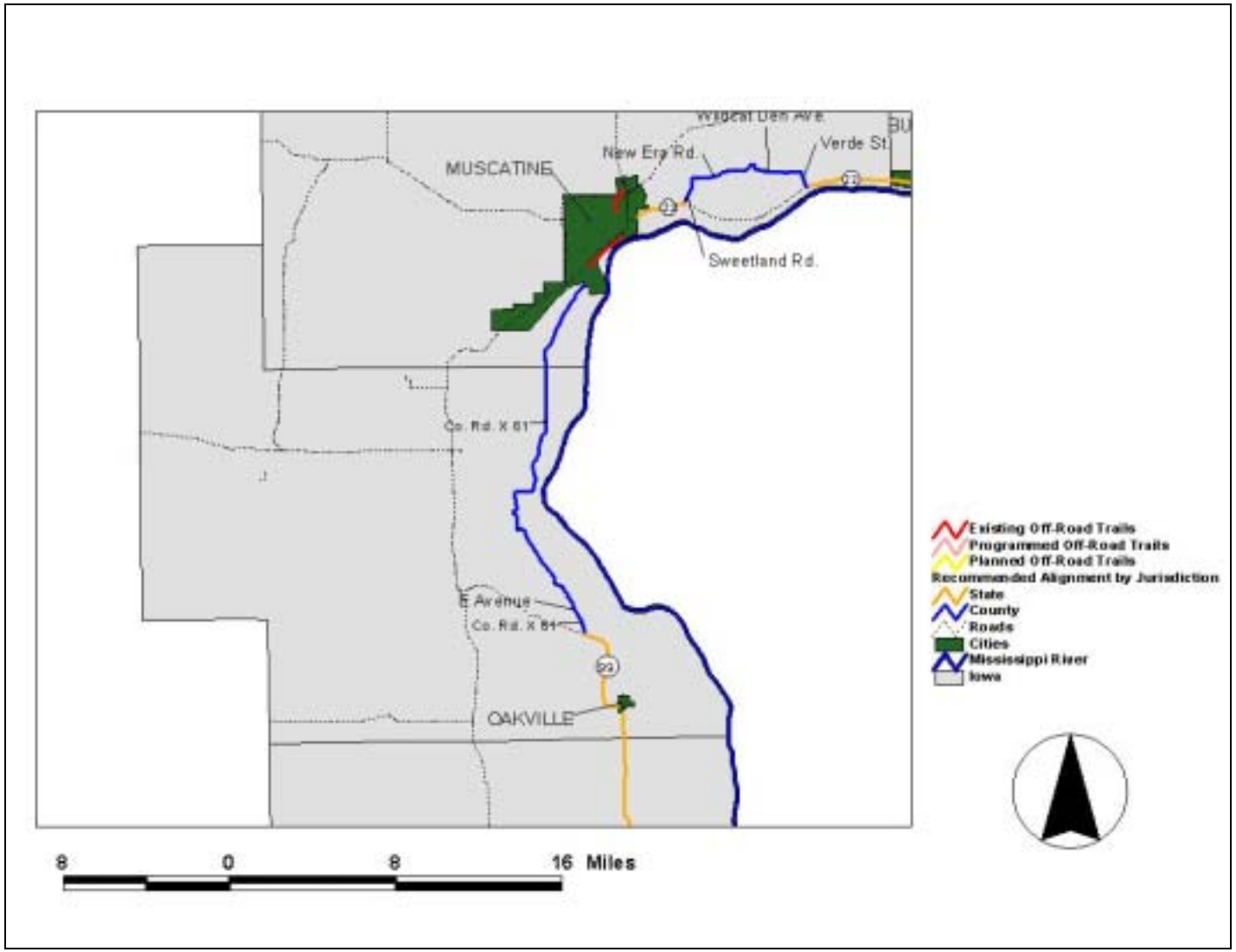


Figure 3.18. Recommended MRT Alignment by Jurisdiction: Louisa County

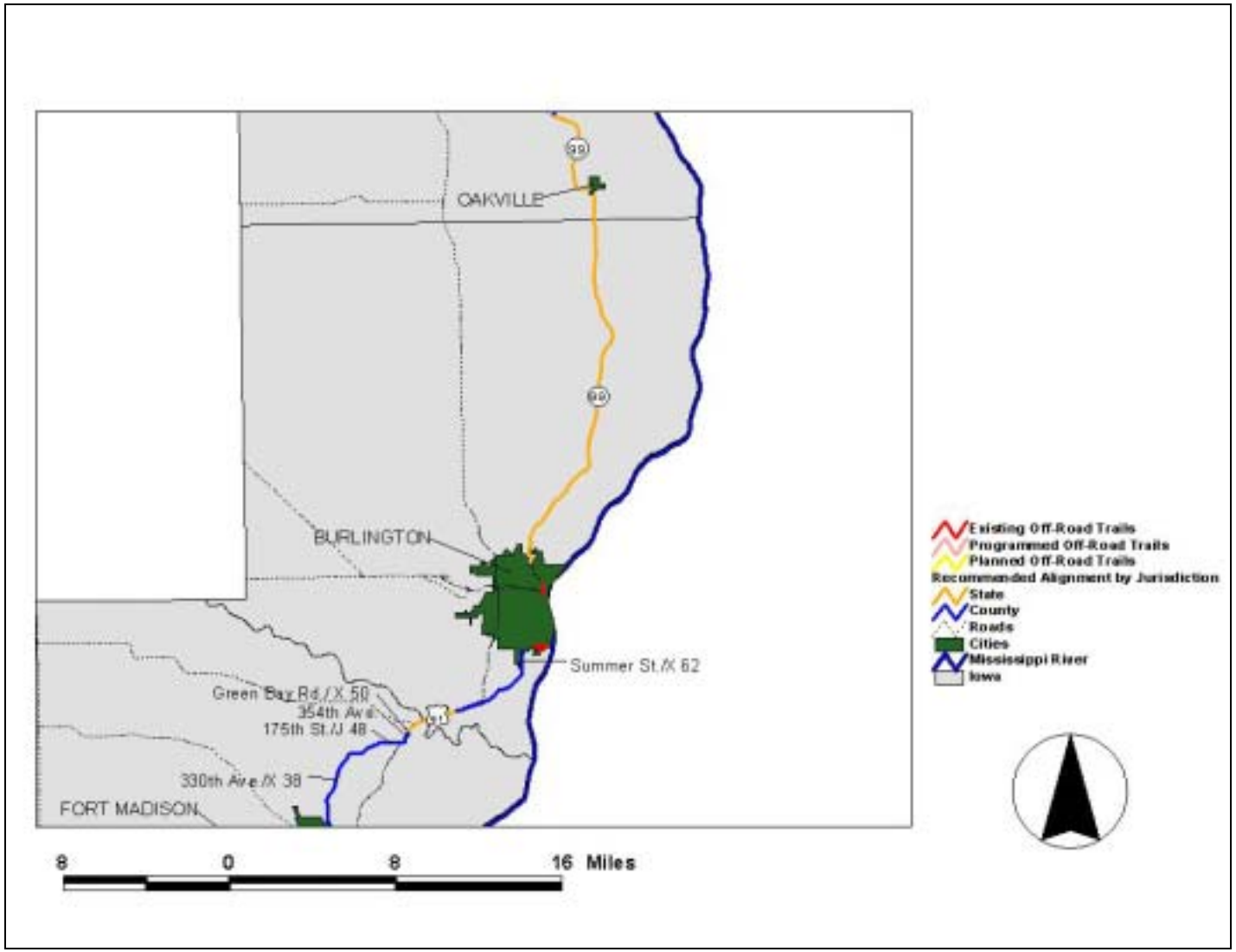


Figure 3.19. Recommended MRT Alignment by Jurisdiction: Des Moines County

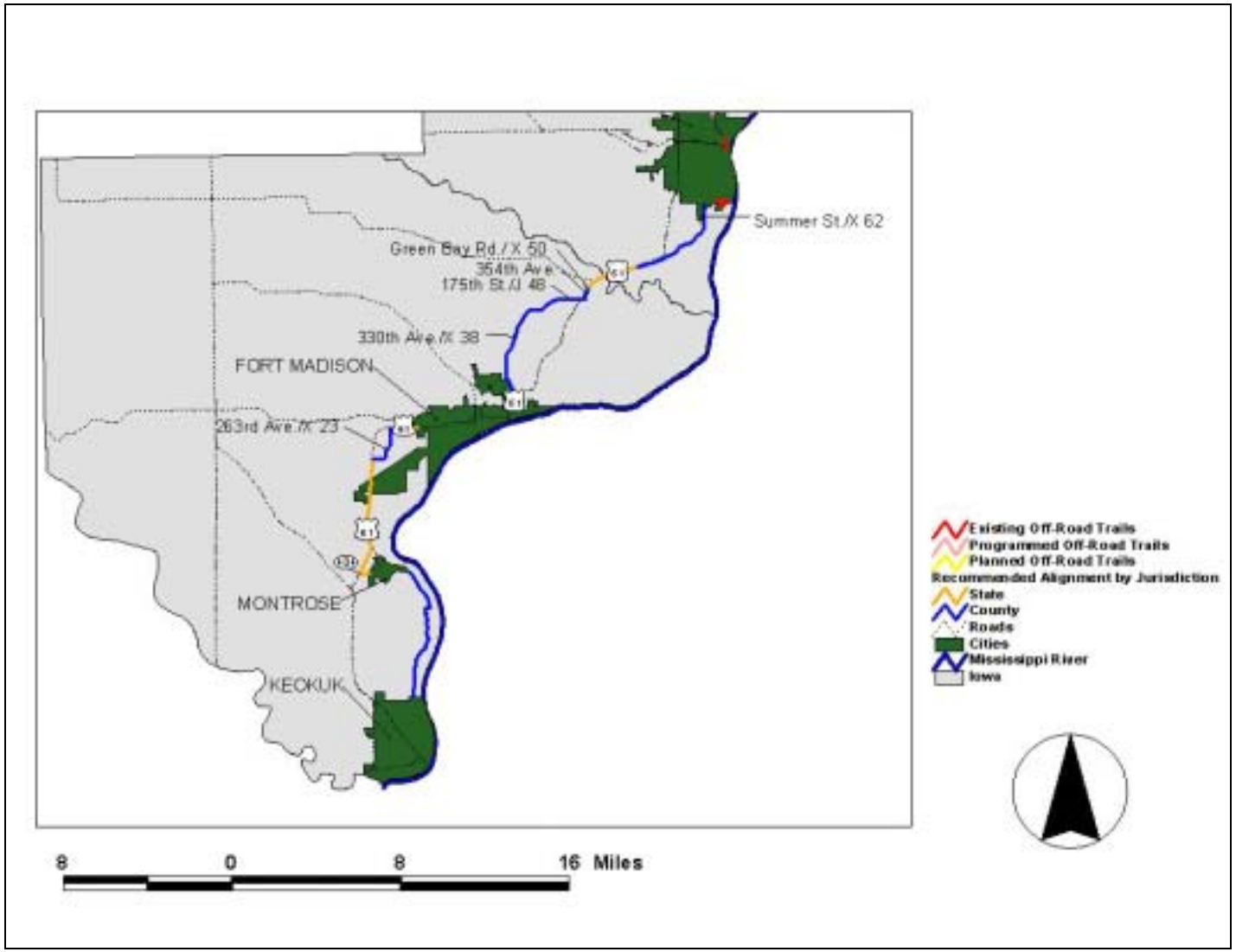


Figure 3.20. Recommended MRT Alignment by Jurisdiction: Lee County

CHAPTER 4. RECOMMENDED IMPROVEMENT PLAN

The Iowa section of the Mississippi River Trail requires the fusion of many road improvement and trail building projects with existing bicycle facilities, detailed in the recommended improvement plan for the Iowa MRT. This chapter outlines the cost estimates of the recommended Iowa MRT, suggests “demonstration projects” for the MRT, defines all recommended projects for the MRT by improvements needed to build bicycle lanes or trails, and suggests a general timeframe in which to complete the projects.

However, the completion of the Iowa MRT not only depends upon the completion of these recommended rural improvements but also upon each city’s commitment to the development of the trail. The trail will not be complete without the creation of urban cycling routes through each city the MRT visits. The urban trails integrated into the MRT will also allow cyclists access to needed services and amenities, a requirement for any trail. Tables 4.1 and 4.2 provide estimated urban trail mileages for the Iowa MRT, then break these mileages down by project status: existing facilities, programmed facilities, and facilities to build.

This chapter outlines the recommended rural MRT projects and their associated costs; it does not address the needed urban trails to complete the Iowa Mississippi River Trail. Rather, each municipality along the MRT is strongly encouraged to explore bicycle facility options for the MRT to connect to the recommended rural routes. While bicycle lanes and trails are preferred, cities may also place the MRT on appropriate urban roads to share the road with vehicle traffic. To ensure the safety of MRT cyclists, cities along the route are encouraged to work cooperatively with the Iowa DOT to place the MRT on suitable roads.

Table 4.1. MRT Urban Trail Projects Status: Allamakee to Clinton Counties

County	Estimated MRT Length (miles)	Estimated Existing Urban Trails Length (miles)	Estimated Programmed Urban Trails Length (miles)	Estimated Urban Bicycle Facilities to Designate or Improve (miles)
ALLAMAKEE				
New Albin	0.50			0.50
Lansing	1.77			1.77
Guttenberg	0.84			0.84
Allamakee Total	*3.11*			*3.11*
CLAYTON				
Marquette	1.93		0.97	0.96
McGregor	1.53		0.77	0.76
Clayton	3.70			3.70
Millville	0.25			0.25
N. Buena Vista	1.17			1.17
Clayton Total	*8.58*		*1.74*	*6.84*
DUBUQUE				
Balltown	0.35			0.35
Sherrill	0.66			0.66
Sageville	0.14			0.14
Dubuque	6.71	1.00	5.71	
Dubuque Total	*7.86*	*1.00*	*5.71*	*1.15*
JACKSON				
Saint Donatus	0.50			0.50
Bellevue	1.59			1.59
Miles	0.75			0.75
Jackson Total	*2.84*			*2.84*
CLINTON				
Andover	0.50			0.50
Clinton	7.89	3.40		4.49
Low Moor	0.50			0.50
Clinton Total	*8.89*	*3.40*		*5.49*

Table 4.2. MRT Urban Trail Projects Status: Scott to Lee Counties and Total

County	Estimated MRT Length (miles)	Estimated Existing Urban Trails Length (miles)	Estimated Programmed Urban Trails Length (miles)	Estimated Urban Bicycle Facilities to Designate or Improve (miles)
SCOTT				
Princeton	1.83		1.83	
Le Claire	3.95		1.58	2.37
Riverdale	1.21			1.21
Bettendorf	5.69	1.36	1.63	2.70
Davenport	10.36	6.98	3.38	
Buffalo	4.05			4.05
Scott Total	*27.09*	*8.34*	*8.42*	*10.33*
MUSCATINE				
Muscatine	4.75	2.20		2.55
Muscatine Total	*4.75*	*2.2*		*2.55*
LOUISA				
Oakville	0.57			0.57
Louisa Total	*0.57*			*0.57*
DES MOINES				
Burlington	5.70			5.70
Des Moines Total	*5.70*			*5.70*
LEE				
Fort Madison	5.86			5.86
Montrose	2.33			2.33
Keokuk	7.00			7.00
Lee Total	*15.19*			*15.19*
TOTAL	**84.58**	**14.94**	**15.87**	**92.35**

Costs of Recommended Improvements

The costs of creating the Mississippi River Trail in Iowa are dependent upon the types of construction projects required for each segment of road or trail to meet MRT standards. As previously discussed, bicycle lanes will be created on roads by constructing 6-foot asphalt shoulders at a cost of $107,000 per mile (Iowa DOT 2000). Non-motorized 10-foot-wide asphalt off-road bicycle trails may be constructed at a cost of $85,344 per mile. In addition to these costs, structural improvements may be necessary for the roadway to accommodate bicycle trails. Structures on roadways may be re-decked to include bicycle lanes at a cost of $50 per square foot, assuming a 6-foot wide bicycle lane.

Tables 4.3–4.8 provide additional information on each of these corridors. The tables are placed in order by county from north to south. Each corridor is denoted by its county, its signed route number, a description of the endpoints of the corridor, and whether the corridor requires structural accommodations in addition to shoulder improvements. The total cost of the recommended plan for the Iowa MRT is estimated at $32.6 million, which includes a 10 percent allocation for other costs and a 15 percent allotment for contingency costs. Tables 4.9 and 4.10 provide estimated costs per county for various categories of MRT projects, as well as estimated total costs. The figures for overall costs for the state of Iowa are found in Table 4.11, including a breakdown of the estimated subtotal, other, contingency, and total costs of the Iowa portion of the Mississippi River Trail.

The MRT mileages by jurisdiction can be calculated from the tables to determine jurisdictional responsibilities in implementing the Iowa section of the Mississippi River Trail. The state of Iowa will be responsible for an estimated 99 miles of roadway to be improved for bicycle lanes, while individual counties will be responsible for approximately 125 miles of the Iowa MRT. There are also county jurisdiction off-road trails that will need to be funded. In addition, individual municipalities have jurisdiction over approximately 54 miles of the Iowa MRT. Altogether, these mileages add up to approximately 278 miles of bicycle facilities that will be created as part of the Iowa Mississippi River Trail. Table 4.12 shows the breakdown of estimated costs to each county involved in the MRT project. These estimated costs include the creation of bicycle lanes on county roadways, and off-road trail projects that will be under county jurisdiction. Similarly, Table 4.13 displays the estimated costs of the MRT project to the state, broken down by costs per county.

Table 4.3. MRT Corridor Descriptions, Jurisdictions, and Recommended Improvements: Allamakee to Clinton Counties

County	Road Number or Trail/Lane Name	From (N or E)	To (S or W)	Jurisdiction	Status/Improvements for MRT
Allamakee	26	New Albin	Lansing	State	Programmed for bicycle lanes
	X52	Lansing	Harpers Ferry	County	Addition of 6' wide paved shoulders
	364	Harpers Ferry	Highway 76	State	Addition of 6' wide paved shoulders
	Trail of Two Cities MRT Connection	Highway 364	Clayton County Border		Construction of 10' asphalt bicycle trail
	Trail of Two Cities MRT Connection	Allamakee County Border	Trail of Two Cities		Construction of 10' asphalt bicycle trail
	Trail of Two Cities	T of TC MRT Connection	T of TC MRT Connection	Municipal	Planned bicycle trail
	Trail of Two Cities MRT Connection	Trail of Two Cities	Highway 340		Construction of 10' asphalt bicycle trail
Clayton	340	McGregor	X56	State	Addition of 6' wide paved shoulders
	X56	Highway 340	Guttenberg	County	Addition of 6' wide paved shoulders
	52	Guttenberg	Millville	State	Addition of 6' wide paved shoulders
	C9Y	Millville	Dubuque County Border	County	Addition of 6' wide paved shoulders
Dubuque	C9Y	Clayton County Border	Reigler Road/90E1	County	Addition of 6' wide paved shoulders
	Reigler Road/90E1	C9Y	C65	County	Addition of 6' wide paved shoulders
	C65	Reigler Road/90E1	Sherrill	County	Addition of 6' wide paved shoulders
	C9Y	Sherrill	Sageville	County	Addition of 6' wide paved shoulders
	Heritage Trail MRT Connection	C9Y	Heritage Trail Extension	County	Construction of 10' asphalt bicycle trail
	Heritage Trail Extension	H.T. MRT Extension	Dubuque		Programmed bicycle trail
	Olde Massey Road/88E3	Mines of Spain	U.S. 52	County	Addition of 6' wide paved shoulders
	52	Olde Massey Rd.	Jackson County Border	State	Sections of addition of 6' wide paved shoulders
Jackson	52	Dubuque County Border	St. Donatus	State	Addition of 6' wide paved shoulders
	52	St. Donatus	Bellevue	State	Sections of addition of 6' wide paved shoulders
	52	Bellevue	Z40	State	Addition of 6' wide paved shoulders
	Z40	U.S. 52	Clinton County Border	County	Addition of 6' wide paved shoulders
Clinton	Z40	Jackson County Border	E44	County	Addition of 6' wide paved shoulders
	E44	Z40	Z50	County	Addition of 6' wide paved shoulders
	Z50	E44	E50	County	Addition of 6' wide paved shoulders
	E50	Z50	U.S. 67	County	Addition of 6' wide paved shoulders
	67	E50	Clinton	State	Addition of 6' wide paved shoulders
	F12	Clinton	Z36	County	Addition of 6' wide paved shoulders
	Z36	F12	U.S. 67	County	Addition of 6' wide paved shoulders
	67	Z36	Scott County Border	State	Addition of 6' wide paved shoulders

Table 4.4. MRT Corridor Descriptions, Jurisdictions, and Recommended Improvements: Scott to Lee Counties

County	Road Number or Trail/Lane Name	From (N or E)	To (S or W)	Jurisdiction	Status/Improvements for MRT
Scott	67	Clinton County Border	Le Claire	State	Addition of 6' wide paved shoulders
	67	Le Claire	Bettendorf	State	Sections of addition of 6' wide paved shoulders
	22	Buffalo	Muscatine County Border	State	Addition of 6' wide paved shoulders
Muscatine	22	Scott County Border	Wildcat Den Avenue	State	Addition of 6' wide paved shoulders
	Wildcat Den Avenue	Highway 22	New Era Road	County	Addition of 6' wide paved shoulders
	New Era Road	Wildcat Den Avenue	Sweetland Road	County	Addition of 6' wide paved shoulders
	Sweetland Road/77E1	New Era Road	Highway 22	County	Addition of 6' wide paved shoulders
	22	Sweetland Road	Muscatine	State	Sections of addition of 6' wide paved shoulders
	X61	Muscatine	Louisa County Border	County	Addition of 6' wide paved shoulders
Louisa	X61	Muscatine County Border	E Avenue	County	Addition of 6' wide paved shoulders
	E Avenue	X61	X61	County	Programmed for road paving/needs 6' paved shoulders
	X61	E Avenue	Highway 99	County	Addition of 6' wide paved shoulders
	99	X61	Des Moines County Border	State	Addition of 6' wide paved shoulders
Des Moines	99	Louisa County Border	Burlington	State	Addition of 6' wide paved shoulders
	X62	Burlington	Old U.S. Highway 61	County	Addition of 6' wide paved shoulders
	Old U.S. Highway 61	X62	U.S. 61	County	Addition of 6' wide paved shoulders
	61	Old U.S. Highway 61	Lee County Border	State	Addition of 6' wide paved shoulders
Lee	61	Des Moines County Border	X50	State	Addition of 6' wide paved shoulders
	X50	U.S. 61	354th Avenue/6803	County	Addition of 6' wide paved shoulders
	354th Avenue/6803	X50	J48	County	Addition of 6' wide paved shoulders
	J48	354th Avenue/6803	X38	County	Addition of 6' wide paved shoulders
	X38	J48	U.S. 61	County	Addition of 6' wide paved shoulders
	61	X38	Fort Madison	State	Addition of 6' wide paved shoulders
	61	Fort Madison	X23	State	Addition of 6' wide paved shoulders
	X23	U.S. 61	U.S. 61	County	Addition of 6' wide paved shoulders
	61	X23	Highway 404	State	Addition of 6' wide paved shoulders
	404	U.S. 61	Montrose	State	Addition of 6' wide paved shoulders
	X28 Bicycle Lanes	Montrose	Keokuk	County	Completed bicycle lanes

Table 4.5. MRT Corridor Lengths by Improvement Type: Allamakee to Clinton Counties

County	Road Number or Trail/Lane Name	Length of Shoulder Paving for Lanes (mi.)	Length of Structural Accommodations (ft.)	Length of Structural Accommodations (mi.)	Estimated Length of Trail (mi.), Rural Areas	Total Length of Segment (mi.)
Allamakee	26	(programmed)				9.88
	X52	10.36	413	0.078		12.71
	364	5.99	196	0.037		6.03
	Trail of Two Cities MRT Connection				3.89	3.89
Clayton	Trail of Two Cities MRT Connection				3.32	3.32
	Trail of Two Cities				1.78	1.78
	Trail of Two Cities MRT Connection				0.7	0.70
	340	1.50				1.50
	X56	8.33				15.04
	52	3.43				4.79
	C9Y	11.34	100	0.019		11.36
Dubuque	C9Y	3.25				3.25
	Reigler Road/90E1	2.86				2.86
	C65	2.42				2.42
	C9Y	3.86				3.86
	Heritage Trail MRT Connection				0.74	0.74
	Heritage Trail Extension				4.76	4.76
	Olde Massey Rd./88E3	0.97				0.97
	52	3.92	32	0.006		6.49
Jackson	52 (Co. Border to St. Donatus)	1.86				1.86
	52 (St. Donatus to Bellevue)	7.09	807	0.153		9.06
	52 (Bellevue to Z 40)	10.71	2,061	0.390		11.10
	Z40	6.39				6.39
Clinton	Z40	1.02				1.02
	E44	3.94	103	0.020		3.96
	Z50	2.57	127	0.024		2.59
	E50	2.75				2.75
	67	4.60	196	0.037		4.64
	F12	5.00	27	0.005		5.00
	Z36	7.07	70	0.013		7.08
	67	1.54	1,039	0.197		1.73

Table 4.6. MRT Corridor Lengths by Improvement Type: Scott to Lee Counties and Total

County	Road Number or Trail/Lane Name	Length of Shoulder Paving for Lanes (mi.)	Length of Structural Accommodations (ft.)	Length of Structural Accommodations (mi.)	Estimated Length of Trail (mi.), Rural Areas	Total Length of Segment (mi.)
Scott	67 (County Border to Le Claire)	6.65				6.67
	67 (Le Claire to Bettendorf)	1.74	142	0.027		1.77
	22	1.01				1.01
Muscatine	22	4.03	540	0.102		4.13
	Wildcat Den Avenue	0.81				0.81
	New Era Road	5.72				5.72
	Sweetland Road	1.49				1.49
	22	2.49				2.49
	X61	4.42				4.42
Louisa	X61	12.57	194	0.037		12.61
	E Avenue	1.38				1.38
	X61	1.59				1.59
	99	5.92	937	0.177		6.10
Des Moines	99	17.74	998	0.189		17.93
	X62	3.41	38	0.007		3.42
	Old U.S. Highway 61	1.40	80	0.015		1.42
	61	1.44	1,377	0.261		1.70
Lee	61	0.90	690	0.131		1.03
	X50	0.07				0.07
	354th Avenue/6803	0.53				0.53
	J48	2.78	274	0.052		2.83
	X38	4.35				4.35
	U.S. 61	0.69				0.69
	U.S. 61	1.27				1.27
	X23	2.24				2.24
	U.S. 61	5.54	800	0.152		5.69
	404	0.51				0.51
	X28 Bicycle Lanes					6.84
TOTAL		**205.45**	**6,070**	**2.129**	**15.19**	**254.23**

Table 4.7. MRT Costs by Corridor and Improvement Type: Allamakee to Clinton Counties

County	Road Number or Trail/Lane Name	Est. Cost of Shoulder Paving for Lanes	Est. Cost of Structural Accommodations	Est. Cost of Trail, Rural Areas	Subtotal Cost	Other Costs	Contingency Costs	Total Costs
Allamakee	26			(programmed)				
	X52	$1,108,817	$123,900		$1,232,717	$123,272	$184,908	$1,540,897
	364	$641,131	$58,800		$699,931	$69,993	$104,990	$874,914
	Trail of Two Cities Connection			$331,988	$331,988	$33,199	$49,798	$414,985
Clayton	Trail of Two Cities Connection			$283,342	$283,342	$28,334	$42,501	$354,178
	Trail of Two Cities			(funding available)				
	Trail of Two Cities Connection			$59,741	$59,741	$5,974	$8,961	$74,676
	340	$160,179			$160,179	$16,018	$24,027	$200,224
	X56	$891,738			$891,738	$89,174	$133,761	$1,114,673
	52	$367,010			$367,010	$36,701	$55,052	$458,763
	C9Y	$1,213,600	$30,000		$1,243,600	$124,360	$186,540	$1,554,501
Dubuque	C9Y	$348,178			$348,178	$34,818	$52,227	$435,223
	Reigler Road/90E1	$305,913			$305,913	$30,591	$45,887	$382,391
	C65	$259,368			$259,368	$25,937	$38,905	$324,210
	C9Y	$412,913			$412,913	$41,291	$61,937	$516,141
	Heritage Trail MRT Connection			$63,155	$63,155	$6,315	$9,473	$78,943
	Heritage Trail Extension			(programmed)				
	Olde Massey Road/88E3	$103,790			$103,790	$10,379	$15,569	$129,738
	52	$419,541	$9,600		$429,141	$42,914	$64,371	$536,426
Jackson	52 (County Border to St. Donatus)	$198,913			$198,913	$19,891	$29,837	$248,641
	52 (St. Donatus to Bellevue)	$758,112	$242,100		$1,000,212	$100,021	$150,032	$1,250,265
	52 (Bellevue to Z40)	$1,145,934	$618,300		$1,764,234	$176,423	$264,635	$2,205,292
	Z40	$683,623			$683,623	$68,362	$102,543	$854,529
Clinton	Z40	$109,033			$109,033	$10,903	$16,355	$136,291
	E44	$421,312	$30,900		$452,212	$45,221	$67,832	$565,265
	Z50	$274,770	$38,100		$312,870	$31,287	$46,931	$391,088
	E50	$294,571			$294,571	$29,457	$44,186	$368,214
	67	$492,187	$58,800		$550,987	$55,099	$82,648	$688,734
	F12	$534,881	$8,100		$542,981	$54,298	$81,447	$678,726
	Z36	$756,034	$21,000		$777,034	$77,703	$116,555	$971,293
	67	$164,483	$311,700		$476,183	$47,618	$71,427	$595,228

Table 4.8. MRT Costs by Corridor and Improvement Type: Scott to Keokuk Counties and Total

County	Road Number or Trail/Lane Name	Est. Cost of Shoulder Paving for Lanes	Est. Cost of Structural Accommodations	Est. Cost of Trail, Rural Areas	Subtotal Cost	Other Costs	Contingency Costs	Total Costs
Scott	67 (County Border to Le Claire)	$711,550			$711,550	$71,155	$106,733	$889,438
	67 (Le Claire to Bettendorf)	$186,084	$42,600		$228,684	$22,868	$34,303	$285,855
	22	$108,391			$108,391	$10,839	$16,259	$135,489
Muscatine	22	$431,181	$162,000		$593,181	$59,318	$88,977	$741,476
	Wildcat Den Avenue	$87,098			$87,098	$8,710	$13,065	$108,873
	New Era Road	$611,933			$611,933	$61,193	$91,790	$764,916
	Sweetland Road	$158,895			$158,895	$15,890	$23,834	$198,619
	22	$266,002			$266,002	$26,600	$39,900	$332,503
	X61	$472,512			$472,512	$47,251	$70,877	$590,640
Louisa	X61	$1,345,018	$58,200		$1,403,218	$140,322	$210,483	$1,754,022
	E Avenue	$147,553			$147,553	$14,755	$22,133	$184,441
	X61	$170,237			$170,237	$17,024	$25,536	$212,796
	99	$633,926	$281,100		$915,026	$91,503	$137,254	$1,143,782
Des Moines	99	$1,898,392	$299,400		$2,197,792	$219,779	$329,669	$2,747,240
	X62	$364,742	$11,400		$376,142	$37,614	$56,421	$470,177
	Old U.S. Highway 61	$150,212	$24,000		$174,212	$17,421	$26,132	$217,765
	61	$153,888	$413,100		$566,988	$56,699	$85,048	$708,735
Lee	61	$96,120	$207,000		$303,120	$30,312	$45,468	$378,900
	X50	$7,276			$7,276	$728	$1,091	$9,095
	354th Avenue/6803	$57,138			$57,138	$5,714	$8,571	$71,423
	J48	$297,150	$82,200		$379,350	$37,935	$56,903	$474,188
	X38	$464,915			$464,915	$46,492	$69,737	$581,144
	U.S. 61	$73,830			$73,830	$7,383	$11,075	$92,288
	U.S. 61	$135,676			$135,676	$13,568	$20,351	$169,595
	X23	$239,359			$239,359	$23,936	$35,904	$299,199
	U.S. 61	$592,939	$240,000		$832,939	$83,294	$124,941	$1,041,174
	404	$54,570			$54,570	$5,457	$8,186	$68,213
	X28 Bicycle Lanes							
TOTAL		**$21,982,617**	**$3,372,300**	**$738,226**	**$26,093,143**	**$2,609,314**	**$3,913,972**	**$32,616,429**

Table 4.9. MRT Costs by County: Shoulder Paving and Structures

Costs by County	Shoulder Paving (mi.)	Shoulder Paving Costs	Structures (ft.)	Structures (mi.)	Structures Costs
Allamakee	16.355	$1,749,949	609	0.115	$182,700
Clayton	24.603	$2,632,527	100	0.019	$30,000
Dubuque	17.516	$1,874,206	32	0.006	$9,600
Jackson	26.049	$2,787,190	2838	0.538	$851,400
Clinton	19.627	$2,100,107	1562	0.296	$468,600
Scott	9.402	$1,006,025	142	0.027	$42,600
Muscatine	18.950	$2,027,621	540	0.102	$162,000
Louisa	21.465	$2,296,733	1131	0.214	$339,300
Des Moines	23.999	$2,567,876	2493	0.472	$747,900
Lee	18.991	$2,032,065	1118	0.212	$335,400
Total	196.956	$21,074,298	10565	2.001	$3,169,500

Table 4.10. MRT Costs by County: Trail Construction and Estimated Total Costs

Costs by County	Off-Road Trail (mi.)	Trail Costs	Subtotal Costs	Other Costs	Contingency Costs	Total Costs
Allamakee	3.91	$333,695	$2,266,344	$226,634	$339,952	$2,832,929
Clayton	4.01	$342,229	$3,004,757	$300,476	$450,714	$3,755,946
Dubuque	0.73	$62,301	$1,946,107	$194,611	$291,916	$2,432,633
Jackson	0	$0	$3,638,590	$363,859	$545,788	$4,548,237
Clinton	0	$0	$2,568,707	$256,871	$385,306	$3,210,884
Scott	0	$0	$1,048,625	$104,863	$157,294	$1,310,782
Muscatine	0	$0	$2,189,621	$218,962	$328,443	$2,737,026
Louisa	0	$0	$2,636,033	$263,603	$395,405	$3,295,041
Des Moines	0	$0	$3,315,776	$331,578	$497,366	$4,144,720
Lee	0	$0	$2,367,465	$236,746	$355,120	$2,959,331
Total	8.65	$738,226	$24,982,023	$2,498,202	$3,747,303	$31,227,529

Table 4.11. Estimated Subtotal, Other, Contingency, and Total Costs of the Iowa MRT

Est. Cost of Shoulder Paving for Lanes	Est. Cost of Structural Accommodations	Est. Cost of Trail, Rural Areas	Subtotal Cost	Other Costs	Contingency Costs	Total Costs
$21,982,617	$3,372,300	$738,226	$26,093,143	$2,609,314	$3,913,972	$32,616,429

Table 4.12. Individual County Jurisdictional Estimated Costs of the Iowa MRT

County	Monetary Responsibility
Allamakee	$1,995,882
Clayton	$3,098,028
Dubuque	$1,866,646
Jackson	$854,529
Clinton	$3,110,877
Scott	$0
Muscatine	$1,663,048
Louisa	$2,151,259
Des Moines	$687,942
Lee	$1,435,049

Table 4.13. State Jurisdictional Estimated Costs of the Iowa MRT by County

County	Monetary Responsibility
Allamakee	$874,914
Clayton	$658,987
Dubuque	$536,426
Jackson	$3,704,198
Clinton	$1,283,962
Scott	$1,310,782
Muscatine	$1,073,979
Louisa	$1,143,782
Des Moines	$3,455,975
Lee	$1,750,170

Recommended Prioritization

The Iowa Mississippi River Trail will connect existing, programmed, or planned bicycle facilities and routes currently used by local cyclists by adding new bicycle trails or lanes to form a comprehensive trail network. The suggested new bicycle trails or lanes are classified by time of recommended project completion to generate maximum benefits. Recommended prioritization is described in this section.

Recommended Demonstration Projects

The MRT projects to be accomplished first should have a great impact on the amount of operable trail in the overall MRT. “Demonstration projects” will be outlined and recommended for priority completion in this section. These projects will be located near existing or programmed bicycle facilities (likely in larger urban areas), and their completion will result in longer cycling corridors, making an immediate impact by

expanding needed bicycle facilities to larger populations. In addition, these projects will be instrumental in applying for federal funding for the MRT in Iowa, for these projects showcase high-impact trail locations that will show immediate results. Another guiding factor to developing the demonstration MRT projects is the level of improvements required to make the corridor suitable for bicycles. Off-road trail building encompasses a larger amount of time, money, and effort than shoulder improvements for bicycle lanes; therefore, the MRT demonstration projects should be corridors that need bicycle lanes.

The few MRT demonstration projects will greatly influence public opinion about the complete trail. If the public favors these demonstration projects, citizens could be more likely to support future trail development. The demonstration projects should connect with current facilities and produce a significantly long and scenic trail with connections to the Mississippi River, cities, and popular amenities.

The demonstration projects found below refer to corridors near bicycle facilities or roads currently used by local cyclists as bicycle facilities. These are the corridors most recommended for initial projects, for their completion will immediately extend trail networks or make current networks safer. The corridors on which the demonstration projects are found require varied amounts of improvements to become adequate for MRT bicycle lanes. The recommended demonstration projects are as follows, in corridor order from north to south:

1. Allamakee County: County Road X52, Lansing to Harpers Ferry, plus structural accommodations
2. Scott County: U.S. Highway 67, Le Claire to Bettendorf, plus structural accommodations
3. Muscatine County: State Highway 22, Scott County border to Wildcat Den Avenue, plus structural accommodations

The three demonstration projects would each promote their local trail or bicycle route networks through their unique benefits. These projects have been recommended as demonstration projects over other potential shoulder paving projects due to their locations and special amenities for the MRT. The resulting bicycle facilities networks may provide cyclist access in rural areas, but these portions would need attention from municipalities before they could become complete routes. Notably, the cities of Le Claire, Bettendorf, and Buffalo may have gaps without MRT facilities after their respective planned and programmed urban bicycle facilities updates. These cities should route the MRT from existing urban bicycle facilities to the MRT bicycle lanes onto urban streets deemed safe for bicycle travel to connect to these demonstration projects.

An innate benefit of these three projects is their proximity to the Mississippi River. While all MRT corridors must be within 10 miles of the river, most sections of these routes run directly along the river and have beautiful river views. The demonstration projects encompass the pure definition of a river trail and would be a strong asset to the beginning steps of the Iowa MRT.

One demonstration project is located in Allamakee County and will extend bicycle lanes programmed on State Highway 26 to the next city on the MRT routing, by use of County Road X52, from the cities of Lansing to New Albin. Portions of X52 currently have 6-foot paved shoulders; therefore, this corridor requires only a partial shoulder paving project, striping, and signage to make it adequate for bicycle lanes. However, in addition to shoulder paving, this section requires small amounts of structural accommodations for the implementation of bicycle lanes.

Another recommended demonstration project involves an expansion of the extensive trail network in the Quad-Cities to the north on U.S. Highway 67. The Bi-State Regional Commission, the metropolitan planning organization for the Quad-Cities area, has planned new bicycle facilities within the urban area to fill in trail network gaps. Upon completion, bicycle facilities should reach from Bettendorf, through Davenport, to the city of Buffalo. The Quad-Cities trail network can also be extended north to other Quad-Cities area cities. The cities of Princeton and LeClaire have planned bicycle facilities to extend along the river. Therefore, a beneficial demonstration project in this area could be the construction of bicycle lanes to connect Bettendorf to LeClaire. The U.S. 67 corridor between these cities currently has segments with 6-foot paved shoulders, so this corridor only requires a partial, rather than complete, shoulder paving project to create bicycle lanes. This will result in a less costly project than a corridor that requires paved shoulders to be constructed along its entirety.

The final demonstration project will connect existing cycling routes in Scott and Muscatine Counties. Creating bicycle lanes on State Highway 22 in Muscatine County from Wildcat Den Avenue to the Scott County border would continue an extensive existing, programmed, and planned trail network in Scott County to Muscatine County. Although the Highway 22 corridor needs a complete shoulder paving project, it is relatively short, less than five miles long. This project also requires additional structural accommodations to place bicycle lanes on structures on Highway 22. The additional work of this project is overshadowed by the benefits of connecting the Quad-Cities trail system to the routes favored by Muscatine County cyclists, for it will open up a larger network of bicycle facilities to cyclists.

Remaining Priorities for Shoulder Paving Projects

The demonstration projects should be the first projects completed for the Iowa portion of the MRT. The remaining projects have been grouped based on the type of project needed to make the road segment suitable for bicycle lanes. The types of projects recommended as “initial priorities,” or projects to complete after the demonstration projects, are partial shoulder paving projects, complete shoulder paving projects for corridors under five miles in length, and complete shoulder paving projects for corridors over five miles in length.

Priorities for Partial Shoulder Paving Projects

This section discusses projects that only require portions of the corridor to be paved for bicycle lanes. Some of these projects may prove useful as initial priorities after the demonstration projects due to the reduced amount of construction needed to complete these tasks. However, these projects will be beneficial as starting projects only if they can provide an important link in the trail network when completed.

The initial priorities for partial shoulder paving projects are as follows:

1. Clayton County: County Road X56, State Highway 340 to Guttenberg
2. Clayton County: U.S. Highway 52,Guttenberg to Millville
3. Dubuque County: U.S. Highway 52, Olde Massey Road to Jackson County border, plus structural accommodations
4. Jackson County: U.S. Highway 52, Saint Donatus to Bellevue, plus structural accommodations

The partial shoulder paving projects only require paved shoulders on select portions of the corridor for bicycle lanes. Some of these corridors have special characteristics that make them a better choice for initial priorities projects. For instance, the County Road X52 corridor demonstration project in Allamakee County will extend the programmed bicycle lane from New Albin to Lansing to Clayton. When the cities of New Albin and Lansing each designate their MRT urban links, this new network will meet the Minnesota MRT across the border at New Albin.

However, in comparison to the County Road X52 corridor in Allamakee County, other corridors for partial shoulder paving projects may not offer the same remarkable amenities to the MRT when completed. The four corridors of X56 and U.S. Highway 52 in Clayton County, U.S. 52 in Dubuque County, and U.S. 52 in Jackson County all connect small cities to other corridors with no notable existing or programmed bicycle facilities to directly access. While these corridors are essential to the overall MRT, their individual significance to the trail network is far overshadowed by the significance of the X52 segment in Allamakee County.

Priorities for Complete Shoulder Paving Projects

The next two subsections describe initial priorities for complete shoulder paving projects for different project corridors lengths. The first examines corridors under five miles long that need complete shoulder paving, and the other analyzes corridors over five miles long with the same criteria. The complete shoulder paving projects generally will have increased time and cost of construction as compared to other shoulder improvement types. However, if a complete shoulder paving project should prove more beneficial to the trail network, its benefits could outweigh the costs of improving that corridor before other partial shoulder paving projects.

Corridors for Complete Shoulder Paving Projects: Shorter Lengths (less than five miles)

The complete shoulder paving projects for corridors less than five miles in length are as follows:

1. Clayton County: State Highway 340, McGregor to County Road X56
2. Dubuque County: County Road C9Y, Clayton County border to Reigler Road (90E1)
3. Dubuque County: Reigler Road (90E1), County Road C9Y to C65
4. Dubuque County: County Road C65, Reigler Road to Sherrill
5. Dubuque County: County Road C9Y, Sherrill to Sageville
6. Dubuque County: Olde Massey Road, Mines of Spain to U.S. Highway 52
7. Jackson County: U.S. Highway 52, Dubuque County border to St. Donatus
8. Clinton County: County Road Z40, Jackson County border to County Road E44
9. Clinton County: County Road E44, County Road Z40 to Z50, plus structural accommodations
10. Clinton County: County Road Z50, County Road E44 to E50, plus structural accommodations
11. Clinton County: County Road E50, County Road Z50 to U.S. Highway 67
12. Clinton County: U.S. Highway 67, County Road E50 to Clinton, plus structural accommodations
13. Clinton County: U.S. Highway 67, County Road Z36 to Scott County border, plus structural accommodations
14. Scott County: State Highway 22, Buffalo to Muscatine County border
15. Muscatine County: Wildcat Den Avenue, State Highway 22 to New Era Road
16. Muscatine County: New Era Road, Wildcat Den Avenue to Sweetland Road
17. Muscatine County: Sweetland Road, New Era Road to State Highway 22
18. Muscatine County: County Road X61, Muscatine to Louisa County border
19. Louisa County: E Avenue, County Road X61 to X61
20. Louisa County: County Road X61, E Avenue to State Highway 99
21. Des Moines County: County Road X62, Burlington to Old U.S. Highway 61, plus structural accommodations
22. Des Moines County: Old U.S. Highway 61, County Road X62 to U.S. Highway 61, plus structural accommodations
23. Des Moines County: U.S. Highway 61, Old U.S. Highway 61 to Lee County border, plus structural accommodations
24. Lee County: U.S. Highway 61, Des Moines County border to County Road X50, plus structural accommodations
25. Lee County: County Road X50, U.S. Highway 61 to 354th Avenue/6803
26. Lee County: 354th Avenue/6803, County Road X50 to J48
27. Lee County: County Road J48, 354th Avenue/6803 to County Road X38, plus structural accommodations
28. Lee County: County Road X38, County Road J48 to U.S. Highway 61
29. Lee County: U.S. Highway 61, County Road X38 to Fort Madison
30. Lee County: U.S. Highway 61, Fort Madison to County Road X23
31. Lee County: County Road X23, U.S. Highway 61 to U.S. 61
32. Lee County: State Highway 404, U.S. Highway 61 to Montrose

There are many corridors classified as shorter segments of complete shoulder paving projects for the Iowa MRT. For this reason, the impacts of each individual corridor can be more easily measured if grouped into subcategories by the various benefits each offers. The characteristics of the corridors used for this analysis were the nearness of each corridor to other bicycle facilities or large cities.

- *Proximity of each corridor to other bicycle facilities.* Connecting existing or programmed bicycle facilities through select shoulder paving projects is a vital focus of MRT demonstration projects. The corridors that best represent this idea include Olde Massey Road in Dubuque County, all corridors in Muscatine County, and State Highway 404 in Montrose. Olde Massey Road would provide an extension of the programmed Heritage Trail extension in the city of Dubuque and the Mines of Spain to U.S. Highway 52. Similarly, shoulder paving on all the Muscatine County corridors would further expand the recommended demonstration projects and existing bicycle facilities in Scott and Muscatine Counties, providing the city of Muscatine designates an MRT link within municipal boundaries. Bicycle lanes on State Highway 404 would continue the existing bicycle lanes from Keokuk to Montrose.
- *Proximity of each corridor to large cities.* Many large cities along the Mississippi River in Iowa currently have some sort of bicycle facility that can be utilized by the MRT. The corridor favored to be a MRT demonstration project on this basis is U.S. Highway 67 in Clinton County, from County Road E50 to the city of Clinton. This segment will provide a link from rural Clinton County to North Clinton and Eagle Point Park.
- *Other corridors not recommended for immediate development.* The remaining 26 corridors in this section not listed as vital links between bicycle facilities or large cities are the corridors not recommended for MRT starting projects. While these corridors are essential for the completion of the Iowa MRT, other recommended Iowa MRT corridors would provide more benefits if completed first. Notably, no Lee County U.S. Highway 61 corridors in this section are recommended to be starting MRT projects, because an extensive expansion of U.S. 61 in this area is currently being planned. This expansion will result in the U.S. 61 corridor being unsuitable for bicycle lanes. Therefore, the future recommendation for these corridors is to find another solution to fill this gap in the MRT, perhaps through off-road trails or levee trails.

Corridors for Complete Shoulder Paving Projects: Longer Lengths (greater than five miles)

The complete shoulder paving projects on corridors longer than five miles are as follows:

1. Allamakee County: State Highway 364, Clayton to State Highway 76, plus structural accommodations

2. Clayton County: County Road C9Y, Millville to Dubuque County border, plus structural accommodations
3. Jackson County: U.S. Highway 52, Bellevue to County Road Z40, plus structural accommodations
4. Jackson County: County Road Z40, U.S. Highway 52 to Clinton County border
5. Clinton County: County Road F12, Clinton to County Road Z36, plus structural accommodations
6. Clinton County: County Road Z36, County Road F12 to U.S. Highway 67, plus structural accommodations
7. Scott County: U.S. Highway 67, Clinton County border to Le Claire
8. Louisa County: County Road X61, Muscatine County border to E Avenue
9. Louisa County: State Highway 99, County Road X61 to Des Moines County border, plus structural accommodations
10. Des Moines County: State Highway 99, Louisa County border to Burlington, plus structural accommodations
11. Lee County: U.S. Highway 61, County Road X23 to State Highway 404, plus structural accommodations

There are many corridors classified as longer segments of complete shoulder paving projects for the Iowa MRT. The impacts of these corridor projects can be more easily measured to determine project significance if grouped into subcategories by the various benefits each offers. The corridor characteristics used were the nearness of each corridor to other bicycle facilities or large cities.

- *Proximity of each corridor to other bicycle facilities.* The U.S. Highway 67 corridor in Scott County is the sole corridor in this category recommended as a demonstration project, due to its ability to connect to bicycle facilities. As previously stated, the Quad-Cities area has an extensive network of existing and programmed bicycle facilities. The highest recommended demonstration projects will extend the Quad-Cities network from Muscatine to Le Claire; this U.S. 67 shoulder paving project will extend the network further, from Muscatine to the southern Clinton County border.
- *Proximity of each corridor to large cities.* Two corridors needing complete shoulder paving projects of over five miles are recommended to be MRT starting projects based upon their nearness to large cities. The first corridor is Clinton County Road F12, from the city of Clinton to County Road Z36. This road segment will create a bicycle-accessible link from Clinton to the unincorporated town of Elvira, providing Elvira residents access to Clinton trails and bicycle commuting possibilities. The second recommended route is Des Moines County State Highway 99, from the Louisa County border to the city of Burlington. While both of these routes require additional structural accommodations to create bicycle lanes, they both provide needed safe bicycle access from major urban areas.
- *Other corridors not recommended for immediate development.* The remaining eight corridors in this section not listed as vital links between bicycle facilities or large cities are the corridors not recommended for MRT demonstration projects.

While these corridors are essential for the completion of the Iowa MRT, other recommended Iowa MRT corridors would provide more benefits as demonstration projects. Again, a Lee County U.S. Highway 61 corridor is located in the list of projects not recommended for near-term demonstration projects. The remaining non-recommended projects generally do not link important bicycle facilities, amenities, or other features that would benefit a large number of people if the project were carried out before other MRT corridors.

Priority of Iowa MRT Off-Road Trail Building Projects

The suitability assessment of each on-road route performed for this analysis resulted in a few notable gaps where no road was suitable to carry a bicycle lane. For this reason, the complete Iowa MRT routing includes two off-road trails. These off-road trails need to be constructed to provide a safe route for MRT cyclists, for the road network in these areas is highly inadequate for bicycles due to high traffic counts, high truck traffic, and other roadway characteristics.

The MRT off-road trails do need to be constructed for the trail to be complete. However, it is not recommended that either project be a demonstration project, because off-road trails require more resources and construction to complete than do bicycle lanes. Instead, these trails should be built as resources allow, and roughly at the same time as the segments of bicycle lane that abut the recommended trails. If the trails are built near the same time as these segments of bicycle lane, a longer segment of the MRT will be open sooner for use. However, as described previously, costs per mile for off-road trails are high, and securing the resources to complete these projects should be a priority for the continuation of the MRT.

The first recommended MRT off-road trail is in Allamakee and Clayton Counties, and is a link between State Highway 364 and State Highway 340 at the cities of Marquette and McGregor. This recommended trail is shown in Figure 3.1 in Chapter 3. The trail would bypass State Highway 76, a highly unsuitable route for bicycles. Highway 76 flows directly into Marquette and carries a high percentage of heavy truck traffic. The trail would also connect to the Trail of Two Cities, an intercity trail planned in Marquette and McGregor; the recommended trail would make a connection between Highway 364 and the north end of the Trail of Two Cities, and another connection between the south end of the Trail of Two Cities and Highway 340. The connector trail is recommended for construction near the time of construction of the Trail of Two Cities to create a much longer trail that links Marquette and McGregor to Effigy Mounds and Yellow River Forest.

The second recommended MRT off-road trail is in Dubuque County and is a link between the city of Sageville and the Heritage Trail. This recommended trail is shown in Figure 3.3 in Chapter 3. The route bypassed by this trail is State Highway 3, determined to be inadequate for bicycle lanes because of its high traffic volumes. This trail is recommended for construction near the time Dubuque constructs the extension of the

Heritage Trail. After both the Heritage Trail extension and the off-road connector trail are finished, MRT cyclists will have access to Sageville, Dyersville, Dubuque, the Mines of Spain, and all cities and amenities along the route. Because the Heritage Trail extension is a programmed project and the Trail of Two Cities is in the planning stages, the Dubuque County off-road trail may need to be built before the Trail of Two Cities connector off-road trail.

Recommended Alignment and Jurisdiction Considerations

The agency responsible for each potential Iowa MRT project differs by the jurisdiction of each roadway corridor. The rural road segments used in the Iowa MRT are county roads, state highways, or U.S. highways. Because of this, individual counties are responsible for MRT projects on county roads, and the Iowa DOT is responsible for MRT projects on both state and U.S. highways. Individual county maps showing MRT roadway jurisdictions are in Figures 3.11–3.20 in Chapter 3. The total Mississippi River Trail in Iowa is comprised of approximately 125 miles of county jurisdiction roads and 99 miles of state jurisdiction highways.

The corridors for the Iowa portion of the Mississippi River Trail have been carefully chosen for their accessibility, amenities, and safety. However, the route outlined in this plan is not static; the designated MRT route will change as trail development projects are completed. Also, the routes designated as the Iowa MRT may change over time with the development of new bicycle facilities. This means there may be temporary MRT routes in Iowa as the “final” alignment is built or changed to accommodate new segments.

Because the majority of the Iowa MRT will be on bicycle lanes, there is potential concern for cyclist safety, as cyclists will be using the same road facilities as vehicles. Although cyclists will travel in designated lanes separate from those of motorized vehicles, cyclist-vehicle conflict is still possible. Therefore, as the Iowa MRT develops, the development of off-road trails to replace sections of bicycle lanes should be encouraged to separate MRT cyclists from higher speed motorized vehicle traffic.

In conclusion, the MRT demonstration projects should be very carefully selected to maximize the potential benefits derived from the additions of bicycle facilities. The demonstration projects that benefit the largest number of people, connect important bicycle facilities, or provide needed safe bicycle access from urban areas should be considered for completion before all other MRT projects. Although each shoulder paving project is a vital link in the completion of the trail, the Iowa MRT initial demonstration projects can create an initial positive image of increasing bicycle accessibility in Eastern Iowa.

User Ratings of Iowa MRT Segments

Iowa's Mississippi River Trail will enable users to make intercity or intracity trips based upon their needs and cycling abilities and experience. Table 4.14 shows the recommended cyclist ratings for each section of the recommended Mississippi River Trail. These ratings were made by the Iowa MRT Advisory Committee through data analysis and field reviews of the recommended trail. The rating shown on the table is the lowest cyclist rating level that is recommended to use that bicycle facility. For example, if a trail segment is for a B-level cyclist, it is recommended for use by A and B cyclists, but not C cyclists.

The different levels of cyclist correspond to cycling abilities, cycling comfort, and age of cyclist. The A-level cyclist is an adult rider, has experience with road cycling, and is able to bear the physical challenge of large changes in elevation and other such hazards. The B-level cyclist is an average adult rider who may not be able to cycle as readily on major obstacles (such as steep elevations) but who can understand and be prepared for the potential hazards of on-road cycling. C-level cyclists are non-experienced cyclists such as families or children with little to no road experience. Because this level of cyclist is more open to injury due to lack of experience, no on-road bicycle facilities (bicycle lanes) of the Iowa MRT are recommended for use by C-level cyclists or children, even with adult supervision. Children and families are recommended to use MRT off-road trails in rural areas rather than bicycle lanes. Based on Tables 4.14 and 4.15, 23.94 miles of the recommended MRT are suitable for A-level cyclists only, approximately 209 miles are suitable for A- or B-level cyclists only, and 15.19 miles are suitable for all cyclists, including C-level cyclists. Because A-level cyclists are experienced cyclists, they can ride on all levels of the MRT. B-level cyclists are not as advanced and should ride only on B- and C-level facilities, or approximately 224 miles of the MRT. C-level cyclists are recommended to ride only on C-level trails, or 15.19 miles of the MRT.

Table 4.14. Iowa MRT User Ratings by Trail Segment: Allamakee to Clinton Counties

County	Road Number or Trail/Lane Name	From (N or E)	To (S or W)	User Rating
Allamakee	26	New Albin	Lansing	B
	X52	Lansing	Clayton	A
	364	Clayton	Highway 76	A
	Trail of Two Cities MRT Connection	State 364	Clayton Co. Border	C
	Trail of Two Cities MRT Connection	Allamakee County Border	Trail of Two Cities	C
	Trail of Two Cities	T of TC MRT Connection	T of TC MRT Connection	C
	Trail of Two Cities MRT Connection	Trail of Two Cities	Highway 340	C
Clayton	340	McGregor	X56	B
	X56	Highway 340	Guttenberg	B
	52	Guttenberg	Millville	B
	C9Y	Millville	Dubuque County Border	B
Dubuque	C9Y	Clayton County Border	Reigler Road/90E1	B
	Reigler Road/90E1	C9Y	C65	B
	C65	Reigler Road/90E1	Sherrill	B
	C9Y	Sherrill	Sageville	B
	Heritage Trail MRT Connection	C9Y	Heritage Trail Extension	C
	Heritage Trail Extension	H.T. MRT Extension	Dubuque	C
	Olde Massey Road/88E3	Mines of Spain	U.S. 52	B
	52	Olde Massey Road	Jackson County Border	B
Jackson	52	Dubuque County Border	St. Donatus	B
	52	St. Donatus	Bellevue	B
	52	Bellevue	Z40	B
	Z40	U.S. 52	Clinton County Border	B
Clinton	Z40	Jackson County Border	E44	B
	E44	Z40	Z50	B
	Z50	E44	E 50	B
	E50	Z50	U.S. 67	B
	67	E50	Clinton	B
	F12	Clinton	Z36	B
	Z36	F12	U.S. 67	B
	67	Z36	Scott County Border	B

Table 4.15. Iowa MRT User Ratings by Trail Segment: Scott to Lee Counties

County	Road Number or Trail/Lane Name	From (N or E)	To (S or W)	User Rating
Scott	67	Clinton County Border	Le Claire	B
	67	Le Claire	Bettendorf	B
	22	Buffalo	Muscatine County Border	B
Muscatine	22	Scott County Border	Wildcat Den Avenue	B
	Wildcat Den Avenue	Highway 22	New Era Road	B
	New Era Road	Wildcat Den Avenue	Sweetland Road	B
	Sweetland Road	New Era Road	Highway 22	B
	22	Sweetland Road	Muscatine	B
	X61	Muscatine	Louisa County Border	B
Louisa	X61	Muscatine County Border	E Avenue	B
	E Avenue	X61	X61	B
	X61	E Avenue	Highway 99	B
	99	X61	Des Moines County Border	B
Des Moines	99	Louisa County Border	Burlington	B
	X62	Burlington	Old U.S. Highway 61	B
	Old U.S. Highway 61	X62	U.S. 61	B
	61	Old U.S. Highway 61	Lee County Border	A
Lee	61	Des Moines County Border	X50	A
	X50	U.S. 61	354th Avenue/6803	B
	354th Avenue/6803	X50	J48	B
	J48	354th Avenue/6803	X38	B
	X38	J48	U.S. 61	B
	61	X38	Fort Madison	A
	61	Fort Madison	X23	A
	X23	U.S. 61	U.S. 61	B
	61	X23	Highway 404	A
	404	U.S. 61	Montrose	A
	X28 Bicycle Lanes	Montrose	Keokuk	B

CHAPTER 5. MRT IMPLEMENTATION

To be effective, the implementation process for the Iowa portion of the MRT should address key difficulties in implementation, as well as contacts and agencies needed for implementation. It must address not only areas where trails can easily be implemented but also areas where potential trail development difficulties may lie. In addition to physical trail development problems, the implementation process will address potential partnerships for trail development, governance issues with the MRT, legislation requirements, and potential funding sources for trail segments.

Known Difficulties along the Recommended Route

The Iowa MRT will primarily designate bicycle lanes as the MRT and then fill gaps of unsuitable road corridors with off-road bicycle trails or other alternatives. However, as discussed previously, off-road trails present higher costs than bicycle lanes, and potential routings of off-road trails depend upon current land holdings and land acquisitions. The most difficult problem in implementing the Iowa MRT will be those places where no suitable on-road options have been found and a new off-road facility needs to be designed and constructed.

Ownership and Lead Organizations

The MRT in Iowa will be made up of a variety of on-road facilities and dedicated, off-road trails owned by the state, counties, cities, and other organizations. It is imperative that a lead organization be clearly identified for each segment of the Iowa MRT as quickly as possible so that the plan can move forward.

Coordination of Development

The Iowa DOT should take the lead in coordinating the development of the MRT in Iowa based on this plan. Development should be done in cooperation with lead organizations identified for each trail segment plus groups such as MRT, Inc., the Iowa Department of Natural Resources, the Mississippi River Parkway Commission, and the Iowa Natural Heritage Foundation.

Priorities for Development

It is generally the case that urban portions of the MRT will tend to have the most use by cyclists and others. They will also generate the most economic impact per mile. Therefore, encouraging their development should be a top priority. Fortunately, many urban MRT routes in Iowa are already in place, are programmed, are planned, or could be developed using existing city street networks.

Following urban routes, there are a number of rural routes on existing state highways and county roads that are nearly suitable for signing as MRT routes today. In some cases all they need is a paved shoulder to be signed. These routes are identified in the plan as the best candidates for promotion as "demonstration projects" since they could be planned and quickly put in place. Last priority should be given to rural routes where extensive engineering studies and extensive improvements will likely be needed to develop them to meet design guidelines.

Paying for Development Costs

The Iowa MRT will require in excess of $30 million to develop. This funding will necessarily come from a variety of sources, including existing state highway and trail funds, federal highway enhancement funds, Vision Iowa Program funds, local government funds, and private funds. Realistically, full development of the MRT will take 5 to 10 years and will require new funding. The most likely source of new funding for the MRT in Iowa is transportation "demonstration" funds from the next federal surface transportation act. Reauthorization of the act is in progress at this time. The Iowa DOT (with the assistance of other interested groups) should take the lead in seeking new demonstration funds specifically for the development of the MRT.

Long-Term Development Opportunities (Abandoned Railroad Corridors and Levees)

This plan was unable to address certain long-term possibilities for improving the quality of the Iowa MRT through the incorporation of future abandoned railroad rights-of-way and trails built on or along levees. These are ideal locations for the MRT in that there is no motor vehicle traffic, the grades would be gentle, and the distance to the Mississippi River would be minimized. All railroads near the recommended MRT alignment are active at present. No abandonment plans have been filed. Should any be abandoned in the future, consideration should be given to acquiring their right-of-way for the development of more off-road trail facilities. Placing off-road trails on or along levees was explored as a portion of the planning process. The Army Corps of Engineers was generally supportive of levee trails and has built them in some southern states. However, most levees in Iowa are owned and maintained by agricultural levee districts. These districts were not certain that they want to have trails built and operated on their levees due to unresolved issues such as liability, maintenance, and restriction of motorized vehicle users. Additional negotiations and planning beyond the scope of the Iowa MRT plan would be required in order for any levee trails to be built.

Maintenance and Operational Issues

Paying for Maintenance Costs

The MRT will have to be maintained to a high standard if it is to be well used and successful. The identified owners/lead agencies should be responsible for ongoing operations and maintenance. Each time the Iowa DOT arranges for state and/or federal funding for a portion of the MRT in Iowa, the Iowa DOT and the trail owner should agree to specific maintenance standards and provisions.

Marketing

A marketing plan for the MRT should be developed as soon as a practical number of segments are in place and signed. The development of the marketing plan should involve the Iowa DOT, Iowa Department of Economic Development Tourism Office, MRT, Inc., and other appropriate groups, including local groups with a stake in promoting the use of the MRT. A set of maps and/or cue sheets should be cooperatively developed for the Iowa portion of the MRT.

Identity and Signage

All portions of the MRT in Iowa should be clearly identified by MRT logo signage and other appropriate directional signage as soon as the segment meets the design guidelines set forth in this plan. All Iowa MRT promotional literature and electronic information should have a consistent visual theme.

Policy toward Motorized Vehicles on Off-Road Portions of the Iowa MRT

Motorized vehicles (e.g., snowmobiles, motorcycles, and four-wheelers) should be discouraged from using the off-road (dedicated trail) portions of the Iowa MRT during the normal cycling season. Mixing bicycles and such vehicles on off-road trails is likely to lead to safety problems and less satisfied cycling and pedestrian users.

Legal motor vehicles cannot be excluded from using the on-road portions of the Iowa MRT (including the paved shoulders developed for safer cycling). However, motor vehicle users should be strongly reminded that they must “share the road.”

Liability

Owners of an MRT segment will be legally responsible for their portion of the Iowa MRT. The owners of Iowa MRT segments will mainly be the Iowa DOT and individual counties.

Variety of Riding Conditions

Some portions of the Iowa MRT identified in this plan will be safe to bike but will also be challenging to bike due to steep grades. These segments are mainly north of Dubuque and south of the Minnesota state border. These challenging segments need to be clearly identified to potential users on signage, cycling maps, cue sheets, and promotional materials so that only advanced riders attempt to use them.

CHAPTER 6. ESTIMATED BENEFITS AND IMPACTS OF THE IOWA MRT

The Mississippi River Trail will not only connect states along the river but will connect people, communities, and attractions. Because the MRT will open new cycling networks, the trail has the potential to not only impact cyclists, but also communities, businesses, and tourist attractions the trail passes through. In particular, the economic and tourism benefits for communities along the recommended MRT routing are described in this chapter.

In addition to economic and tourism benefits, the Mississippi River Trail will have the unique opportunity to benefit motorists as well as cyclists. The wider widths of paved roadway shoulder required for MRT bicycle lanes also provide motorists an added safety benefit in reduction of run-off-the-road and bridge crashes. This chapter uses associated research to explore motorist benefits of paved shoulders, while analyzing how the research impacts the planning of the Iowa MRT.

Usage Estimate and User Profile

Economic impacts of cycling trails have been well documented in a number of research studies. Essentially, the associated economic impacts depend on the density of use of the trail (e.g., the number of users per mile) and the location of the trail. In general, urban trails are much more heavily used than rural trails. However, users of rural trails tend to spend more money per visit; this is because urban trail users tend to come from the local area around the trail and therefore spend less for services such as lodging and restaurants. Users of rural trails may come from farther away and may need to use local services.

Estimates of the economic impact of the MRT can be made based upon cycling counts for comparable trails plus past studies of the spending of cyclists who use the trails.

Bicycle counts made on the Heritage Trail in Northeast Iowa indicate that a density of use of 5,000 users per mile per year is feasible for the MRT in Iowa. That equates to 14 riders per mile per average day. However, since almost half of all use occurs on weekends, the usage density figure varies a great deal by day of the week.

User counts for urban trails are almost always significantly higher. Cycling counts on the Minuteman Trail in the Boston, Massachusetts, area are as high as 30,000 per mile per year. In Lafayette, California, the number is closer to 50,000 per mile. (The equivalent users per mile figure is 82 to 137 per average day.) Again, half the use occurs on the weekends. For the MRT, the figure of 30,000 users per mile per year (or 82 per average day) appears feasible for the portions of the trail in urban areas.

Table 6.1 indicates the estimated economic impact of the MRT in Iowa should be on the order of $18.5 million in new spending for services such as food and lodging each year. The estimates below include usage by both cyclists and pedestrians (hikers and joggers).

Most of the impact could be expected in rural areas. However, the impact in urban areas would be considerably higher per mile of trail.

Table 6.1. Estimated Iowa MRT Usage and Expenditures

Category	Rural	Urban	Total
Mileage	250	50	300
Estimated Usage			
Users/mile/year	5,000	30,000	NA
Estimated annual users	1,250,000	1,500,000	2,750,000
Percent cyclists	65%	20%	NA
Percent walkers and joggers	35%	80%	NA
Estimated annual cyclists	812,500	300,000	1,112,500
Estimated Annual Expenditures			
Per user average	$10.00	$4.00	NA
Total	$12,500,000	$6,000,000	$18,500,000
Estimated Annual Expenditures Per User by Category			
Restaurants	$3.00	$1.00	
Gasoline stations	$2.00	$1.00	
Lodging	$1.50	$0.50	
Other retail	$3.50	$1.50	
Total per user average	$10.00	$4.00	

Safety Impacts to Motorists

The development of bicycle lanes for the Mississippi River Trail will extend benefits to motorists as well as cyclists. Providing bicycle lanes for cyclists takes cyclists off the same travel path as automobiles and trucks. Also, the paved shoulders required for bicycle lanes provide safety benefits to motorists. A study to measure motorist safety benefits of paved shoulders by the Iowa DOT and the Center for Transportation Research and Education at Iowa State University concluded that paved shoulders of at least 3 feet have been nationally shown to reduce associated motor vehicle crashes (Souleyrette et al. 2001, p. 34). In addition, the study recommends 6-foot-wide shoulders for bicycle use, which is consistent with the recommendations of the Iowa Mississippi River Trail Advisory Committee and the BLOS study used for the Iowa MRT.

Bridge widening along the MRT routing may also be necessary to create safe travel lanes for both cyclists and motorists. Manual, correlation, and regression techniques were used to determine conditions that may be frequent factors in bridge crashes, as well as assess potential treatments to alleviate these safety problems (Turner 1984, p. 45). These techniques were used on two-lane, two-way traffic roadways with structures in the state

of Texas. Many roadways with structures on the recommended MRT routing have similar roadway characteristics as roadways used in Turner's bridge crashes study; therefore, Turner's findings may prove useful for the Mississippi River Trail routing. In essence, Turner used his three methods to determine that the three most significant variables in predicting bridge crashes were bridge relative width (or bridge width minus the width of the traveled route), average daily traffic volume, and approach roadway width (Turner 1984, p. 53).

Portions of Turner's study do agree with findings of the MRT bicycle level of service study, while other Turner findings provide deeper insight into safety issues of the Mississippi River Trail. Average annual daily traffic volumes were used in the BLOS study; generally, corridors were classified as less suitable for bicycle lanes as AADT rose per corridor. In addition, roadway width was an important factor in the BLOS calculation. Corridors were considered to be less suitable for bicycle lanes as roadway width decreased per corridor. Turner's findings on bridge relative width, or the bridge width minus the roadway width (Turner 1984, p. 53), provides valuable insight into the necessity of structural accommodations on the MRT route. Because Turner found narrow bridge widths to be a major cause of bridge crashes, it is likely motorists as well as cyclists will benefit from structural accommodations to widen shoulders on bridges.

APPENDIX A. GIS ANALYSIS FOR THE MRT

The Iowa Mississippi River Trail plan was created through a data-driven analysis using geographic information systems. GIS integrates map images with relevant data, resulting in a powerful tool for ranking corridors for bicycle lanes for the MRT.

Gathering Data for MRT Maps

The first step in creating maps for the recommended Mississippi River Trail involved gathering background data needed to analyze potential trail conditions. First, a project area was created using the 10 Iowa counties on the Mississippi River, their cities, and the river itself. Figure A.1, the project area map, served as the base map for all of the plan's study maps. Because these maps are very detailed, this appendix will use individual counties hereafter as examples; maps for each county for each data effort are available in Appendix B.

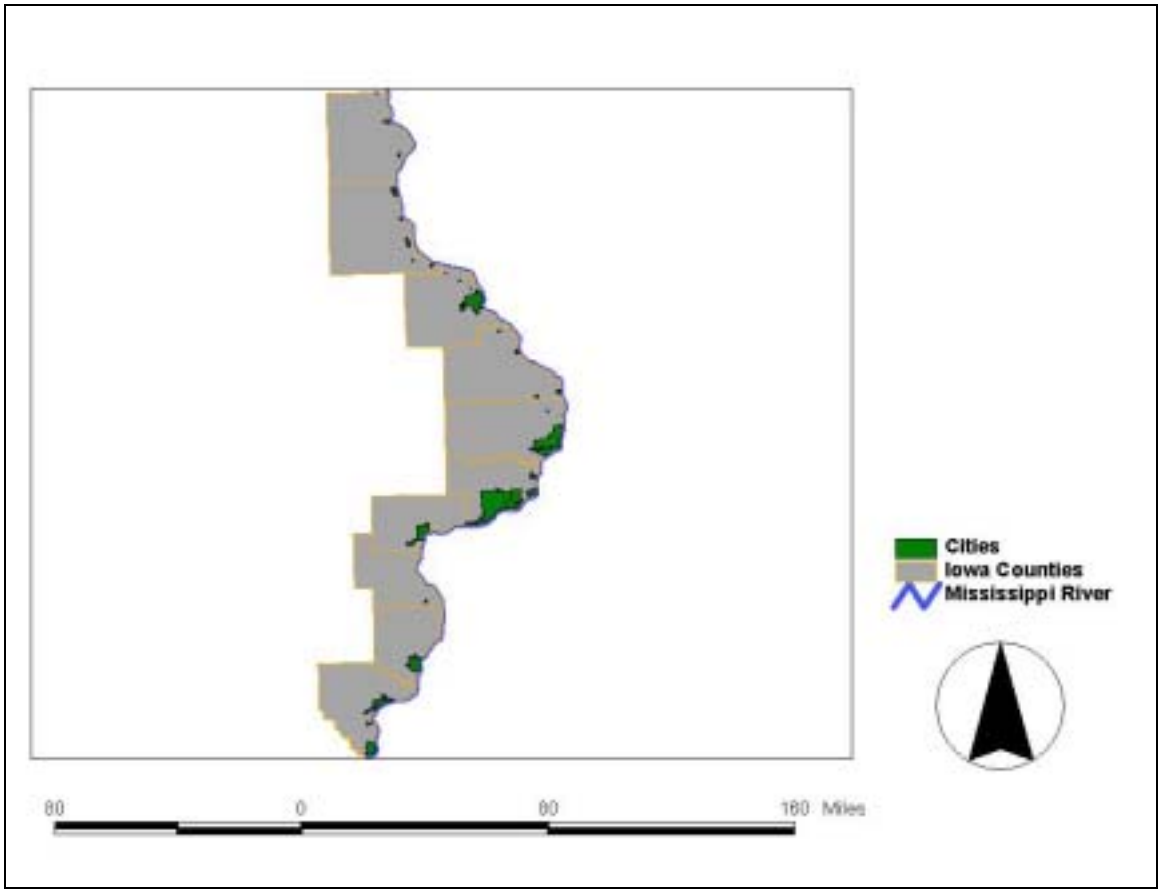


Figure A.1. MRT Project Area

Trail Amenities

Once the base map was established, certain types of data were collected to determine trail feasibility. First, potential trail amenities were gathered. Perceived amenities for the MRT were varied, tailored to the unique benefits offered by each county, and mapped in GIS. An innate benefit of the Iowa MRT that could not be measured by GIS is the short distance between cities, which creates natural trips for cyclists. The perceived amenities that could be measured by GIS were added to the amenities maps:

- Rivers, wetlands, and Iowa Department of Natural Resources land in the 10 counties were added because these features are assets to the future users of the MRT for recreational and educational purposes.
- Levees were added because they showed possible future use for off-road trails.
- Existing and proposed bicycle trails and lanes (on-road facilities) in the 10 counties were added because these facilities could be delineated as the MRT or as side routes.
- Potential MRT connections to Minnesota and Missouri were added to guide Iowa trail planning.
- Potential pedestrian bridge or water taxi/ferry connections were added to create connections to Wisconsin and Illinois trails.
- Points of interest along the river in the 10 counties were added because of their value to potential MRT users.
- Hotels, motels, and bed and breakfasts along the river were added to accommodate out-of-area trail users.

Figure A.2 illustrates the effects of trail amenities in Scott County to the MRT. There is an extensive existing trail network in the Quad-Cities area, notably through Davenport and Bettendorf. However, this trail network is proposed for extension, connecting Buffalo and Davenport through either a trail or bicycle lane, connecting the Davenport and Bettendorf trails, adding trails in Le Claire through a realignment of U.S. Highway 67 through the city, and adding trails in Princeton through a city greenway plan. In addition to bicycle facilities, this area, especially Davenport and Bettendorf, contains many points of interest, hotels, motels, and bed and breakfasts to accommodate cyclists. Also, the Quad-Cities area contains two notable methods of crossing the Mississippi River, which cyclists may use to access Illinois trails. Two bridges in Davenport are pedestrian and bicycle friendly, and another cyclist option for crossing the river is the Channel Cat, the Quad-Cities' ferry.

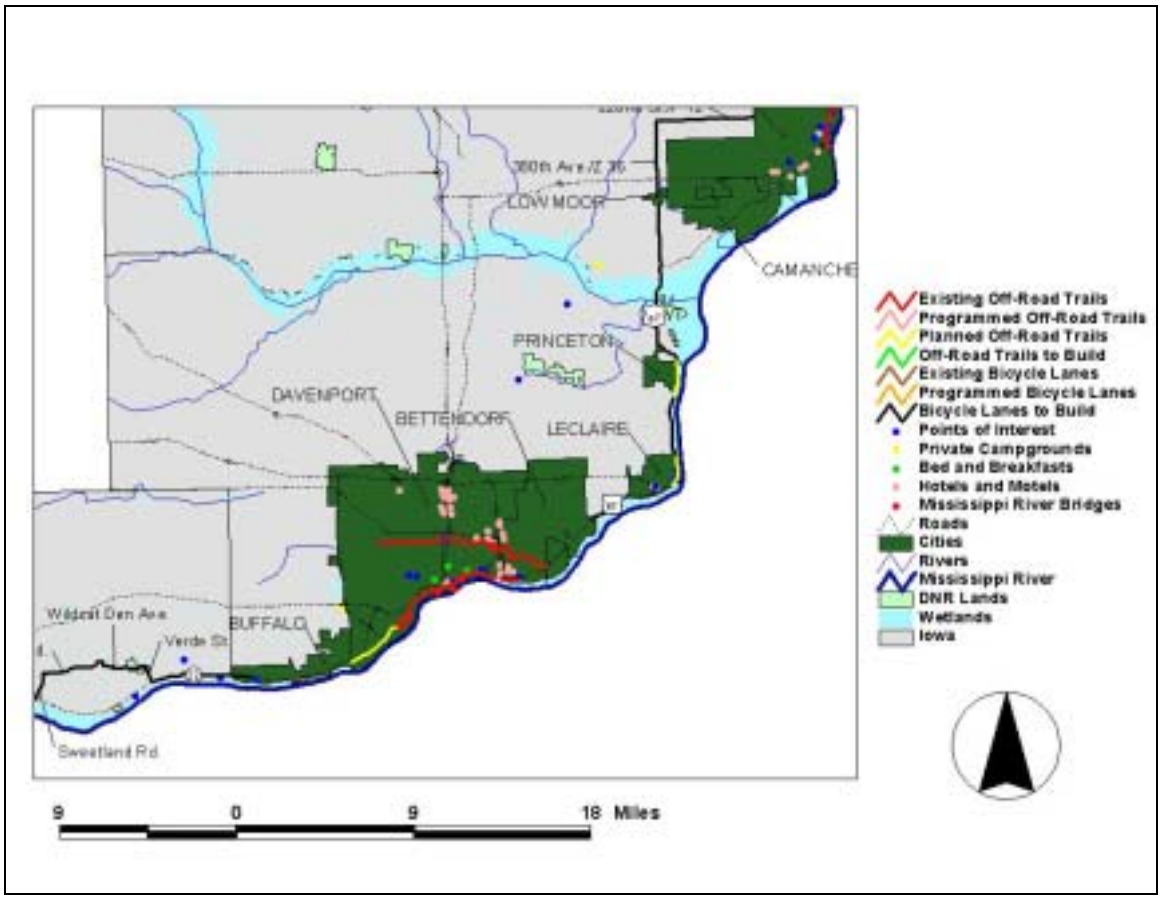


Figure A.2. Scott County Trail Amenities

Trail Development Concerns

Another aspect of trail feasibility includes examining potential concerns of trail construction, such as the following.

- Topography could cause problems for cyclists due to steep grades in the northern section of the project area.
- Structures on proposed routes create additional costs for trail construction.
- Railroad crossings can be hazardous if not designed to accommodate cyclists.

The data needed to analyze potential concerns were used to create a map to visually compare areas of concern to trail development. Figure A.3 illustrates the effects of trail development concerns using Scott County as an example.

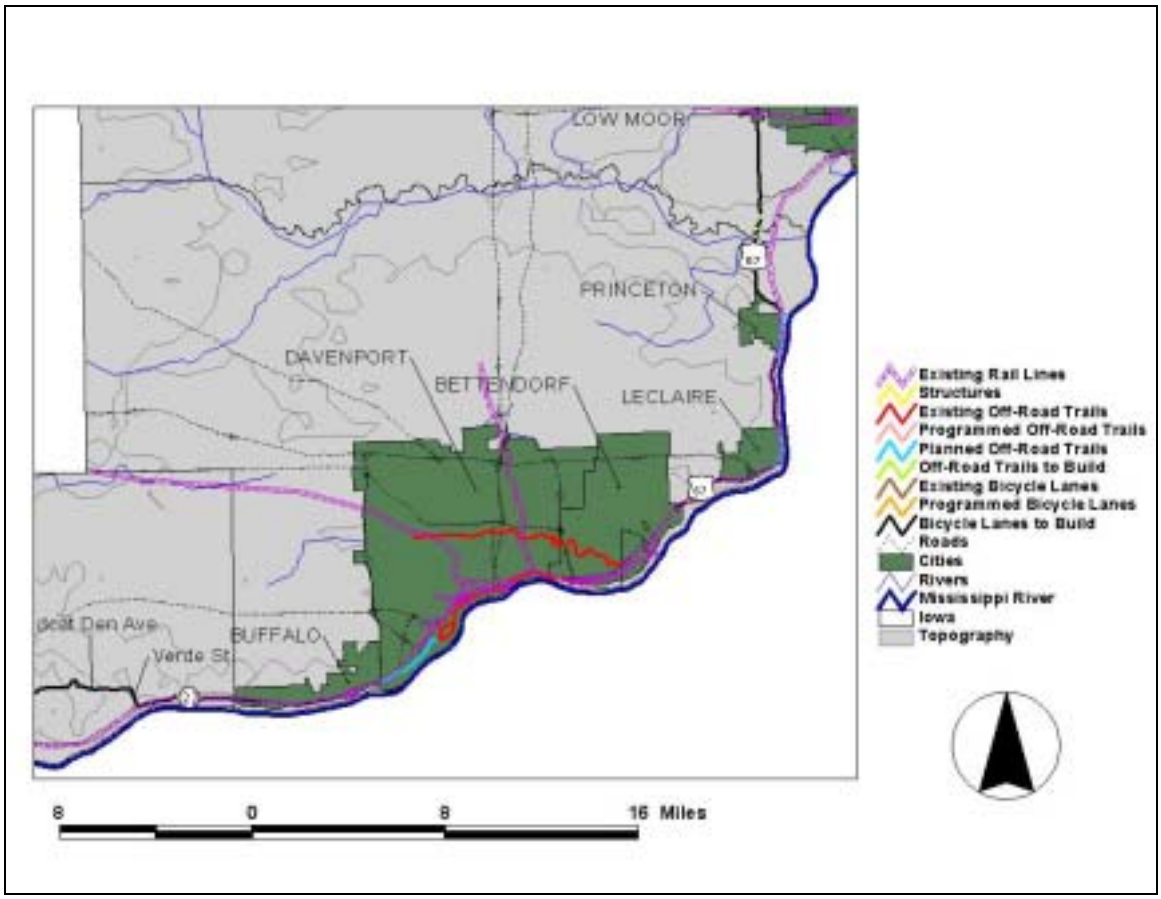


Figure A.3. Trail Development Concerns: Scott County Example

The overall topography of Scott County does not present a hindrance to the MRT. Scott County is generally flat, with small changes in elevation; the flatness of the area will make the MRT accessible for all levels of cyclists.

Some potential MRT routes do have structures on the roadway, which could substantially raise the costs of trail development. However, U.S. Highway 67 contains fewer structures than the alternative route, so U.S. 67's structures could be less expensive to accommodate the MRT than the alternative route's structures.

The placement of rail lines may also present problems to MRT cyclists, for crossing railroad tracks on a bicycle can be hazardous unless the crossing is adapted to accommodate bicycles. Scott County's rail lines tend to run parallel to roadways, notably U.S. 67, so the adaptation of railroad crossings to accommodate bicycles will not be an important issue.

Bicycle Level of Service

The planning of the MRT focuses on the creation of bicycle lanes. Because these are on-road facilities, traffic on potential routes needs to be considered to ensure a safe

environment for the future cyclists of the MRT. The BLOS measure can be used to estimate the safety and comfort of the cyclist (League of Illinois Bicyclists and Chicagoland Bicyclist Association 2002). The BLOS scale ranges from A (extremely high) to F (extremely low). Trail planners and advisors for the Iowa MRT believe that the lowest acceptable BLOS for the Iowa MRT is a level of C. The League of Illinois Bicyclists and the Chicagoland Bicyclist Association derived the BLOS used for MRT planning.

Because BLOS measures the comfort of the bicycle lane cyclist, traffic and roadway data are used in its calculation. The BLOS calculation assumes the lane is on a paved road; therefore, nonpaved roads were removed from the study. Aside from road material types, other influential data for the BLOS calculation include number of lanes, lane width, paved shoulder width (where the bicycle lane would be placed), annual average daily traffic counts, percentage of heavy vehicles, and speed limit. BLOS was calculated within ArcView and then mapped so that visual analysis of feasible routes was possible.

An example of the map output of this process can be seen in Figure A.4. Scott County's major asset to the MRT is Highway 67 along the Mississippi River. However, this corridor currently ranks an E on the BLOS scale, due mainly to small shoulders and heavy traffic counts. An alternative route away from the river, routed on county roads, fares better with rankings of C and D. The MRT is to be placed on corridors with a BLOS score of C or better, and neither corridor offers such a solution; another alternative corridor or possible road improvements must be provided for the MRT in Scott County.

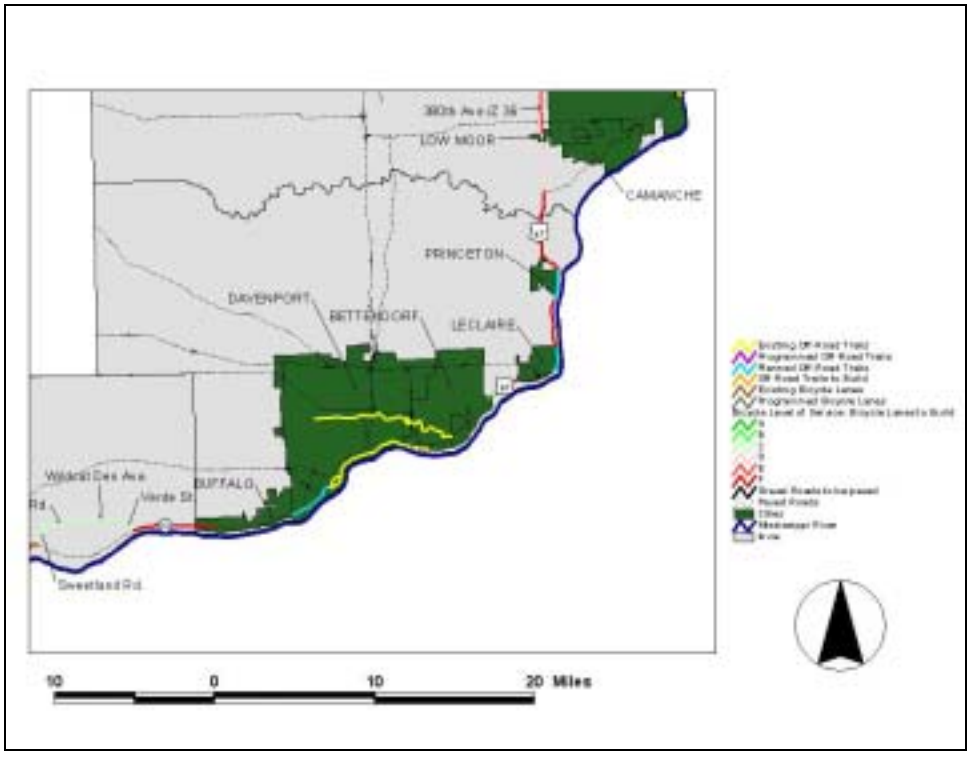


Figure A.4. BLOS Study: Scott County Example

Viability of Roads After Shoulder Improvements

While the BLOS calculation could find roadways suitable to currently accommodate a bicycle lane, it could not analyze how a road's BLOS score could improve with road improvements. For instance, if a road corridor with no shoulders yielded a BLOS score of D, the score could possibly change if paved shoulders were added to the corridor. The on-road sections of the MRT will be bicycle lanes, which require paved shoulders. Because any road being considered for inclusion in the MRT needs to have paved shoulders, adding certain widths of paved shoulders to the roads under consideration may improve the route's BLOS when it is ready to accommodate a bicycle lane.

To measure the effects of adding paved shoulders to these routes, a certain width of paved shoulder was hypothetically added to each corridor, depending upon its current width of paved shoulder. The AASHTO *Guide for the Development of Bicycle Facilities* (1999) states that a paved shoulder width of 1.2 meters (4 feet) is recommended for bicycle travel, but this width should be increased if the roadway carries high-speed travel of 80 kilometers/hour (50 miles per hour) or greater. Much of the Iowa MRT will be located on high-speed facilities; for the safety and comfort of the cyclist, the MRT bicycle lanes should be at least 6 feet in width. In the BLOS study, all corridors received at least 6 feet of hypothetical paved shoulder. The results of the study were positive; corridors with currently less than 6 feet of paved shoulder did experience an increased BLOS score after the shoulder improvements study.

The resulting BLOS scores were then classified into three groups of roads: "currently adequate for bicycle facilities," "shoulder improvements needed," and "not adequate for bicycle facilities." Each classification rated each corridor on its sufficiency to carry a bicycle lane. The rating "Currently Adequate for Bicycle Facilities" denotes corridors that could carry a bicycle lane without the construction of additional shoulder width. Conversely, "Shoulder Improvements Needed" indicates corridors where bicycle lanes could exist with the construction of additional shoulder width. Finally, "Not Adequate for Bicycle Facilities" designates corridors that would not be suitable for bicycle lanes, even with the construction of additional shoulder width.

Figure A.5 illustrates the changes in bicycle lane suitability with the construction of additional shoulder width. After additional shoulder width is included in Scott County, most of U.S. Highway 67 and the alternative county roads can now safely add a bicycle lane. However, there are small sections of U.S. 67 that will not be suitable for a bicycle lane, even with shoulder improvements. If U.S. 67 is chosen as a route, alternatives must be made for the sections of unsuitable roadway. Possible solutions to unsuitable expanses of roadway could include off-road trails or other alternatives.

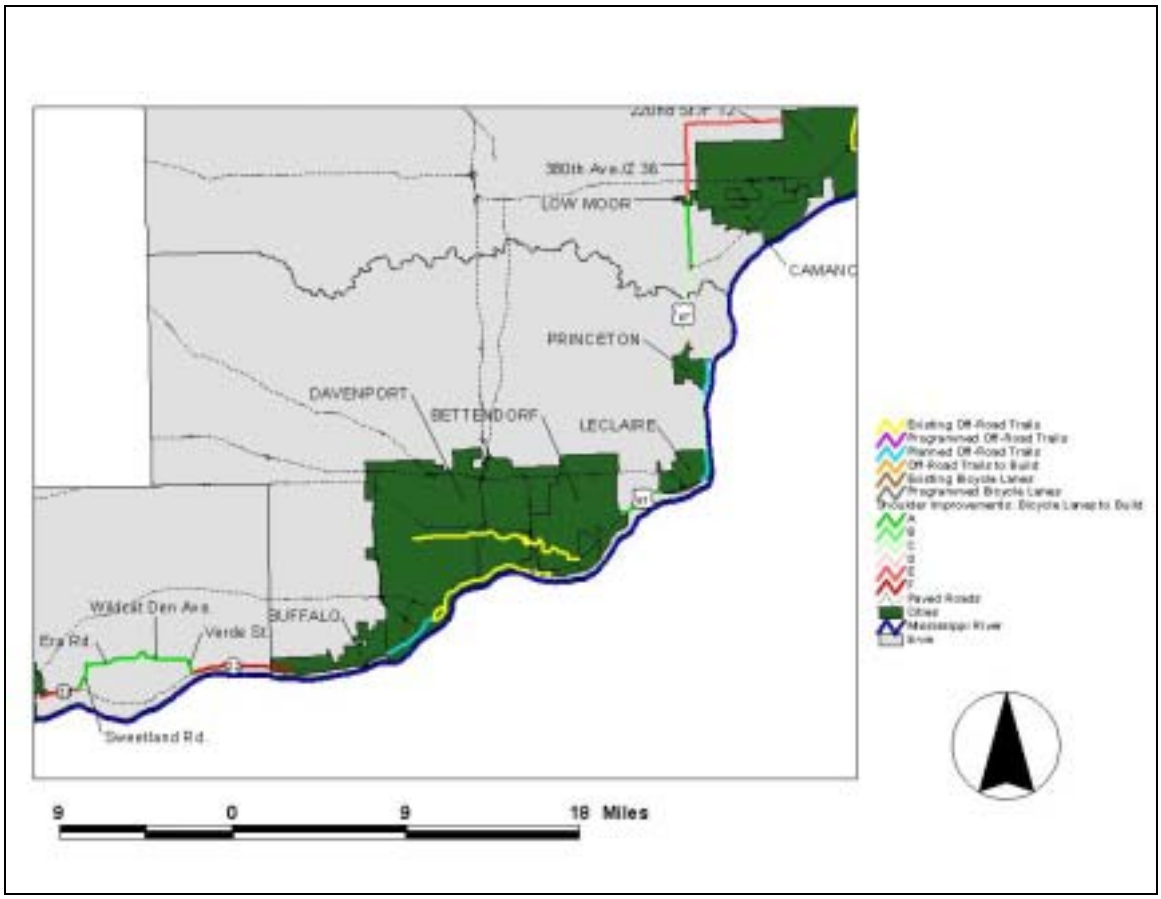


Figure A.5. Shoulder Improvement Study for Scott County

Comparing All Levels of Trail Plan with Actual Conditions to Develop the MRT

The individual studies of trail amenities, concerns, BLOS, and shoulder improvements are key links to the creation of the MRT, but these studies needed to be consolidated to fully understand the best placement of the trail. For example, by looking at Figures A.2–A.5, prime locations for the MRT can be seen. For example, in Figure A.2, good locations with regard to trail amenities would be near points of interest, lodging, and river crossings. Figure A.3 shows areas of concern for building bicycle facilities, such as on-road structures; the corridors with the least points of concern were best for construction. Figure A.4 shows that most of U.S. Highway 67 and portions of the alternative route of county roads in Scott County were unsuitable for bicycle lanes. Figure A.5 shows that after shoulder improvements are made, the majority of these roads could safely carry a bicycle lane.

However, while the GIS analysis has produced a trail that appears to be feasible on paper, the designated route may have characteristics that cannot be studied by GIS. To determine if the route designated by GIS is feasible, input from local officials was considered, along with field reviews of the proposed MRT route. During the planning process, three public input meetings were held to facilitate review of the Iowa MRT by

local officials and citizens. Details of these meetings, held in Lansing, Davenport, and Fort Madison, Iowa, are outlined in Appendix C.

After comparing different levels of trail-related information, most non-GIS analysis concurred with the routes chosen through the data-driven GIS methods, with two notable exceptions:

1. State Highway 22, east of Muscatine, was found to be unsuitable for bicycle lanes in the GIS analysis. However, the data used in the GIS analysis were a few years old, which caused a discrepancy between the data corridor conditions and actual corridor conditions. U.S. Highway 61, which runs parallel to Highway 22, was expanded to a four-lane divided corridor and opened after the data for the GIS analysis were collected. Therefore, the Highway 22 traffic conditions in the analysis reflected the time period before the U.S. 61 improvements were finished. Although official traffic counts have not been taken on Highway 22 after the U.S. 61 improvements, Muscatine County officials have reported lower traffic counts and, notably, lower heavy truck traffic counts. Field reviews concurred with this observation. Because of this and recommendations from local officials, portions of Highway 22 east of Muscatine are recommended for the MRT.

2. State Highway 99 throughout Des Moines County was found to be unsuitable for bicycle lanes in the GIS analysis. However, field reviews and local recommendations agree that Highway 99 would be safe for bicycle lanes; local cyclists currently ride the highway and believe it could safely carry bicycle lanes.

APPENDIX B. IOWA MRT MAPS

This appendix contains map information as referred to in the body of *Iowa's Mississippi River Trail Plan*. Many maps were generated during the planning process; maps were created to display different trail development data, but each data grouping also required the creation of 10 county maps to represent all 10 Iowa counties that will contain the MRT. The first set of maps in this appendix highlights amenities and concerns along the trail routing. The second set of maps in this appendix outlines the results of the BLOS and shoulder improvement studies.

The amenities and trail development concerns set of maps, Figures B.1–B.20, displays trail development factors considered at the start of the Iowa MRT planning process. While major concerns of the Iowa MRT Advisory Committee were the overall safety and proximity to the river of the trail, trail amenities also influenced trail placement decisions. Many trail amenities were used to route the Mississippi River Trail; generally, lodging and points of interest were used to place trails near services cyclists may need. Trail concerns were also important to the trail's planning process. Topography was a concern of trail development but was important only to the northern sections of the project area. Railroad lines were thought to be a potential problem since rail crossings can be difficult for cyclists to cross if not properly designed. Also, structures on roadways could create higher costs for the creation of bicycle lanes, since bicycle accommodations on structures may require bridge re-decking if the bridge shoulder is not currently wide enough for a bicycle lane.

The BLOS and shoulder improvements study maps, Figures B.21–B.40, used roadway and traffic characteristics to analyze each potential corridor for its suitability to carry bicycle lanes. The BLOS measure was used to determine the feasibility for each road segment to currently carry a bicycle lane. The shoulder improvements study analyzed preferred road segments to measure the change of its BLOS if all shoulders along the roadway were given 6-foot wide paved shoulders. The result of the shoulder improvements study gave each roadway corridor the characteristics of a bicycle lane (a 6-foot paved shoulder) while determining if each road segment could safely carry that bicycle lane (a BLOS score of at least C). The processes used for these analyses are detailed in Chapter 3.

Trail Development Concerns and Trail Amenities by County:

Figures B.1–B20, pp. B-2–B-21

Bicycle Level of Service and Shoulder Improvements Study:

Figures B21–40, pp. B-22–B-41

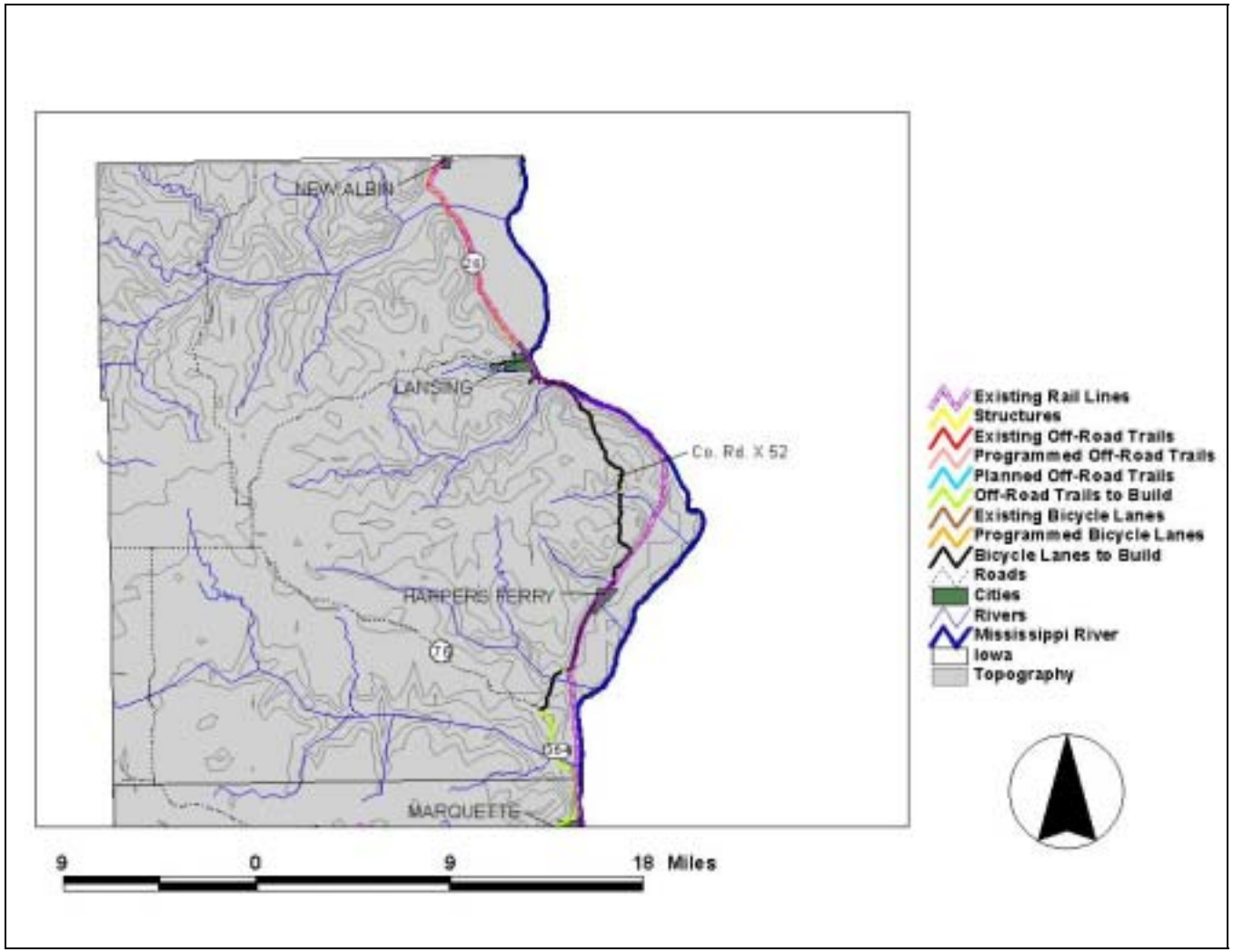


Figure B.1. Possible Trail Development Concerns: Allamakee County

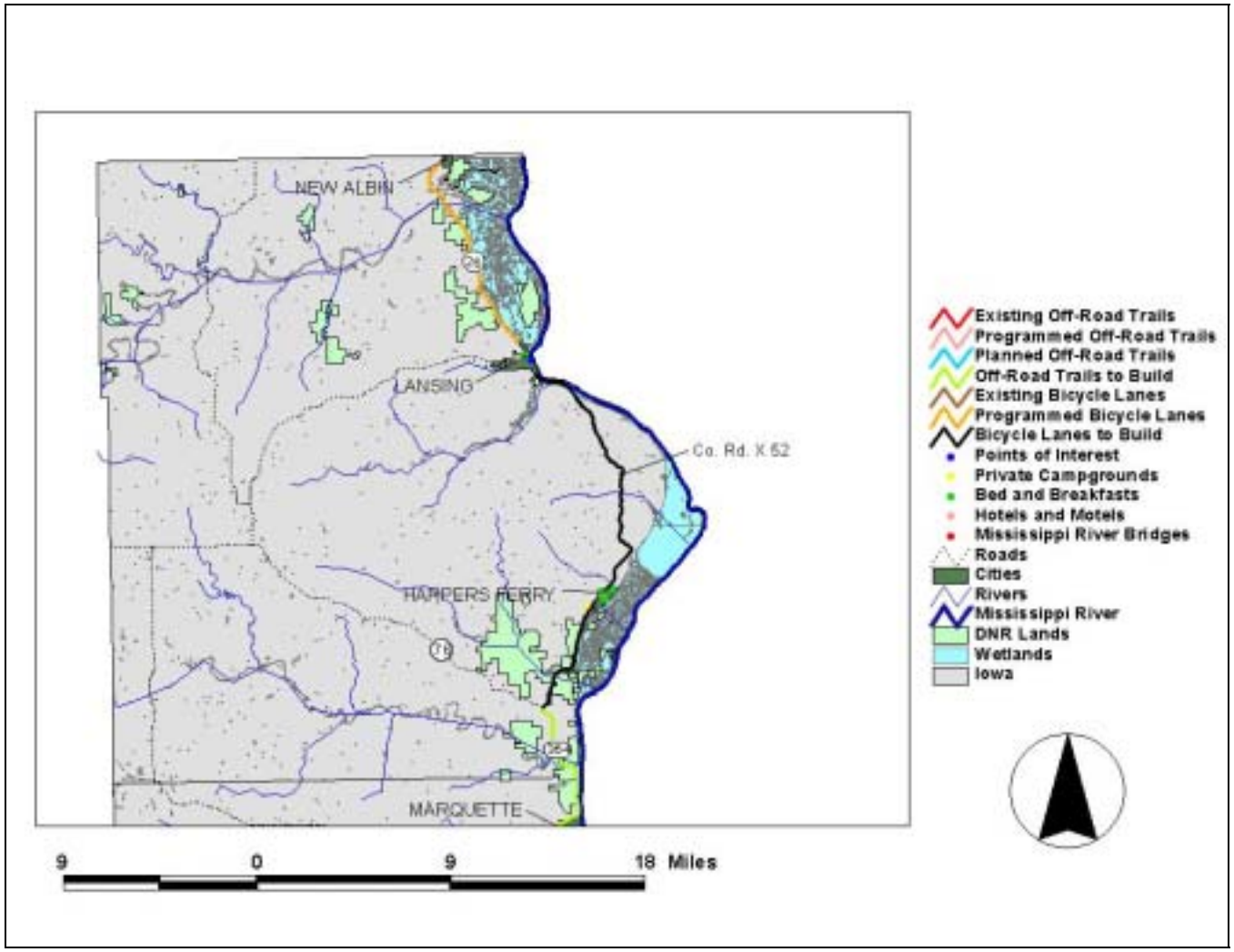


Figure B.2. Trail Amenities: Allamakee County

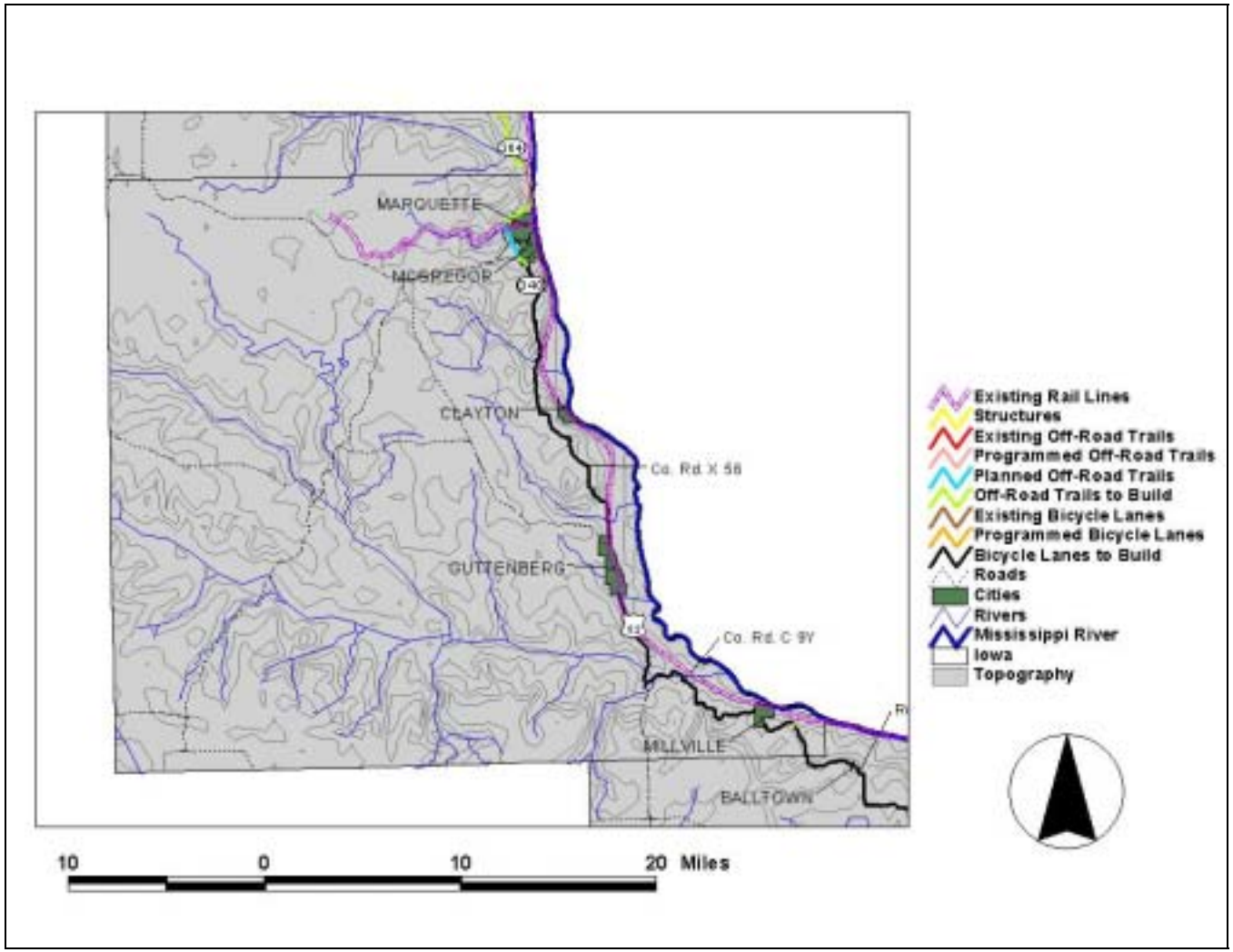


Figure B.3. Possible Trail Development Concerns: Clayton County

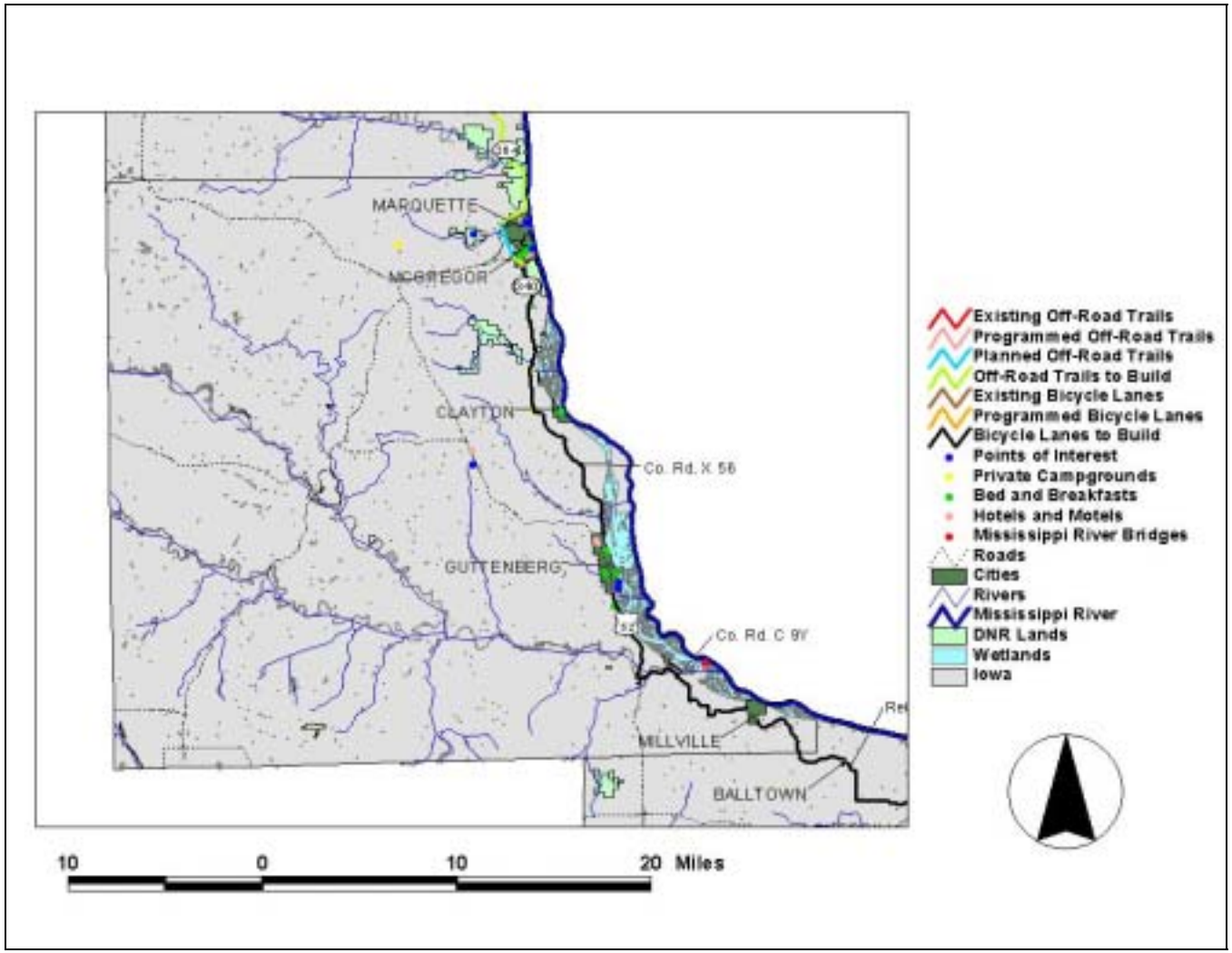


Figure B.4. Trail Amenities: Clayton County

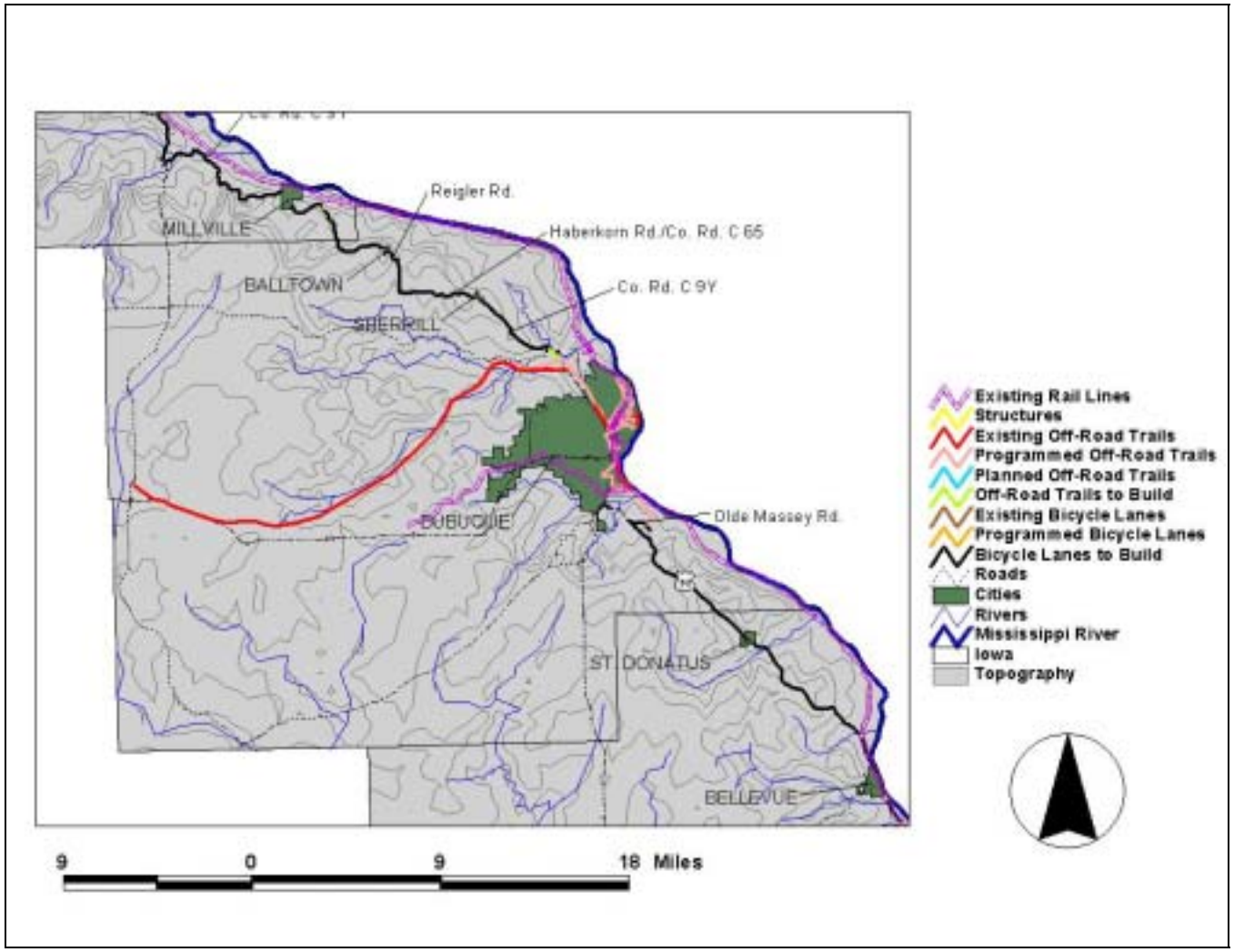


Figure B.5. Possible Trail Development Concerns: Dubuque County

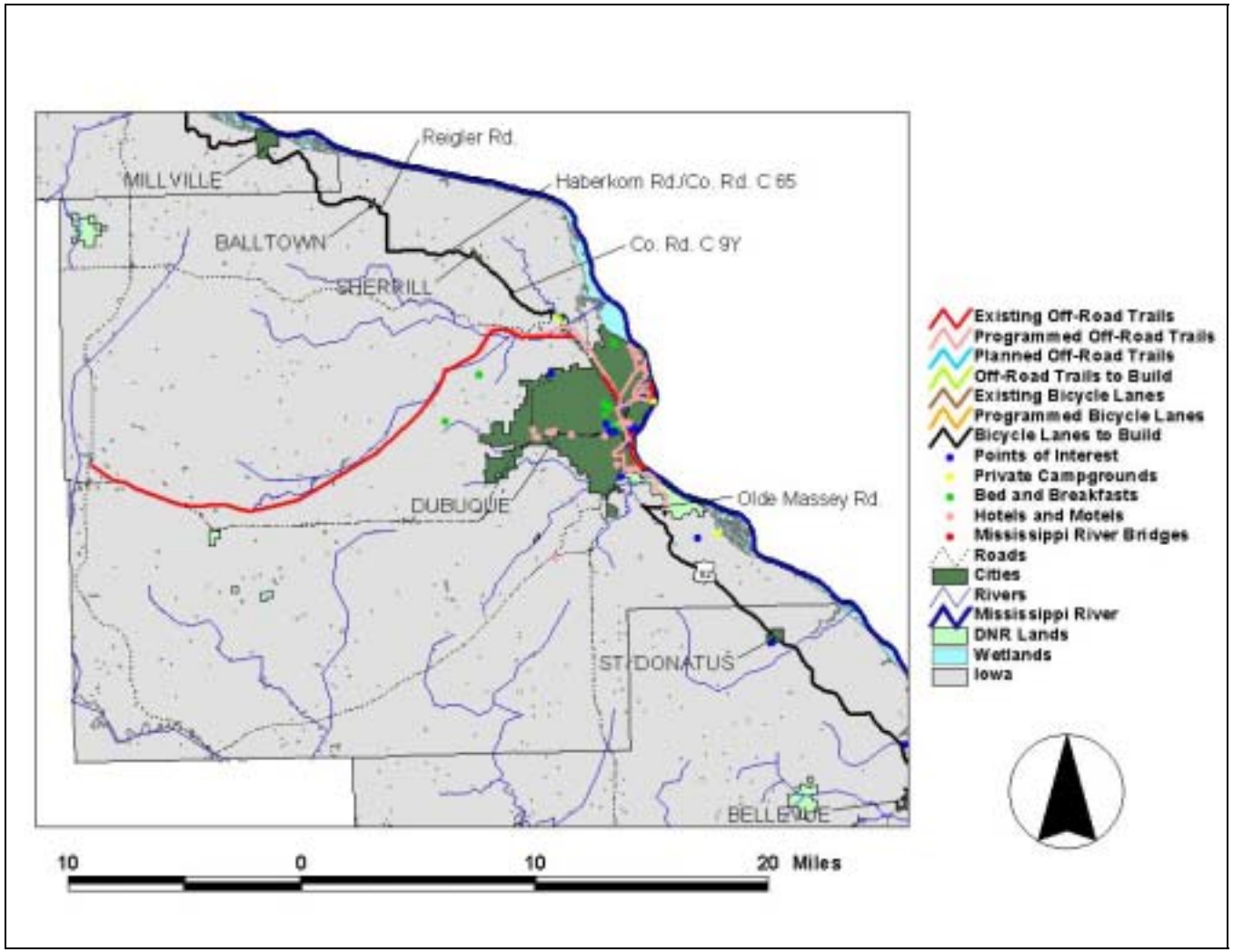


Figure B.6. Trail Amenities: Dubuque County

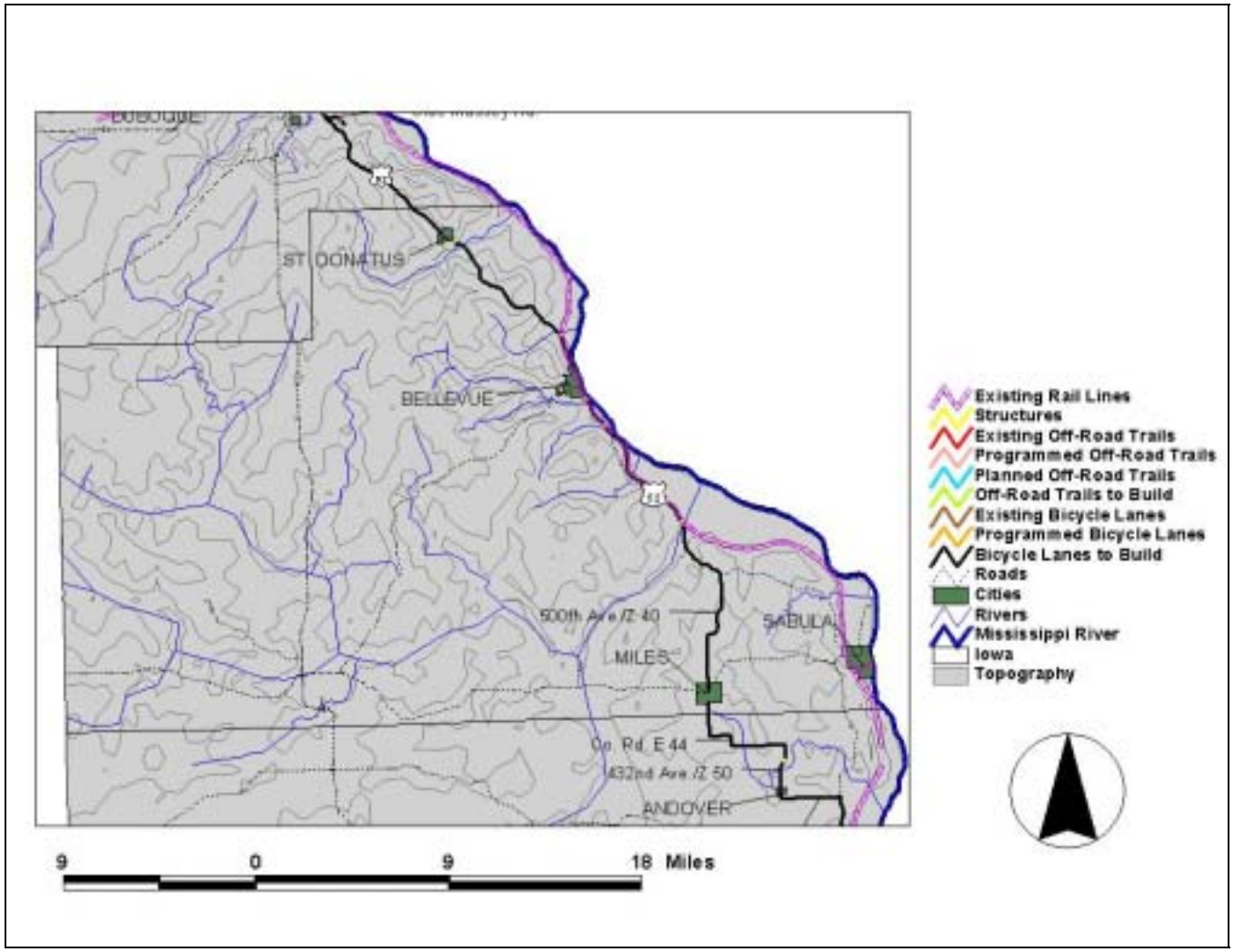


Figure B.7. Possible Trail Development Concerns: Jackson County

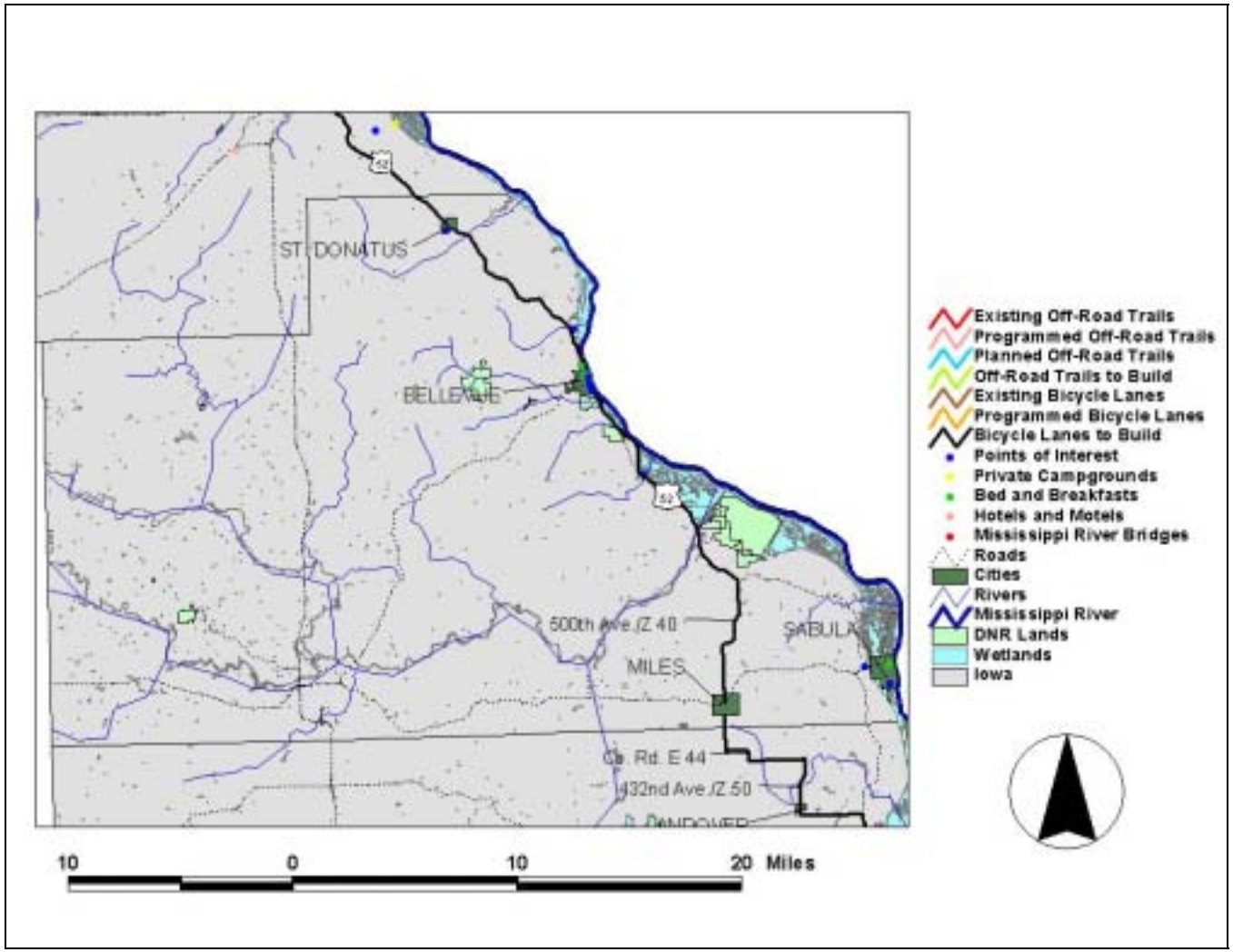


Figure B.8. Trail Amenities: Jackson County

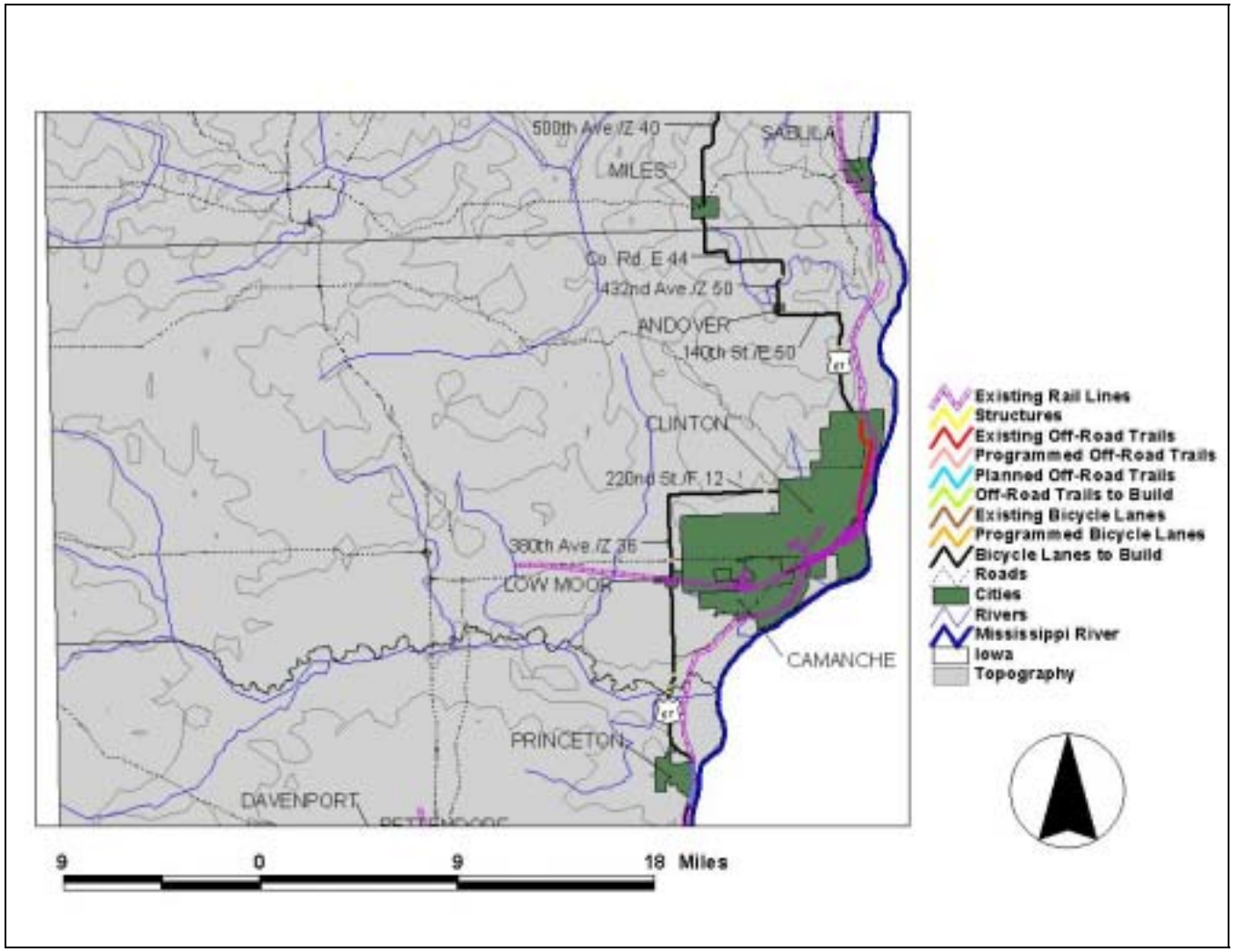


Figure B.9. Possible Trail Development Concerns: Clinton County

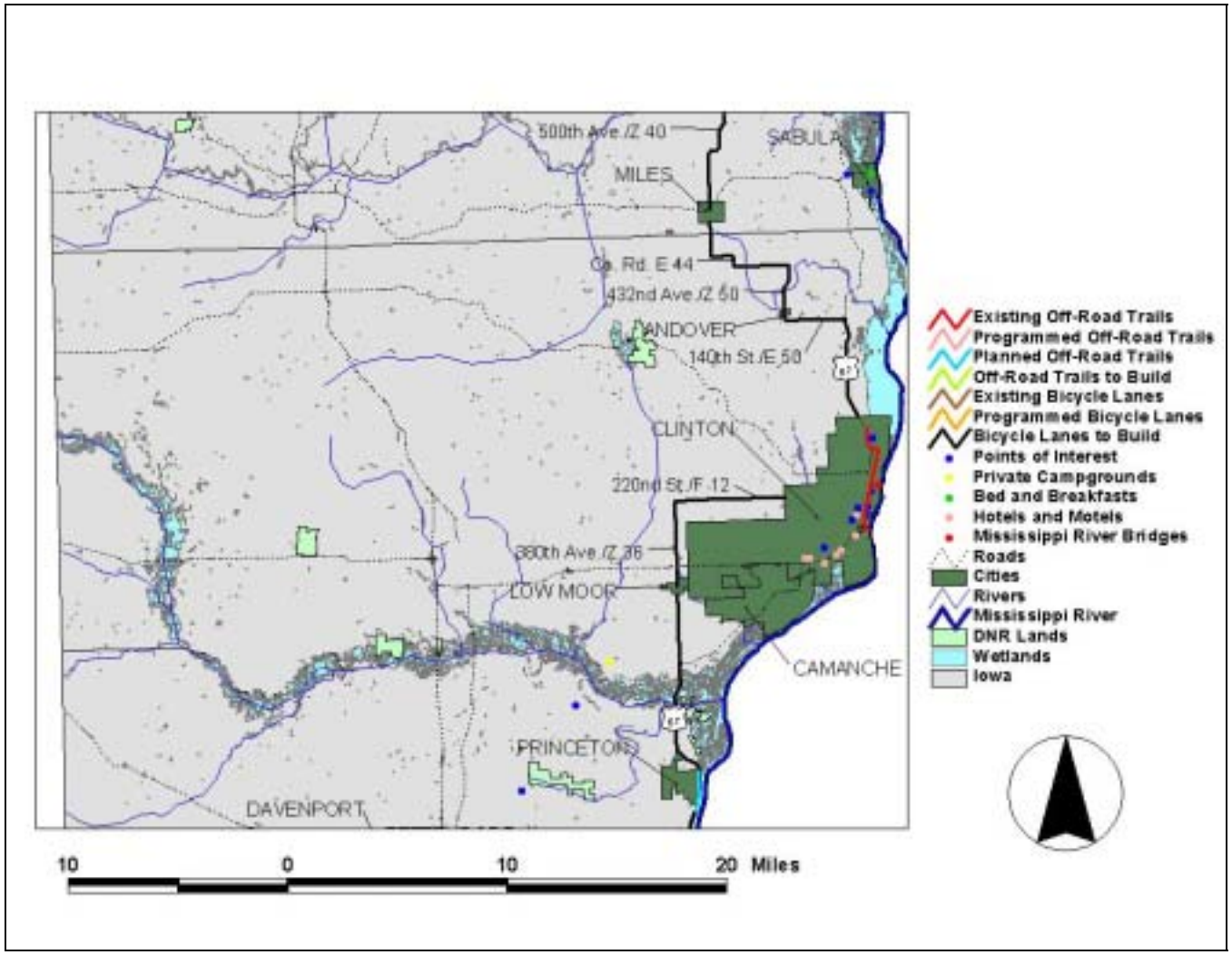


Figure B.10. Trail Amenities: Clinton County

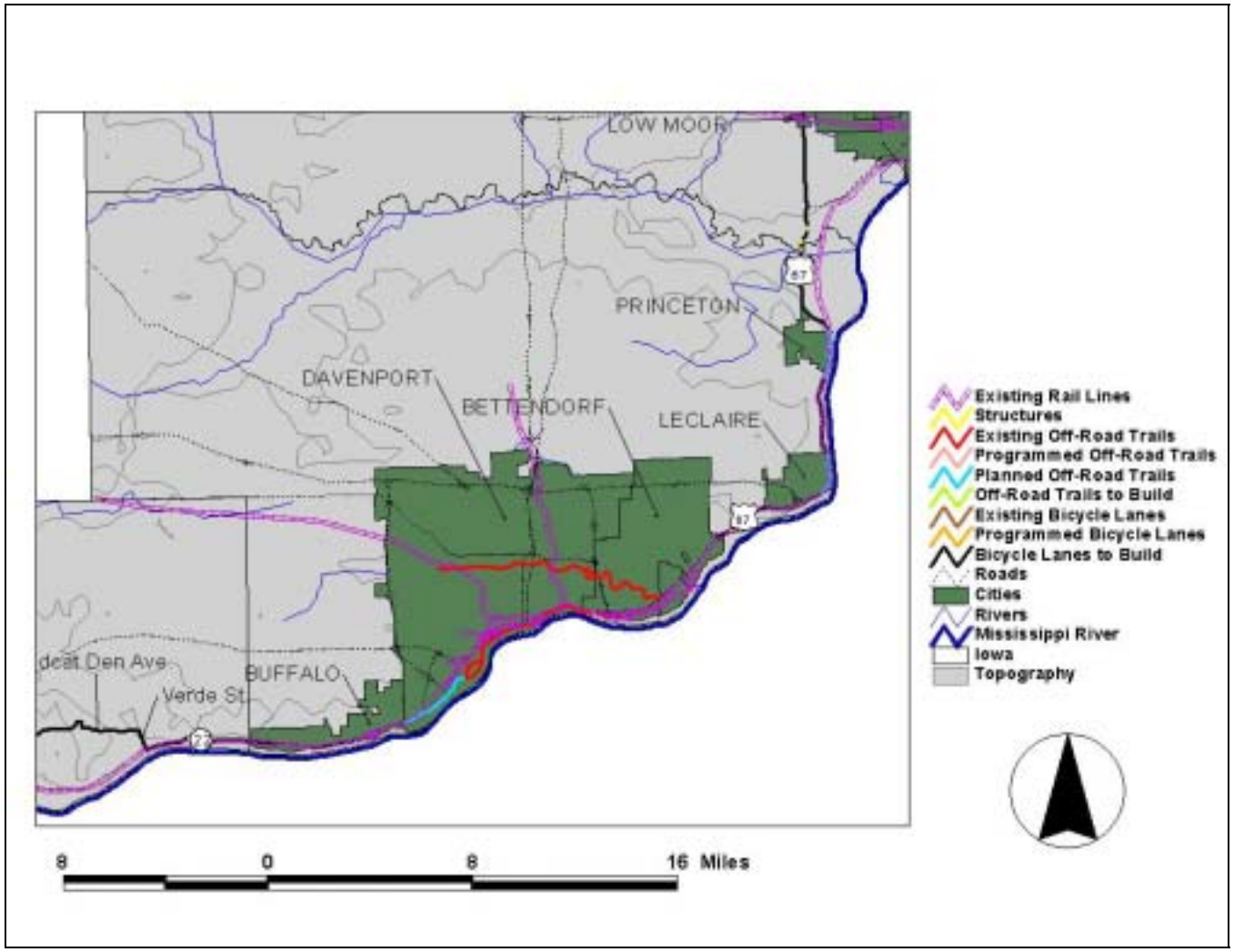


Figure B.11. Possible Trail Development Concerns: Scott County

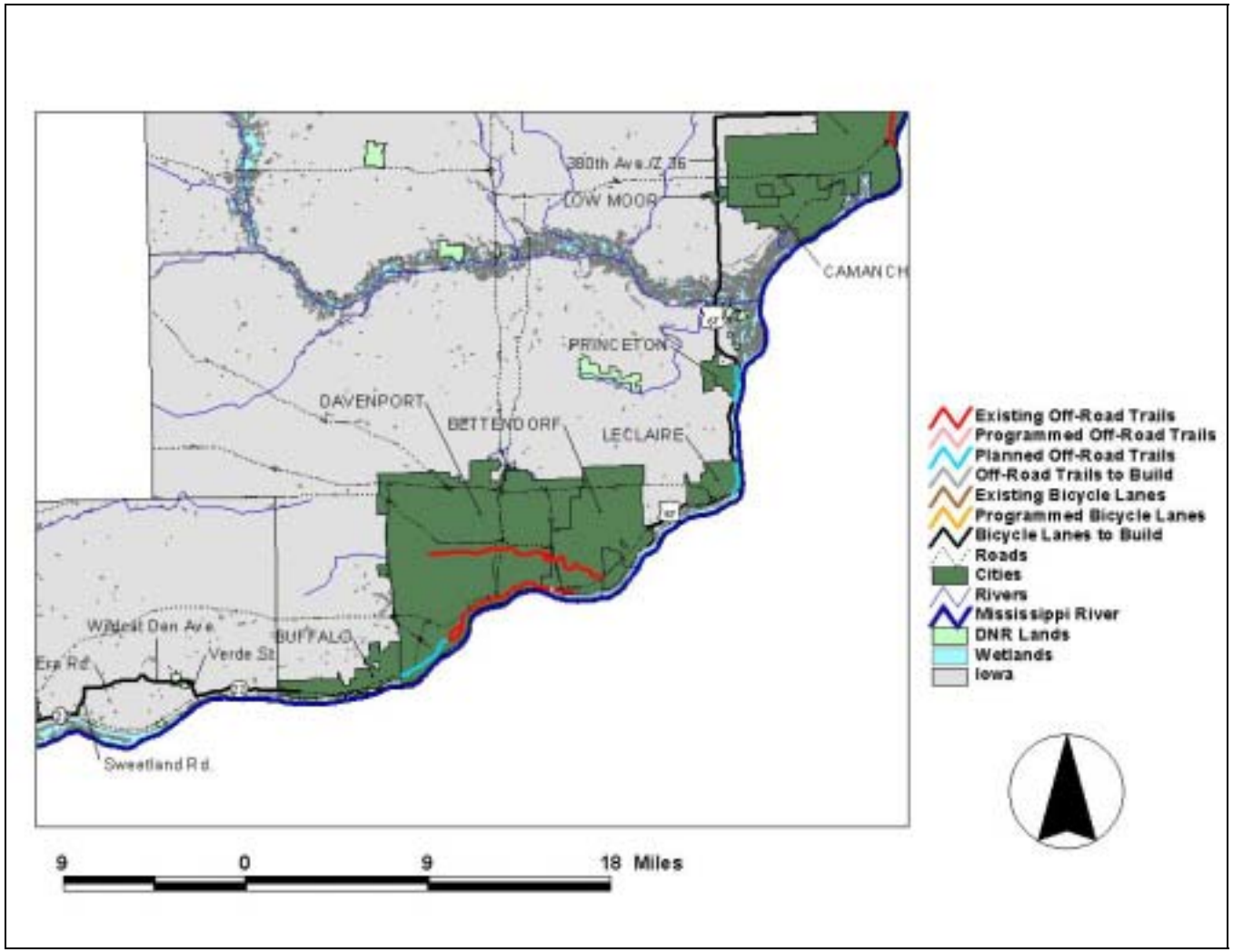


Figure B.12. Trail Amenities: Scott County

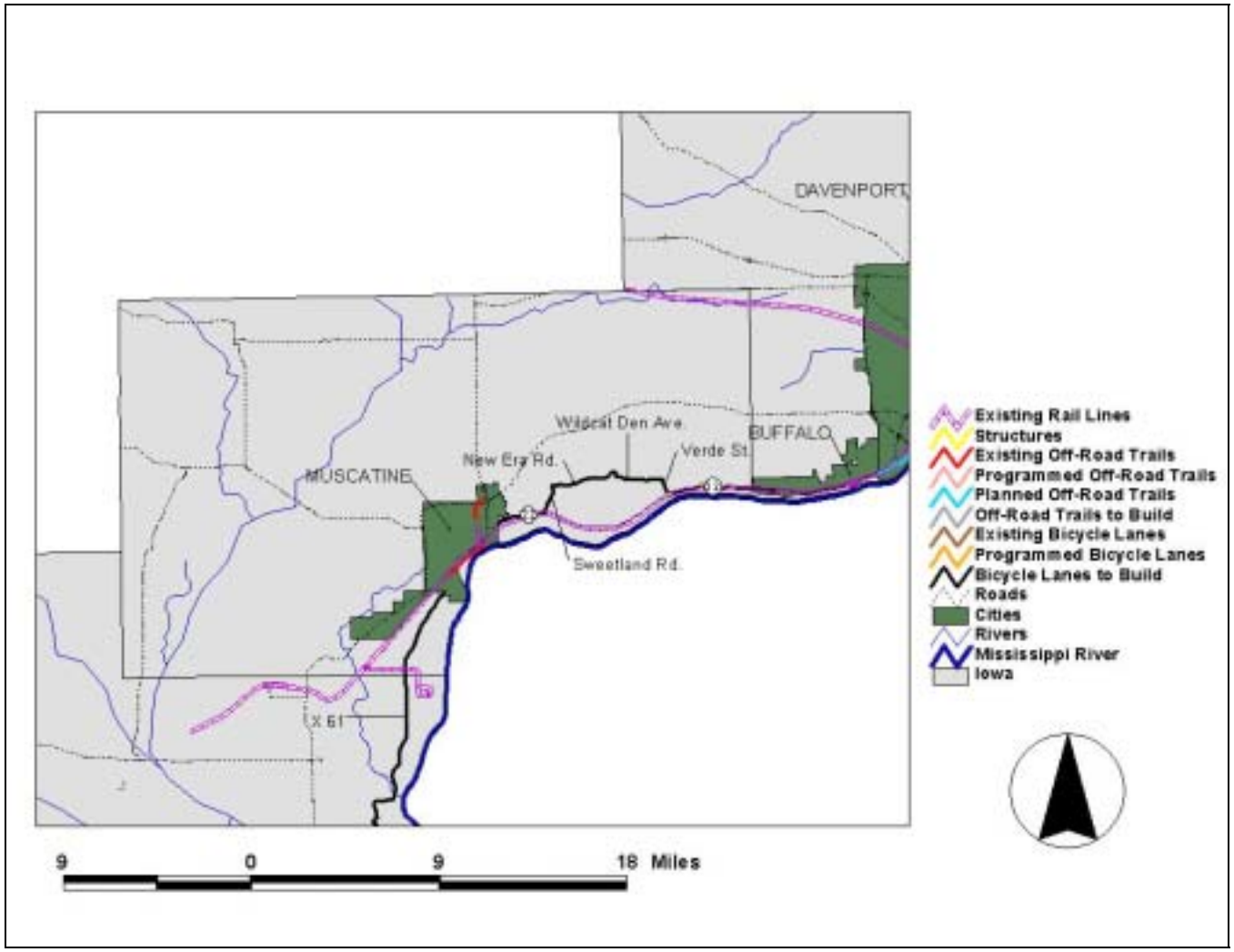


Figure B.13. Possible Trail Development Concerns: Muscatine County

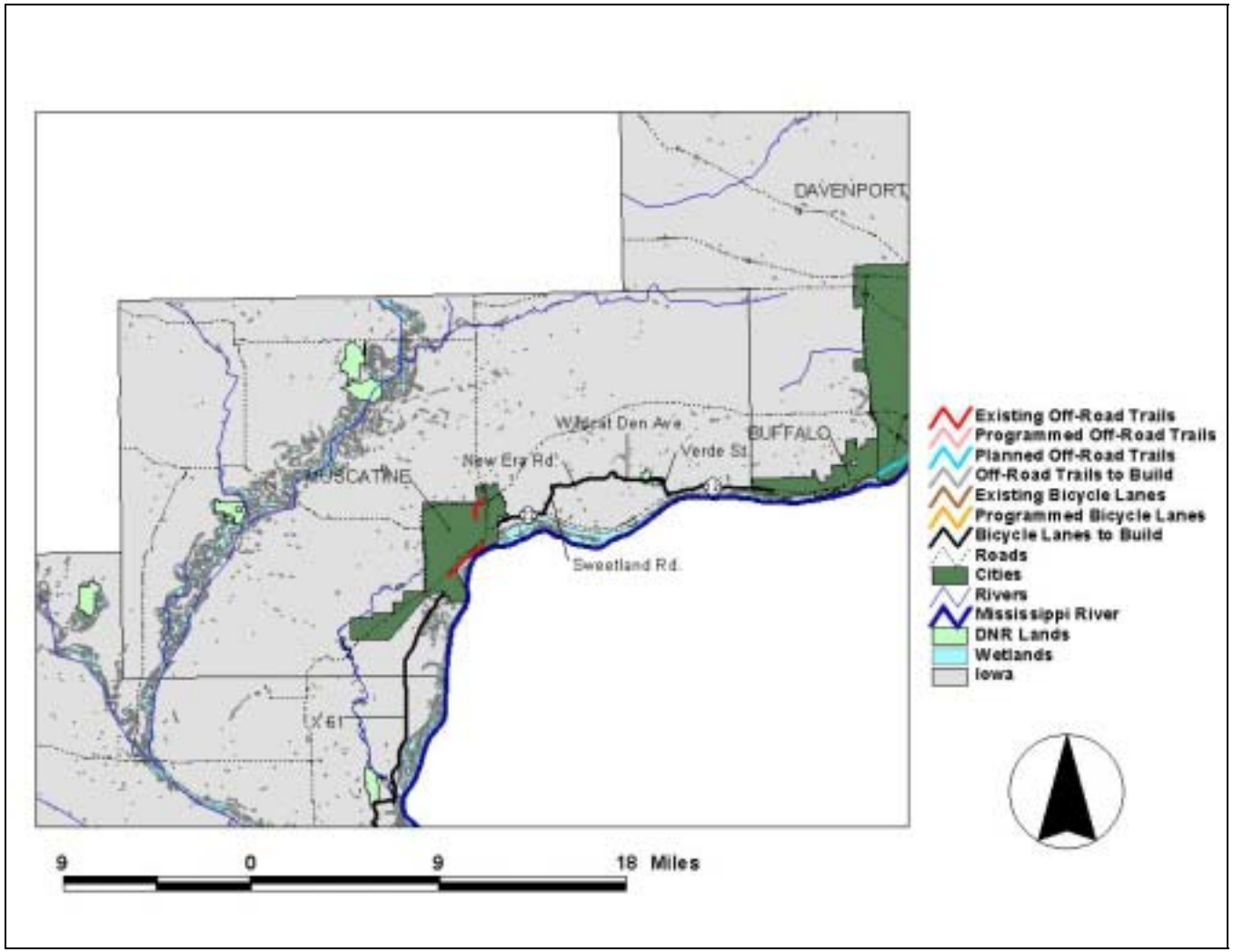


Figure B.14. Trail Amenities: Muscatine County

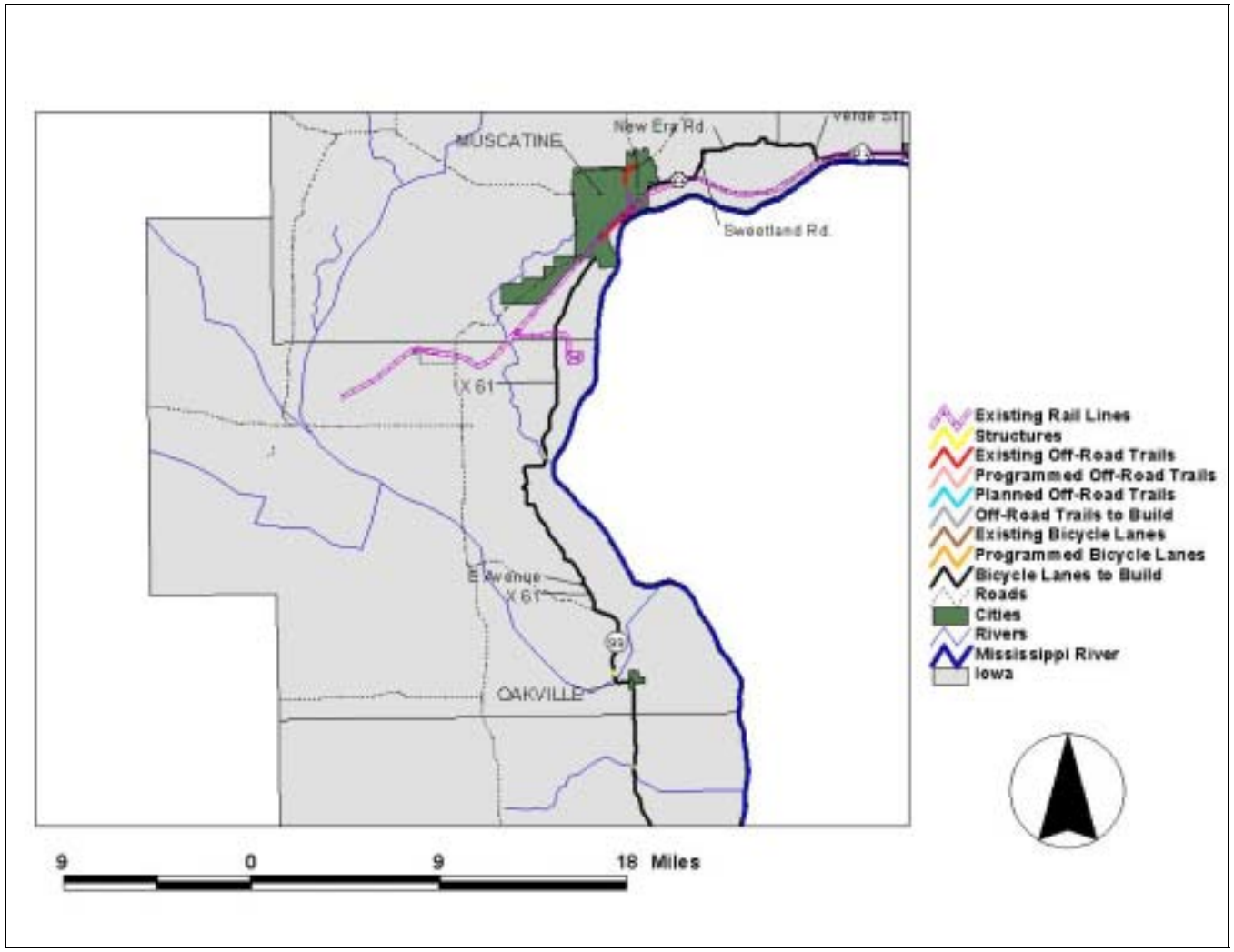


Figure B.15. Possible Trail Development Concerns: Louisa County

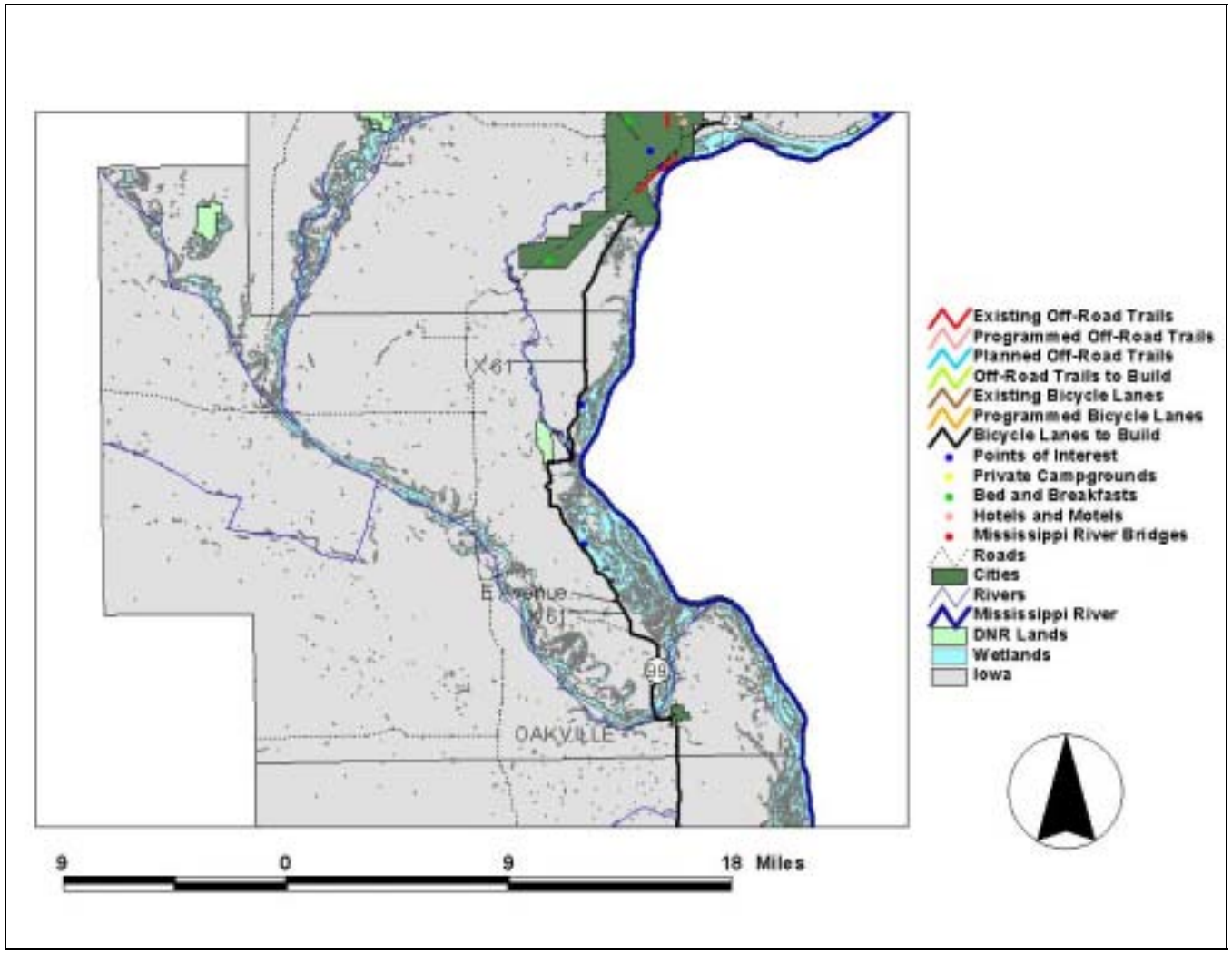


Figure B.16. Trail Amenities: Louisa County

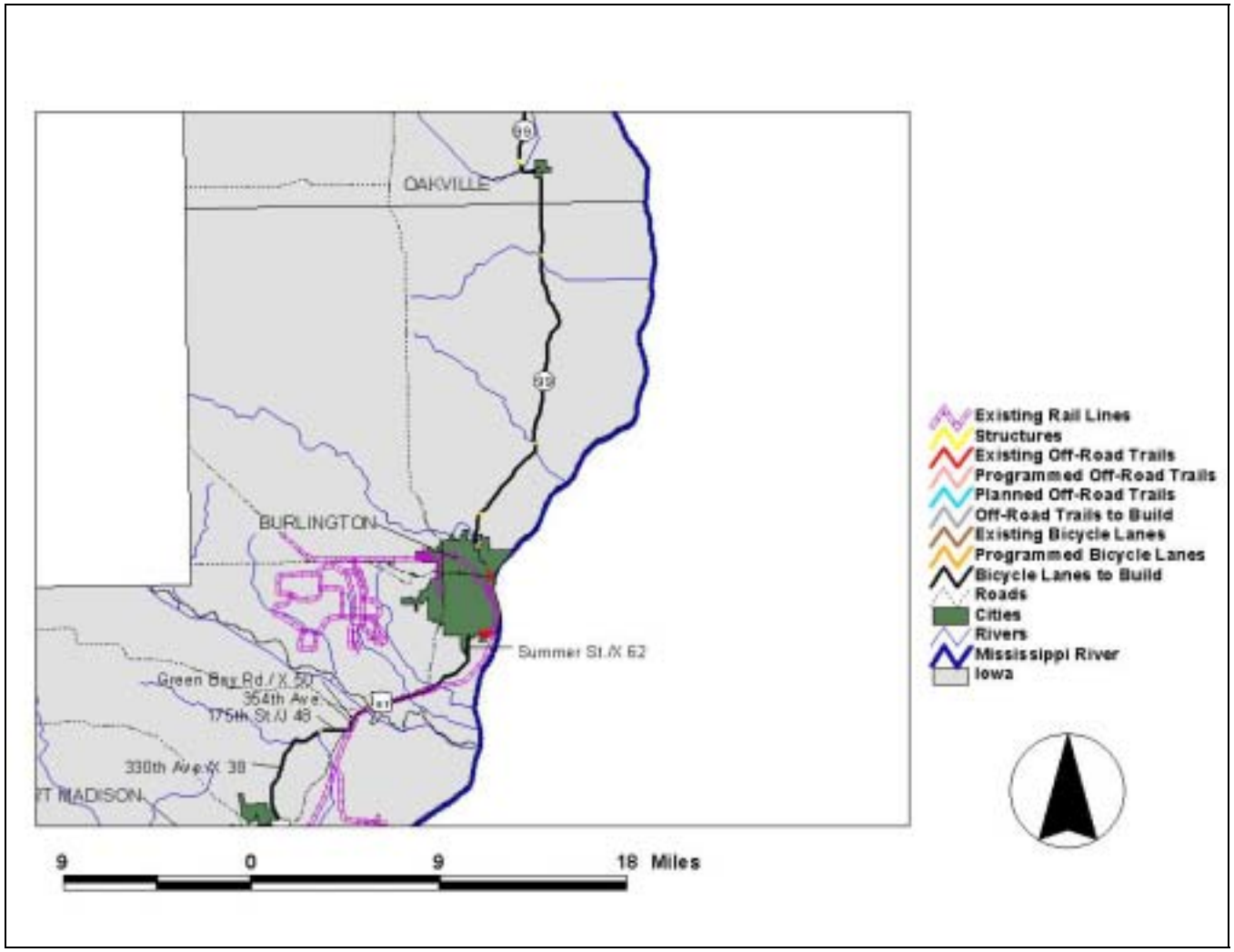


Figure B.17. Possible Trail Development Concerns: Des Moines County

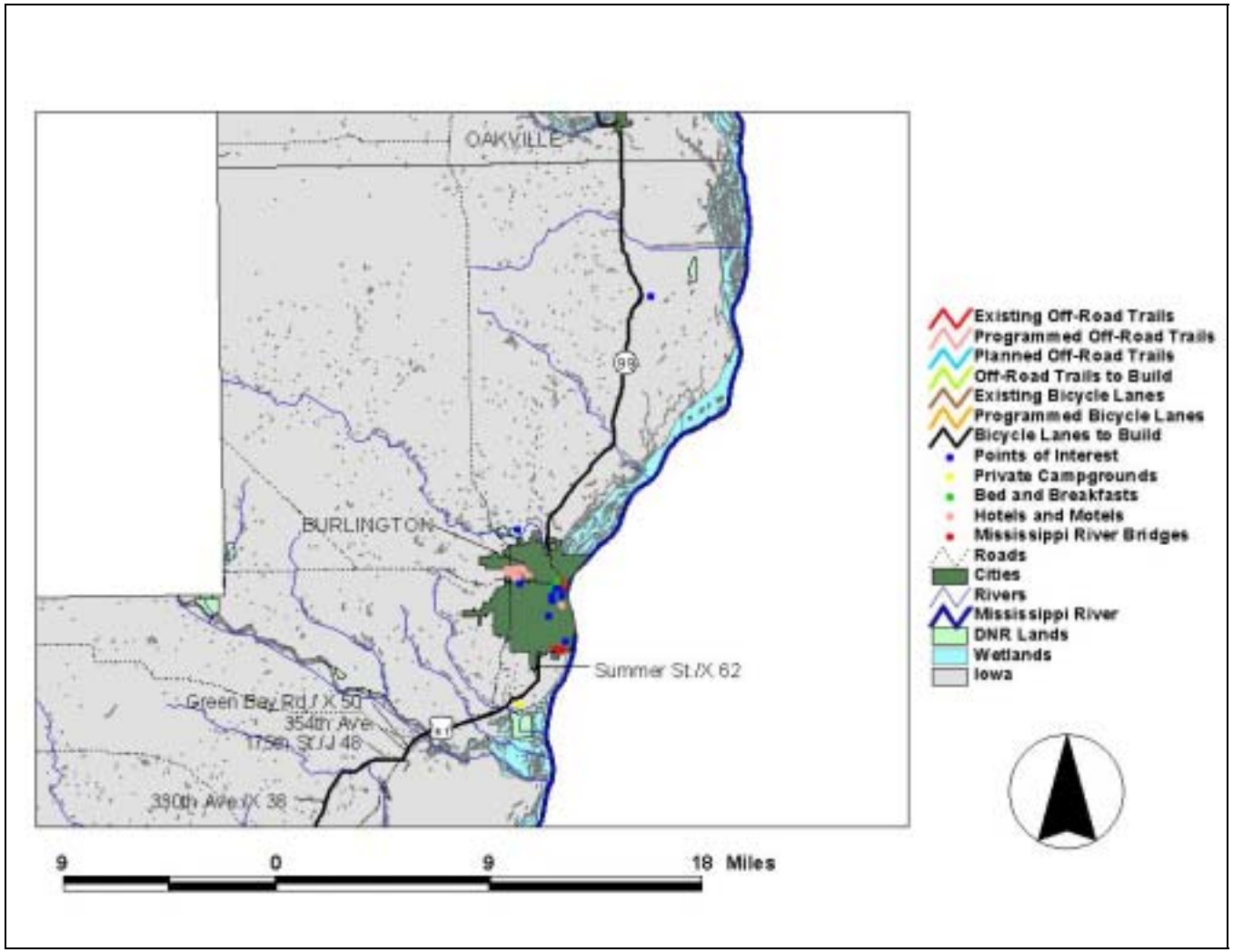


Figure B.18. Trail Amenities: Des Moines County

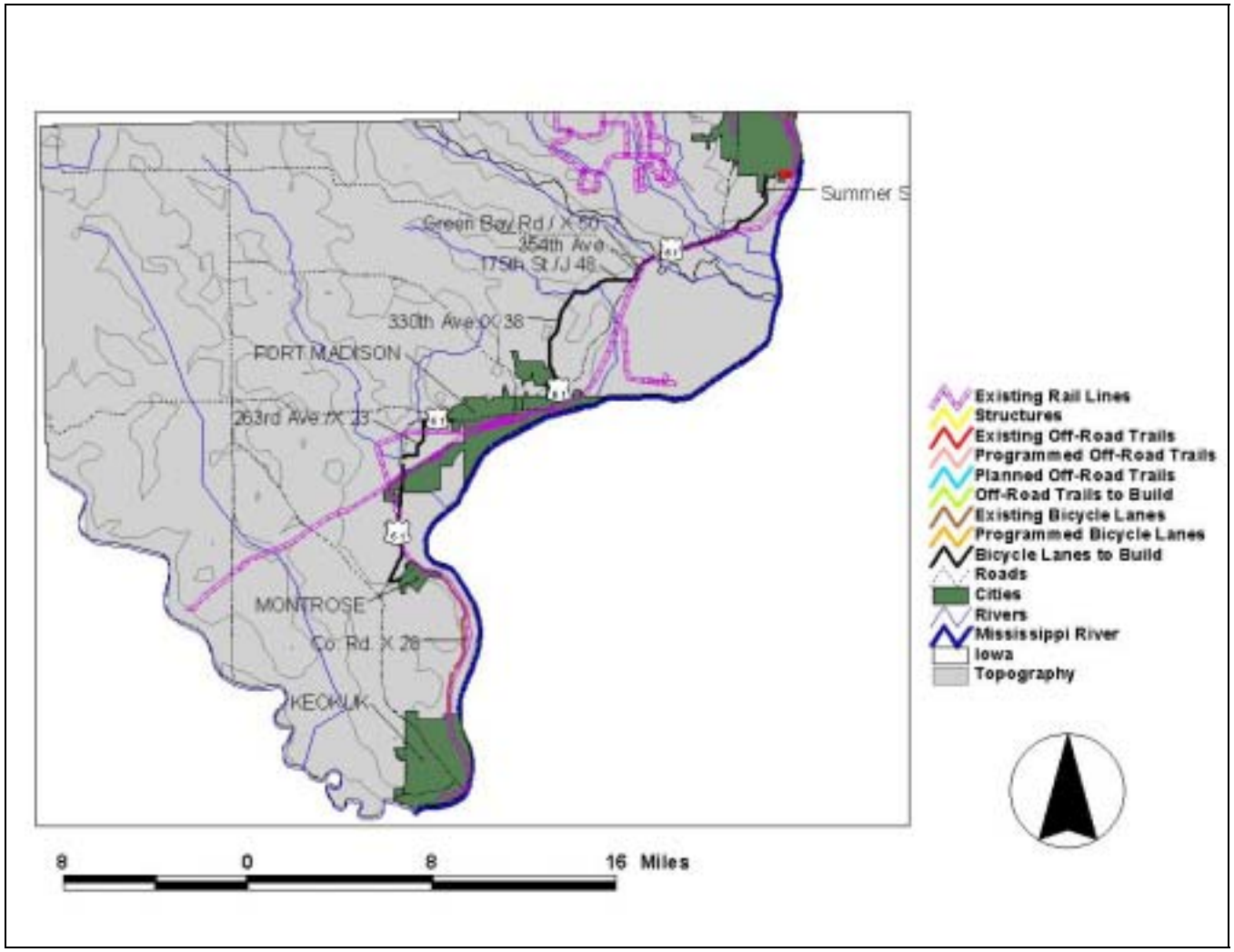


Figure B.19. Possible Trail Development Concerns: Lee County

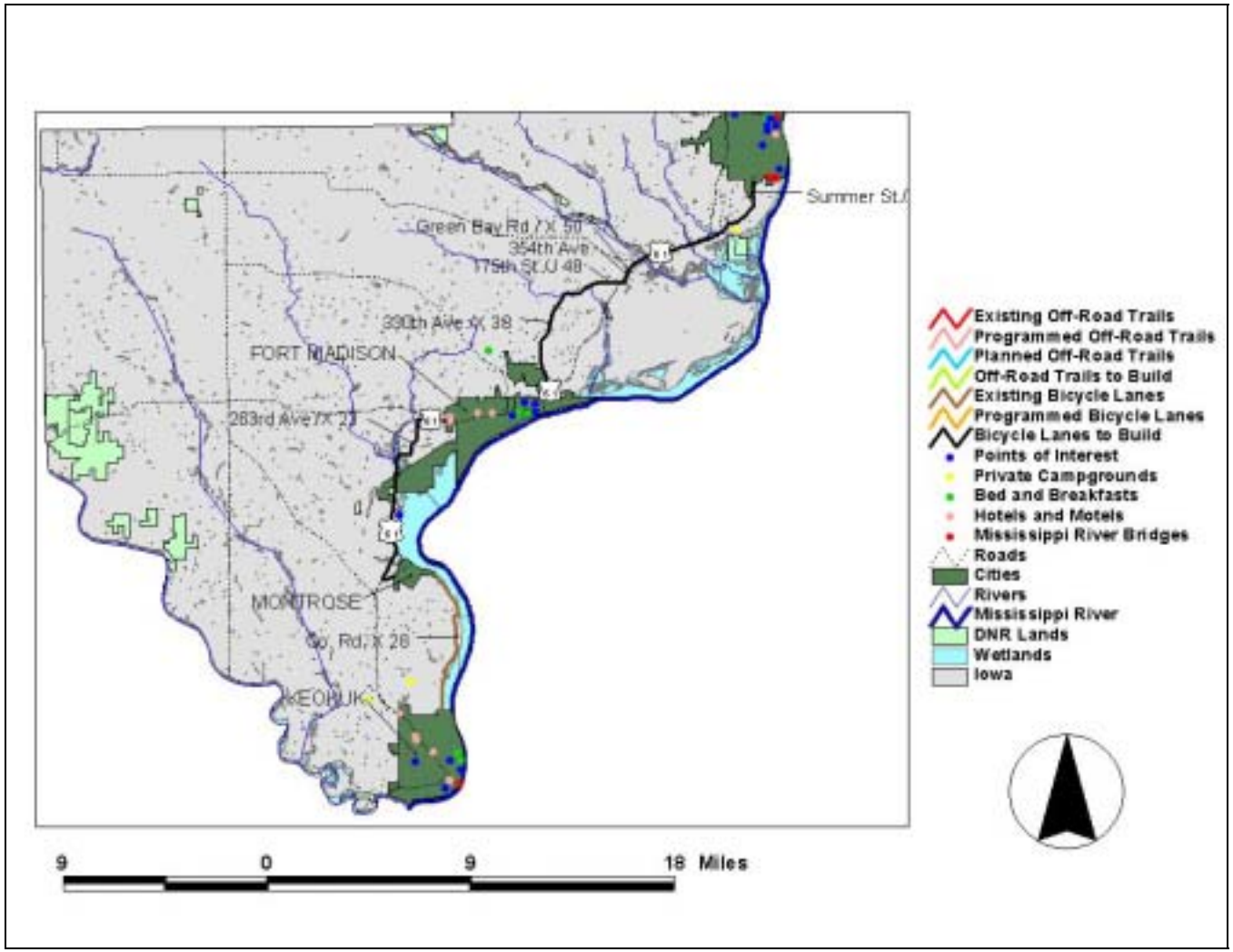


Figure B.20. Trail Amenities: Lee County

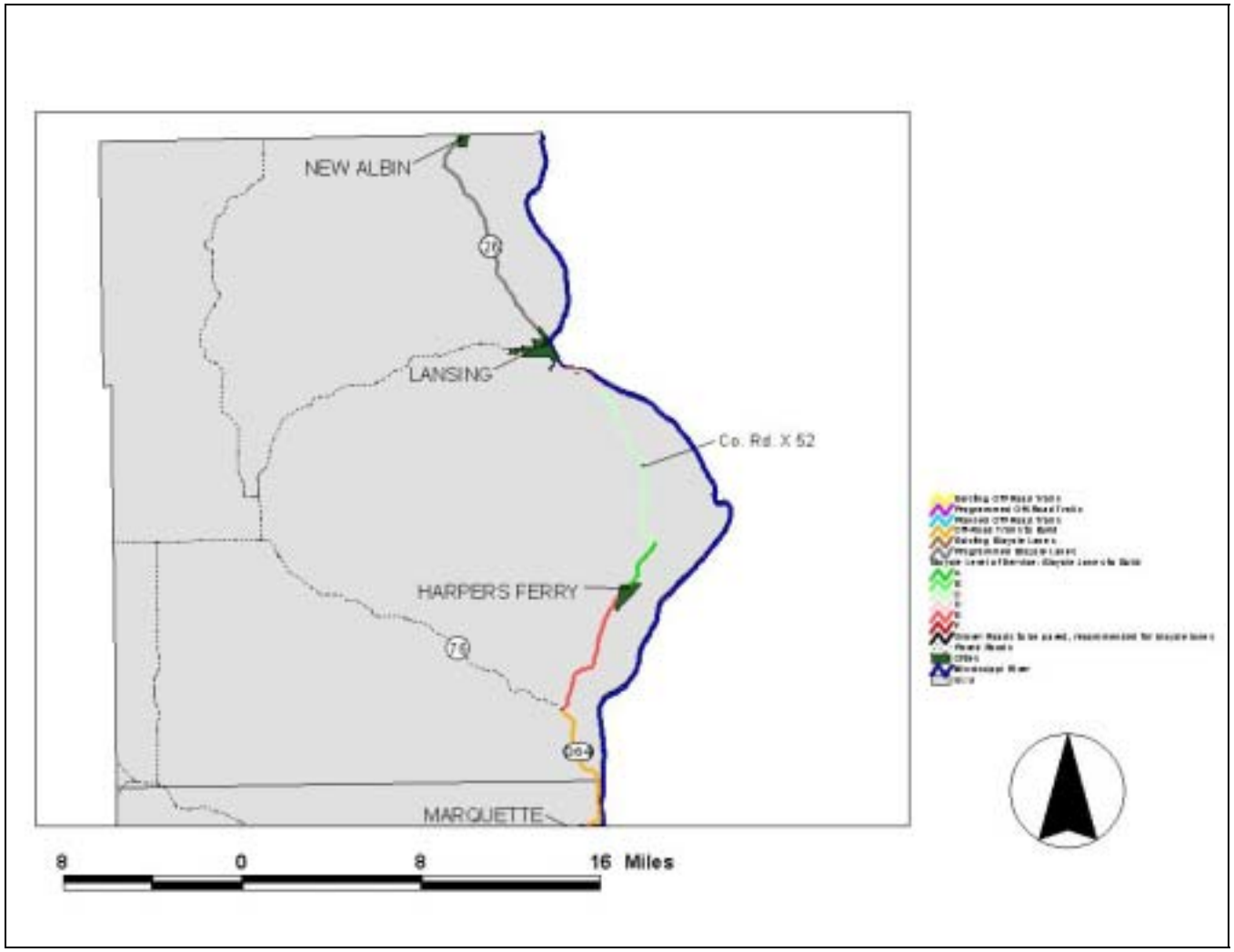


Figure B.21. Bicycle Level of Service Study: Allamakee County

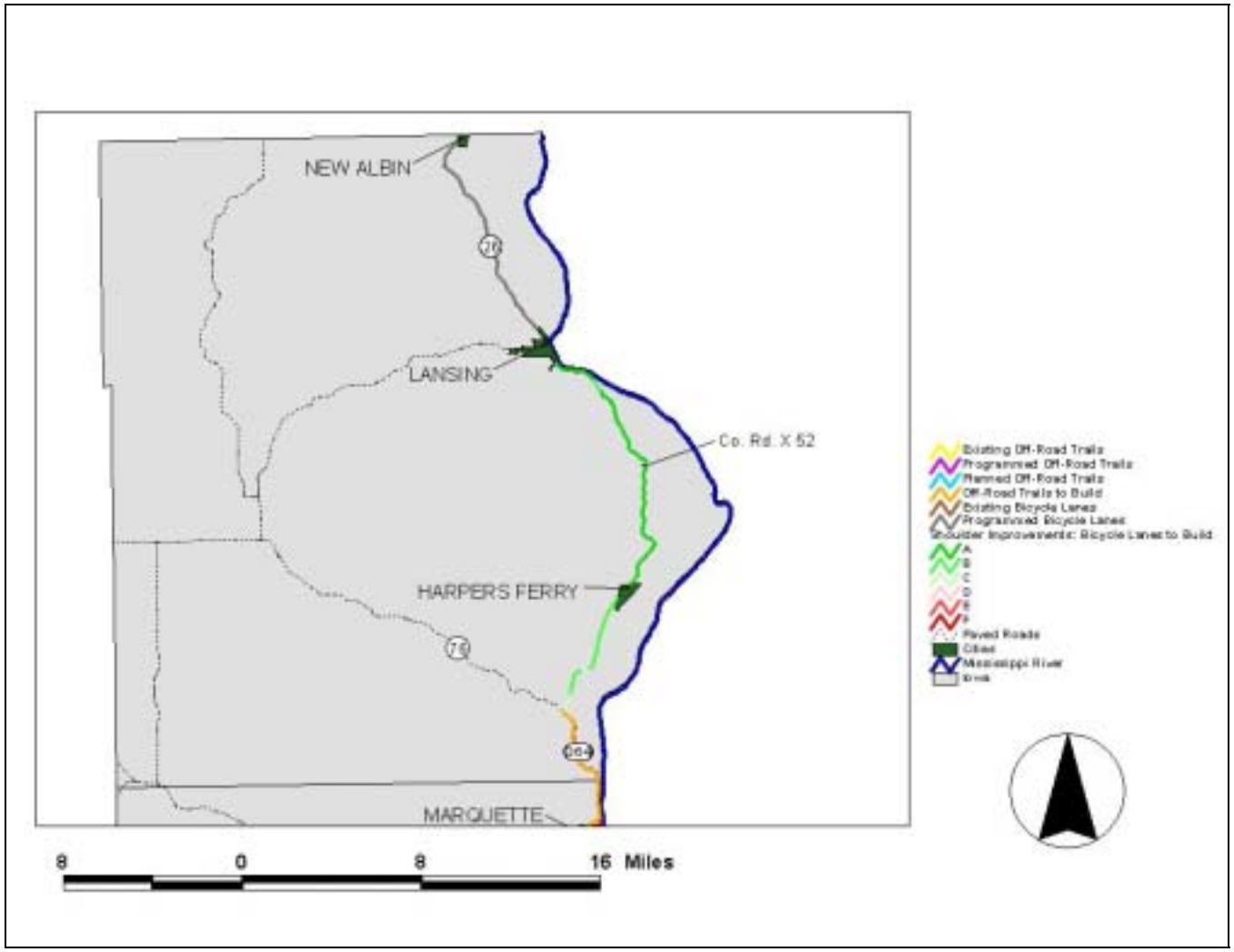


Figure B.22. Shoulder Improvements Study: Allamakee County

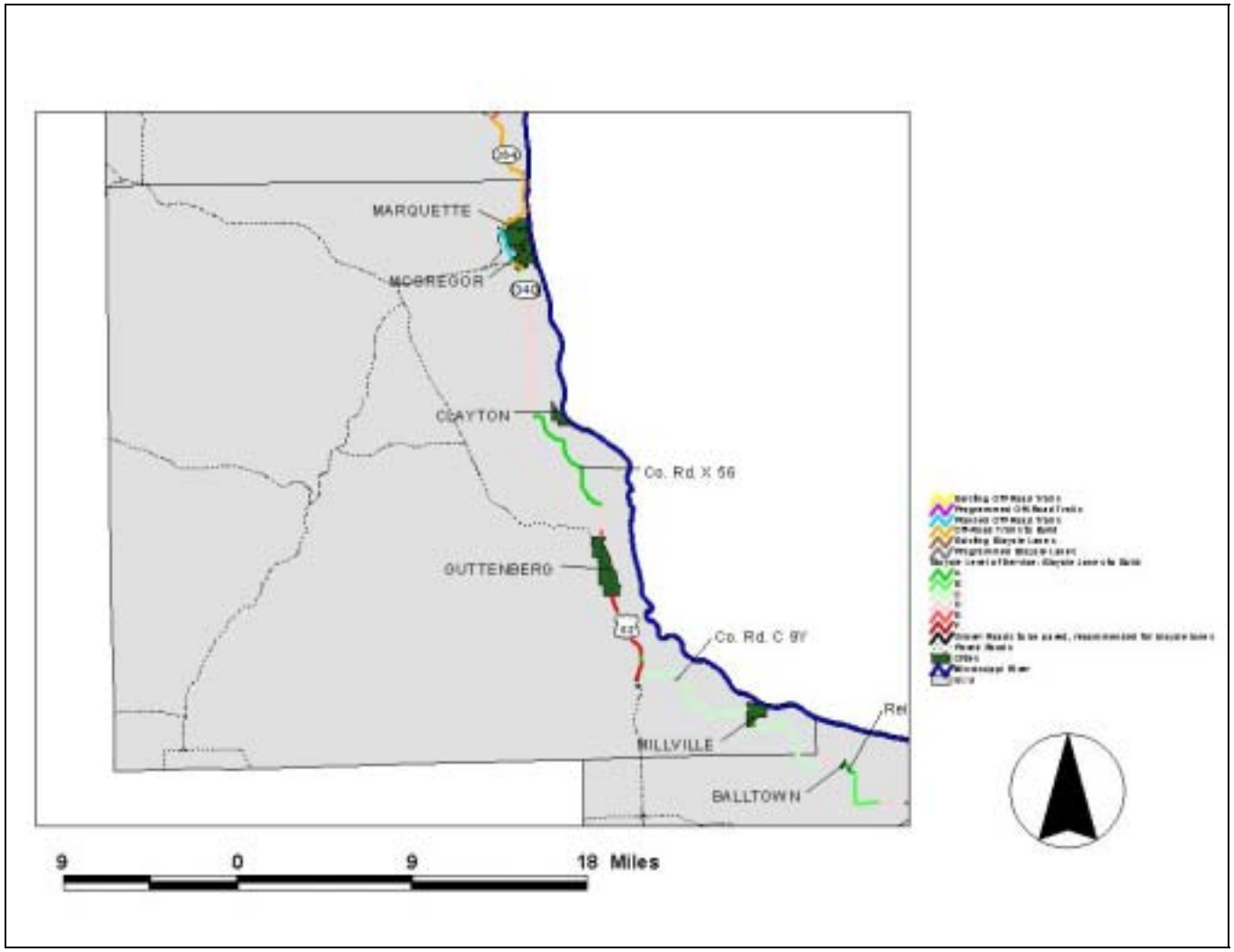


Figure B.23. Bicycle Level of Service Study: Clayton County

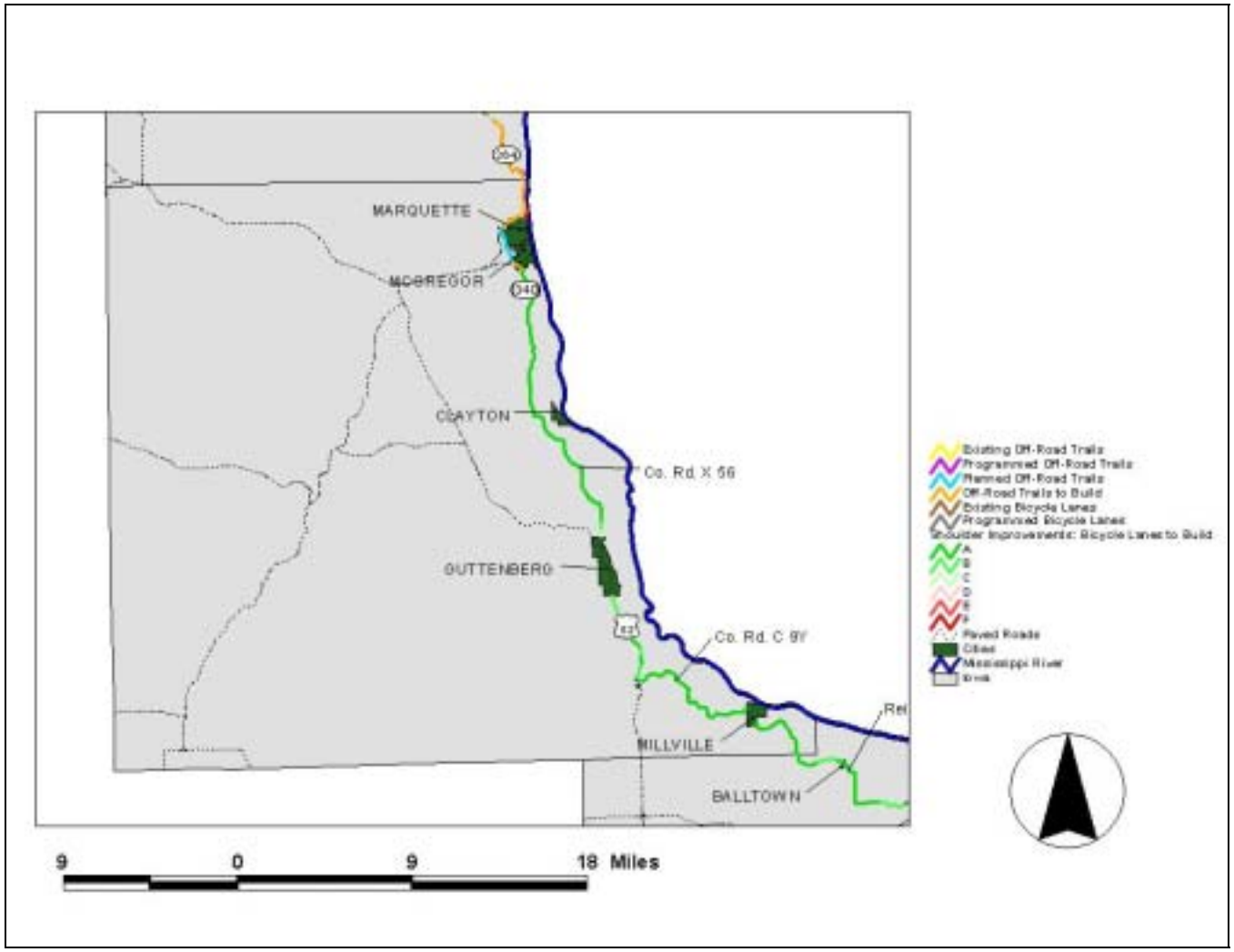


Figure B.24. Shoulder Improvements Study: Clayton County

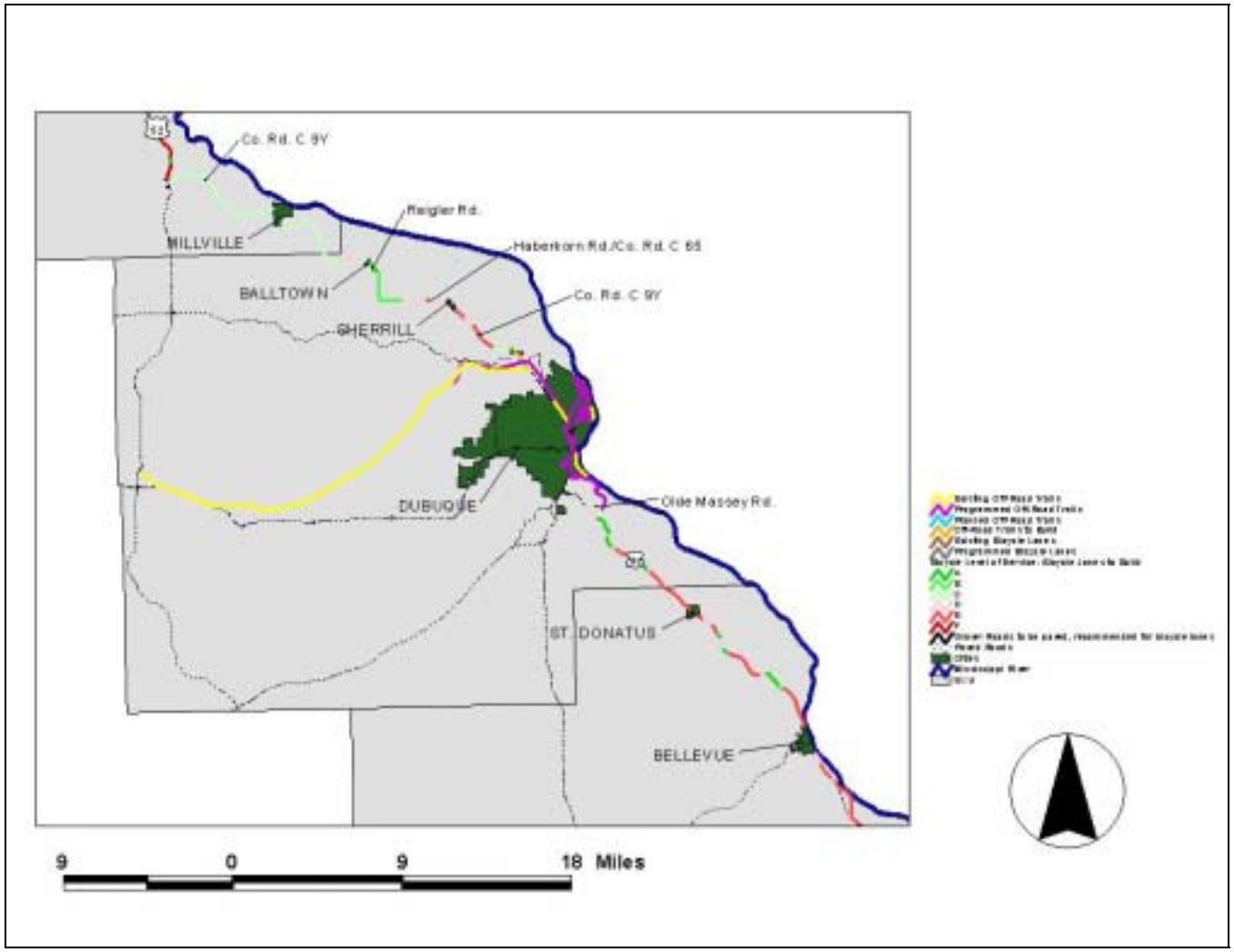


Figure B.25. Bicycle Level of Service Study: Dubuque County

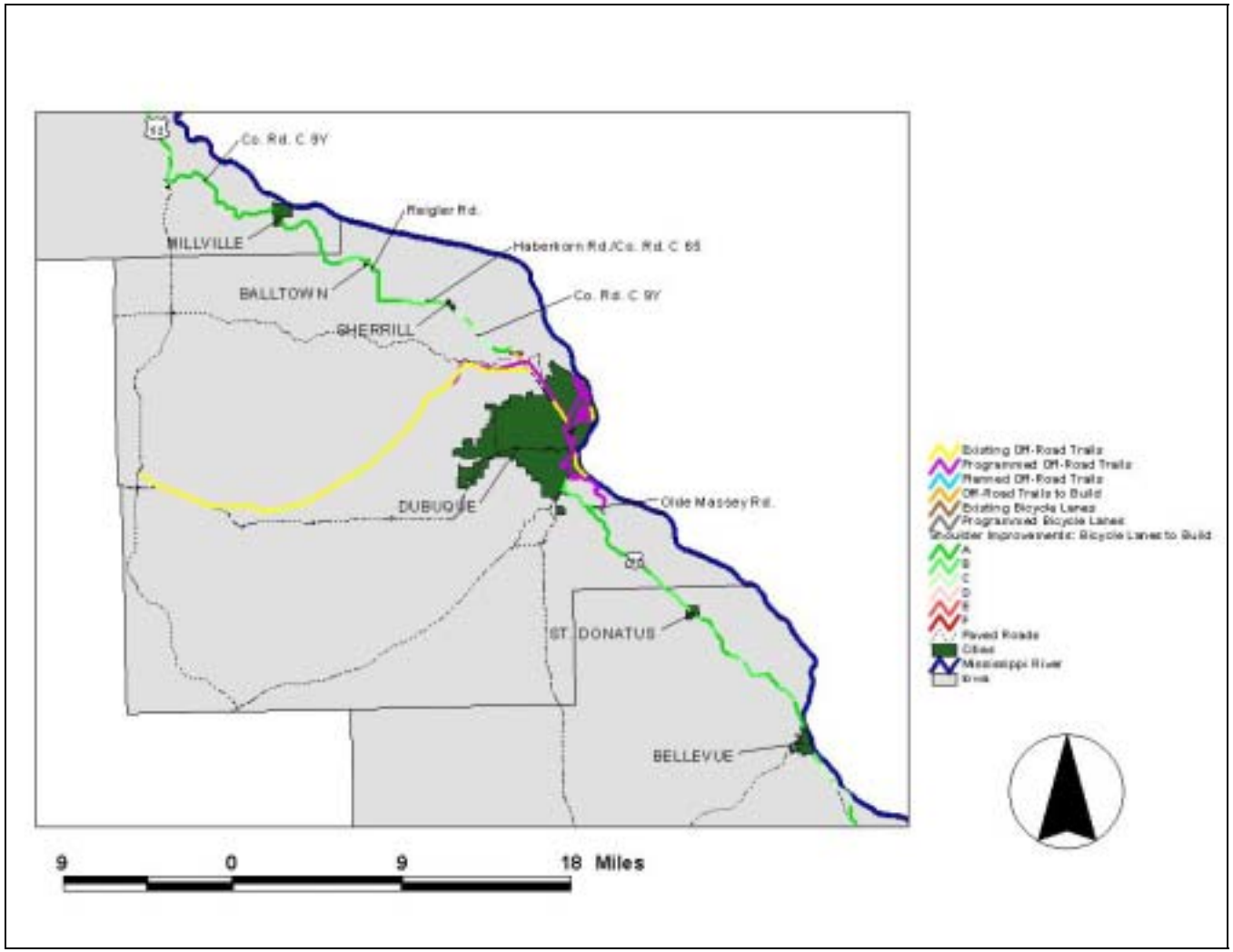


Figure B.26. Shoulder Improvements Study: Dubuque County

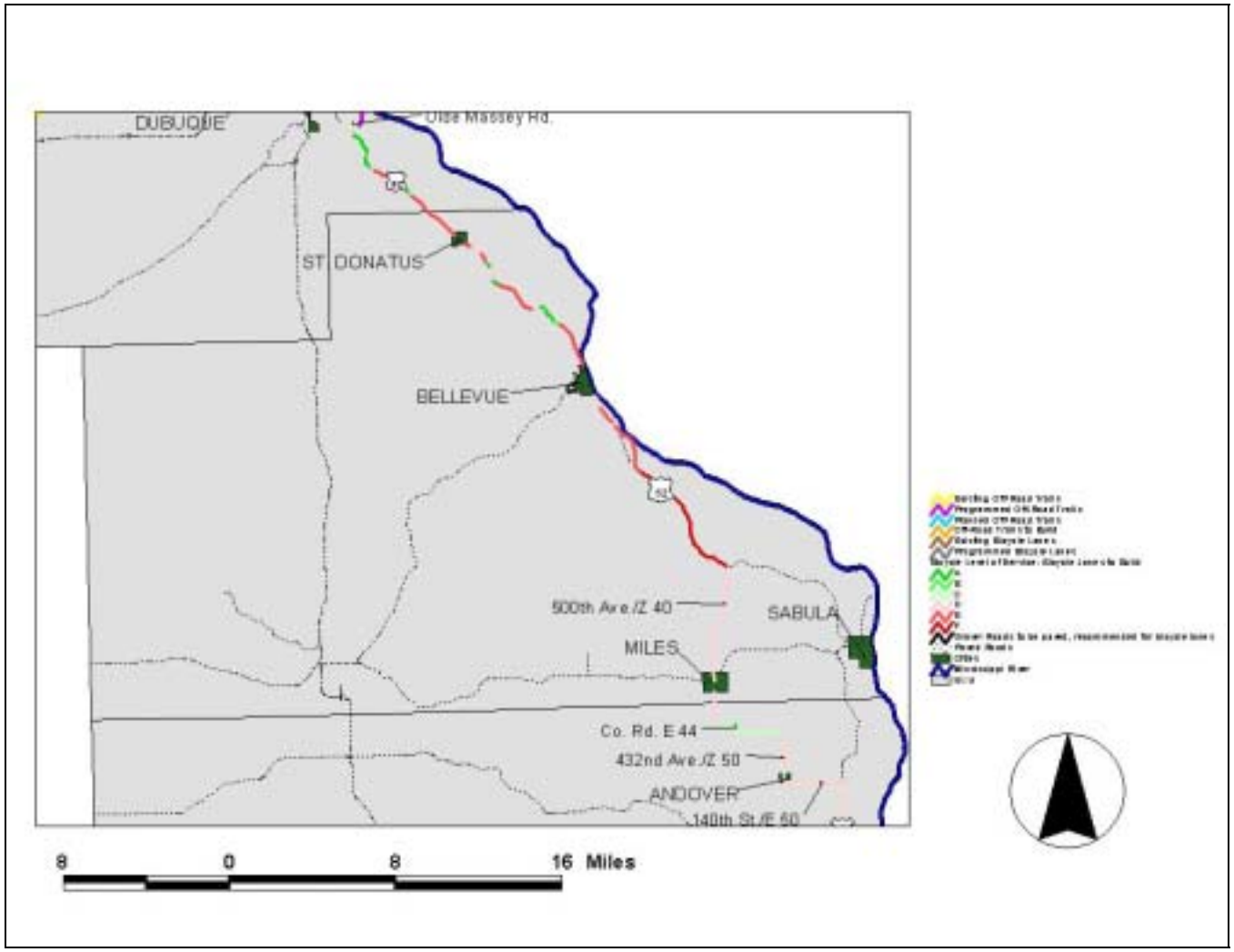


Figure B.27. Bicycle Level of Service Study: Jackson County

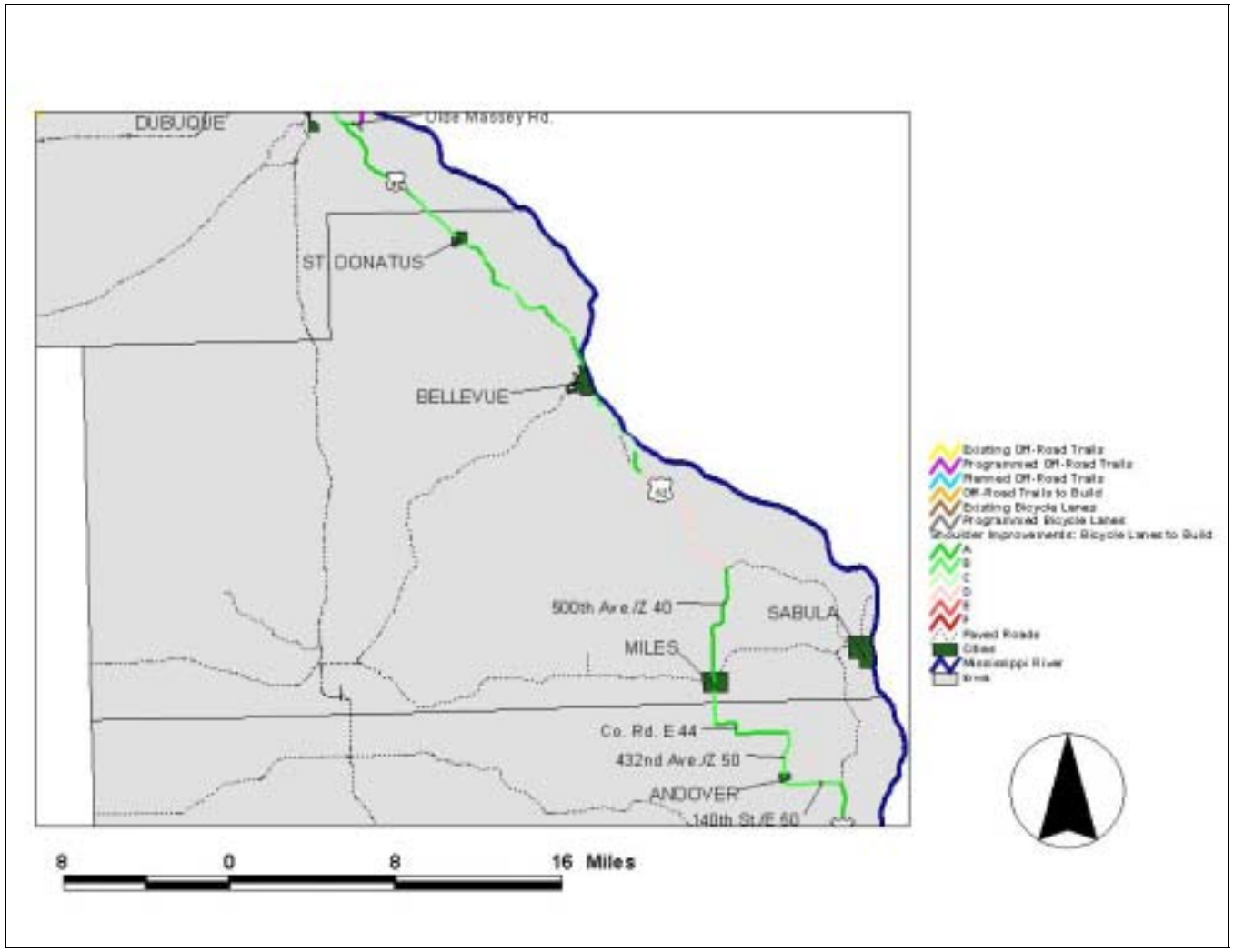


Figure B.28. Shoulder Improvements Study: Jackson County

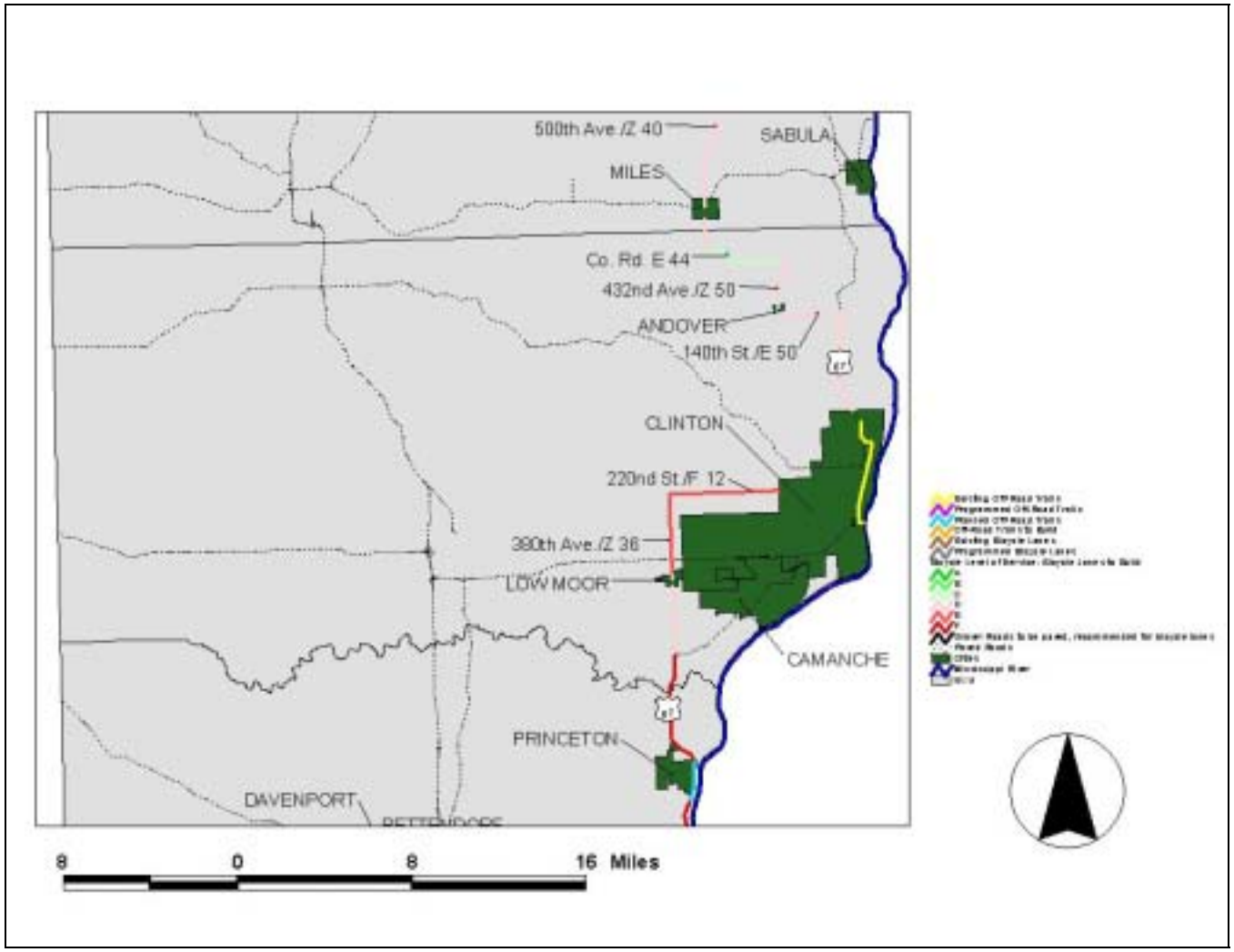


Figure B.29. Bicycle Level of Service Study: Clinton County

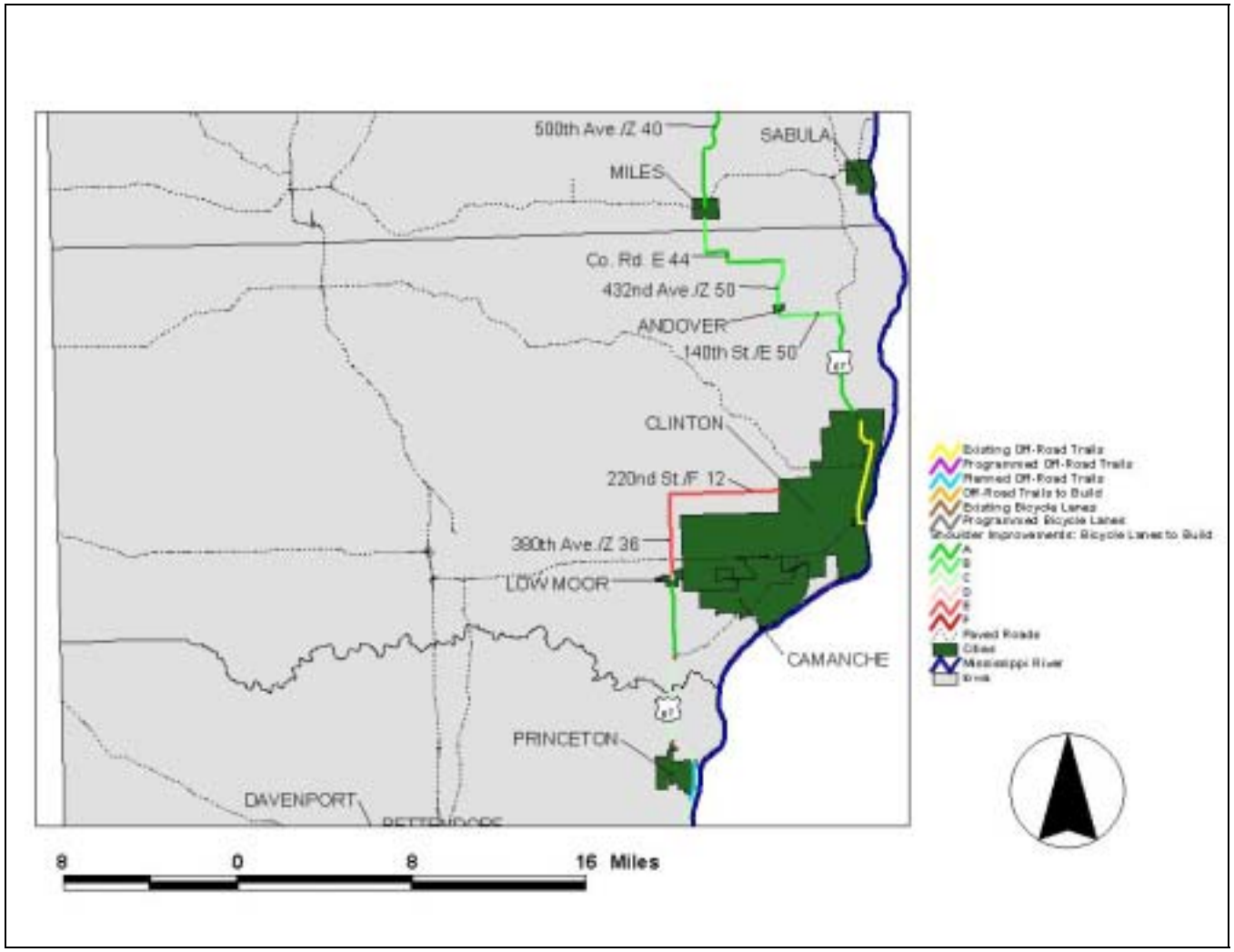


Figure B.30. Shoulder Improvements Study: Clinton County

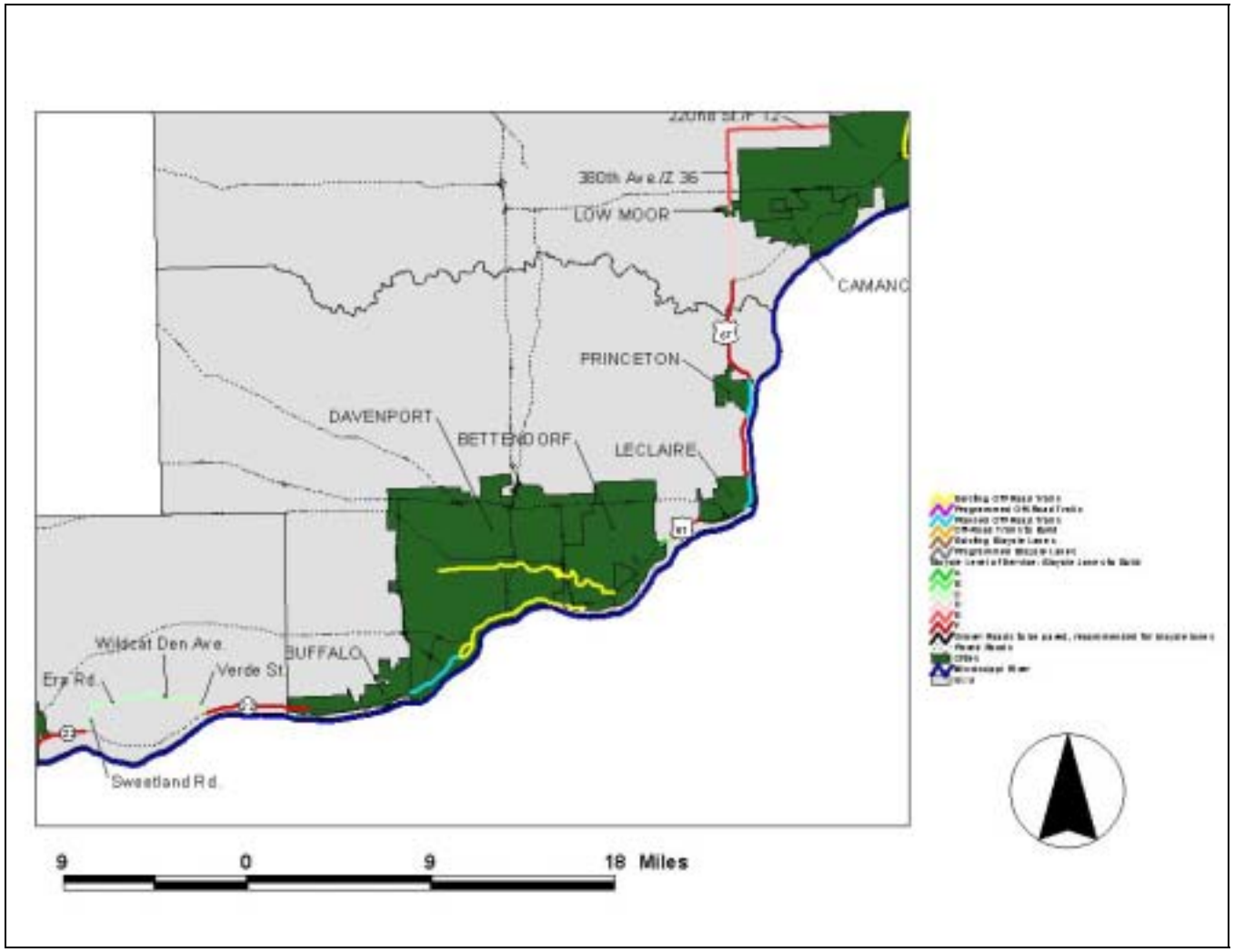


Figure B.31. Bicycle Level of Service Study: Scott County

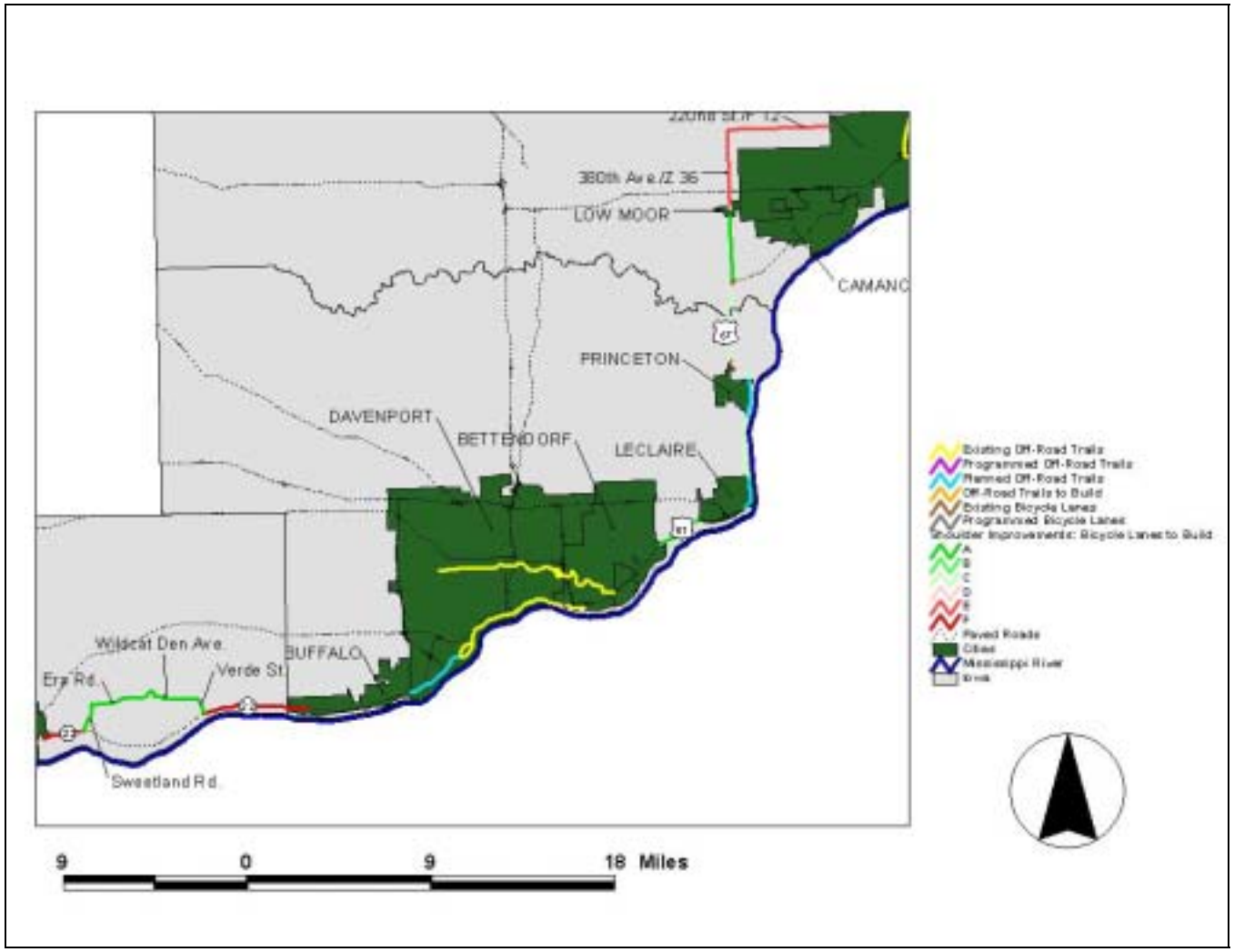


Figure B.32. Shoulder Improvements Study: Scott County

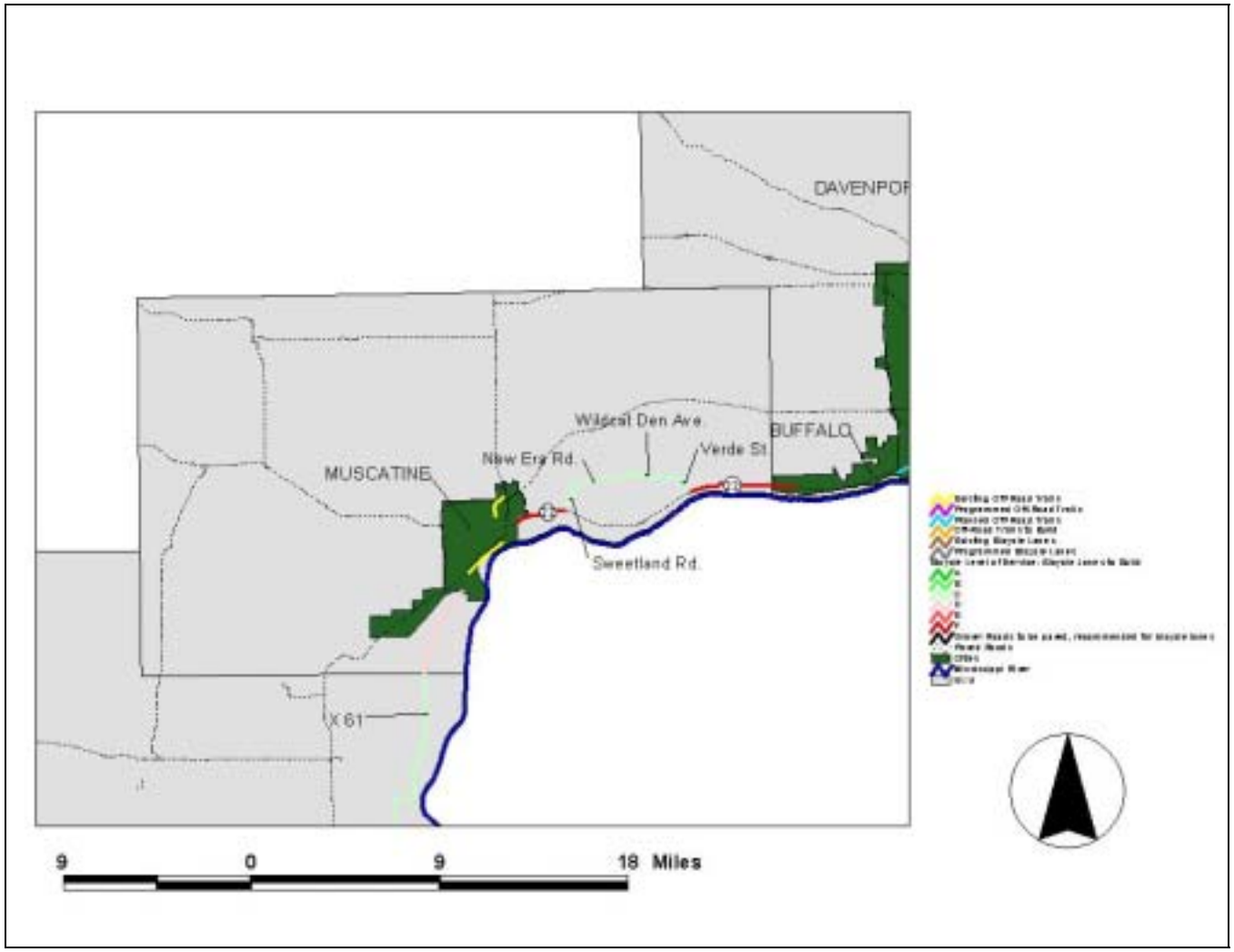


Figure B.33. Bicycle Level of Service Study: Muscatine County

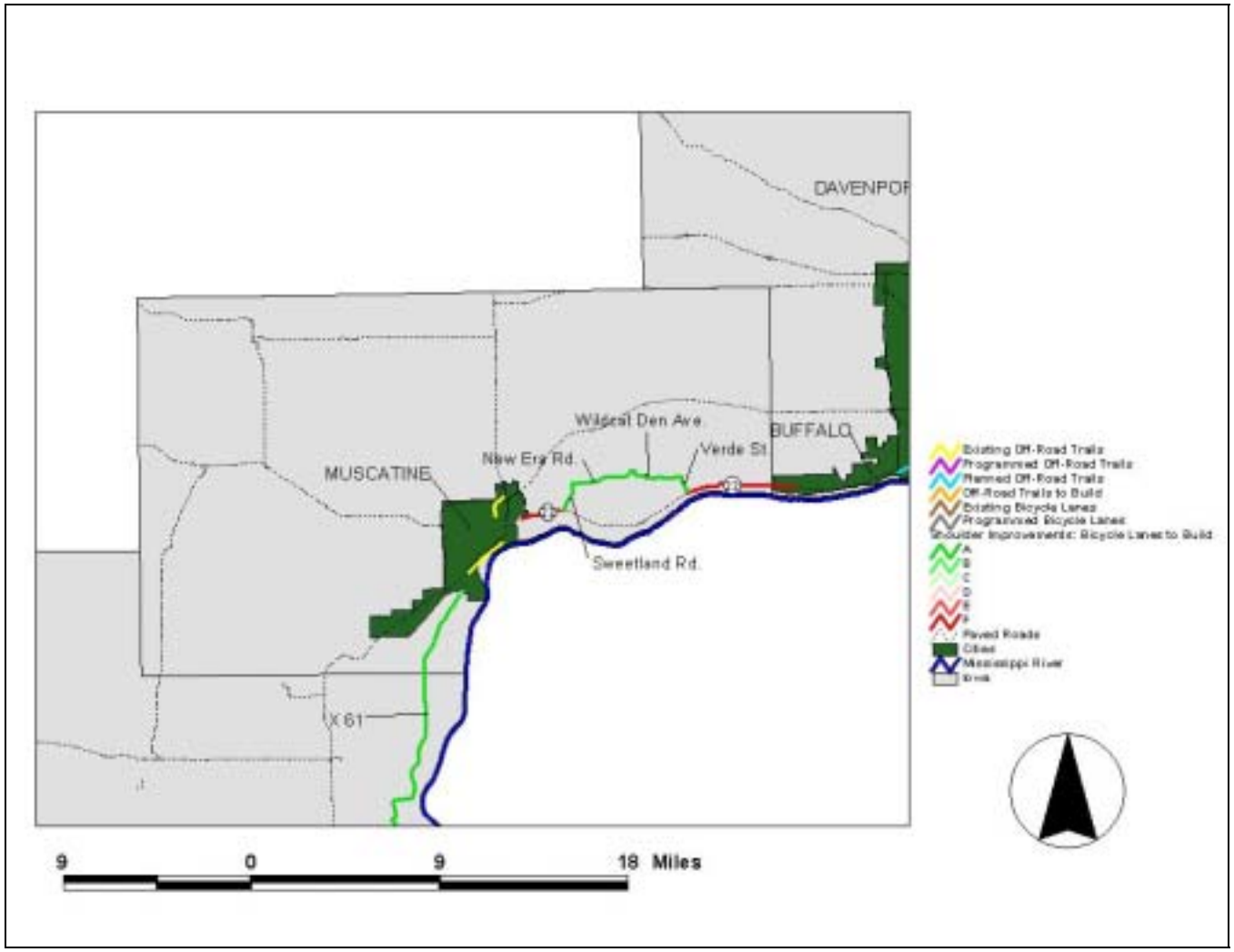


Figure B.34. Shoulder Improvements Study: Muscatine County

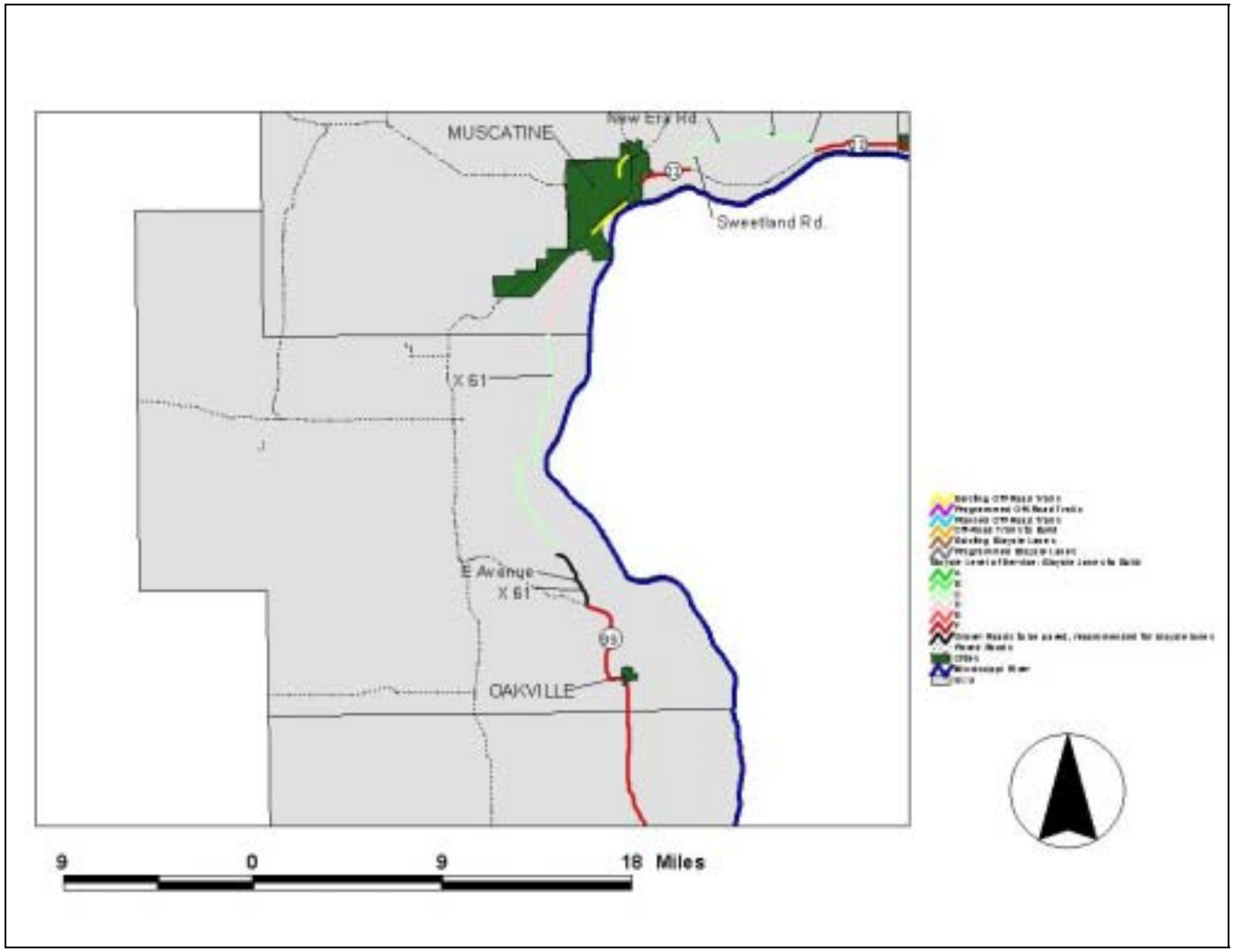


Figure B.35. Bicycle Level of Service Study: Louisa County

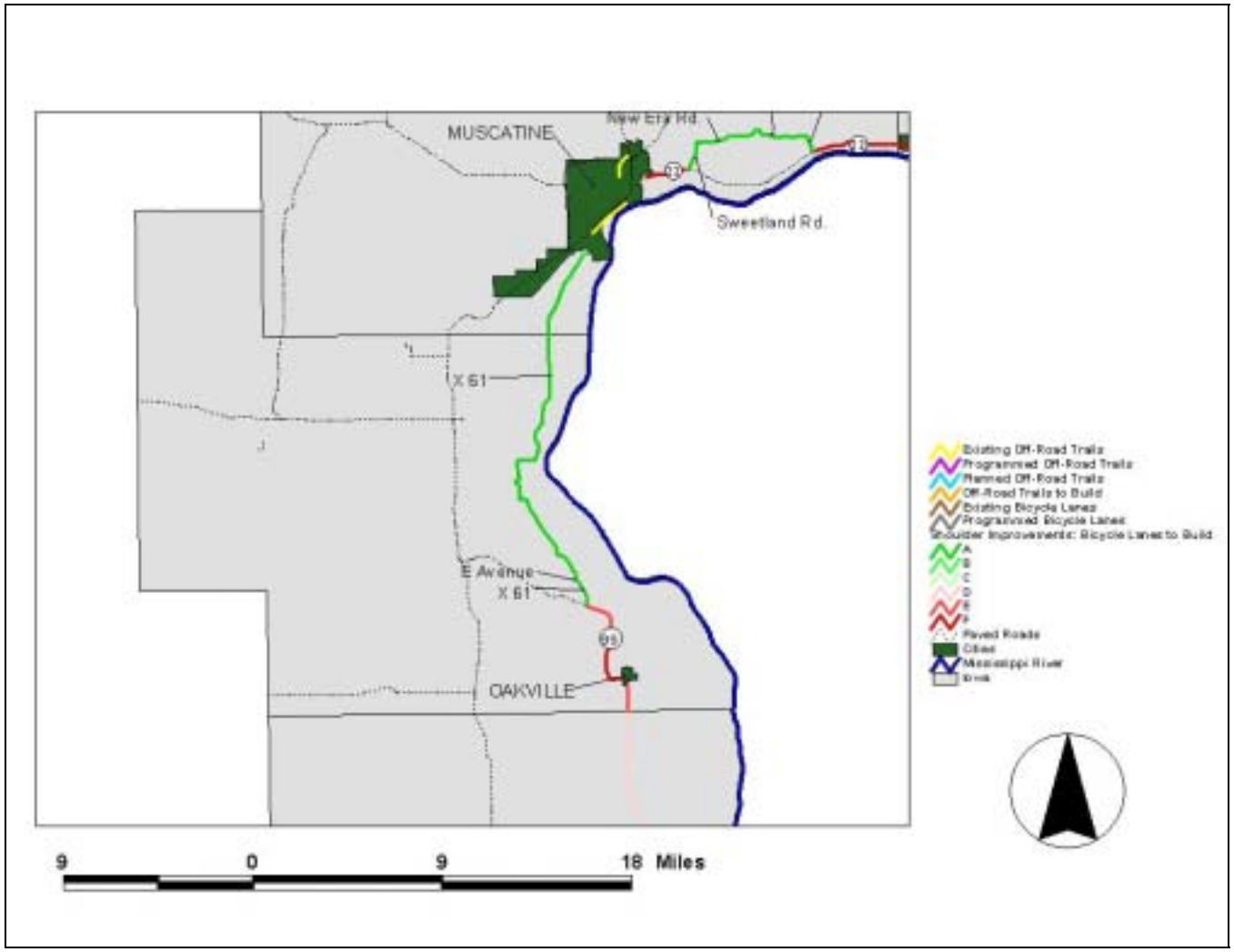


Figure B.36. Shoulder Improvements Study: Louisa County

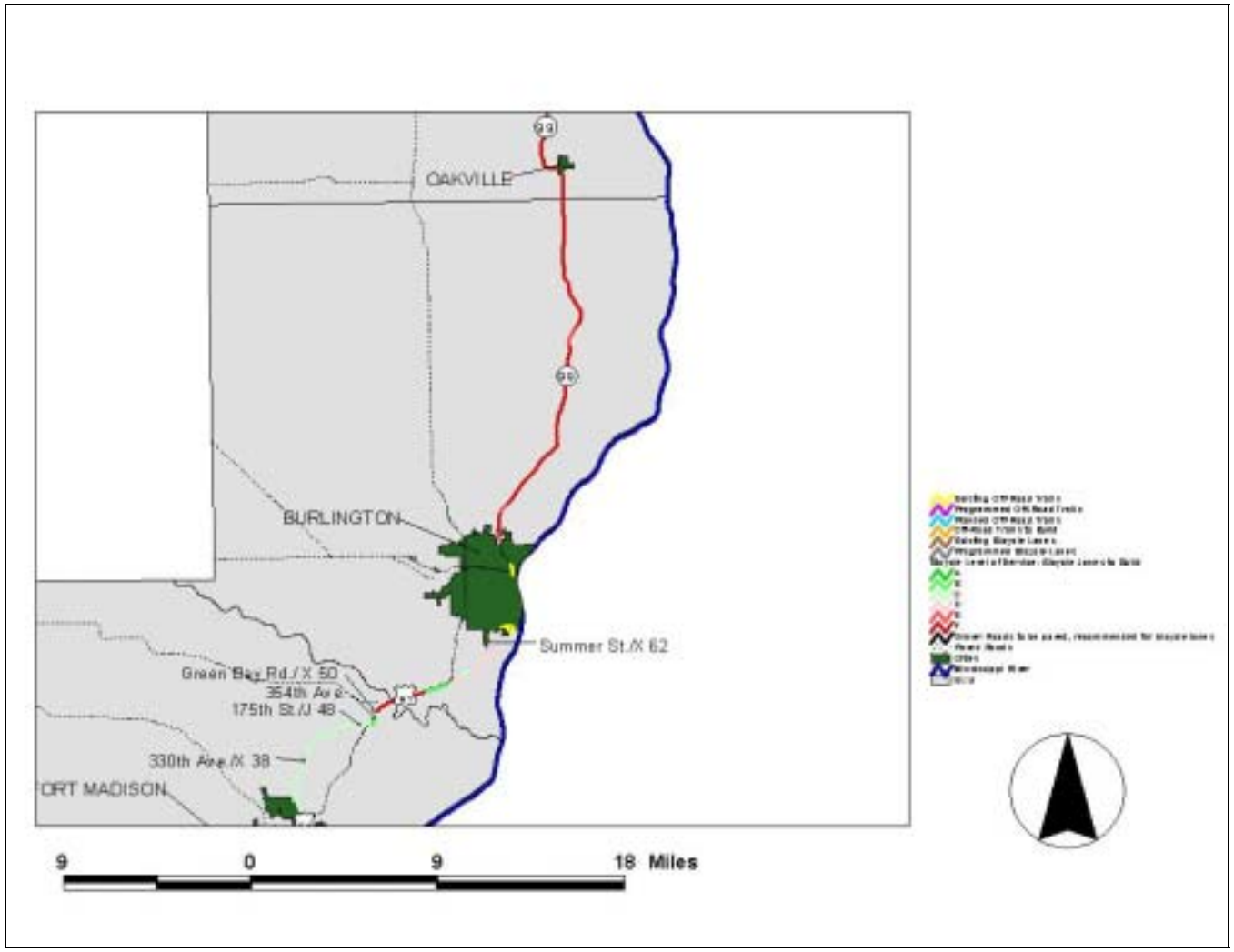


Figure B.37. Bicycle Level of Service Study: Des Moines County

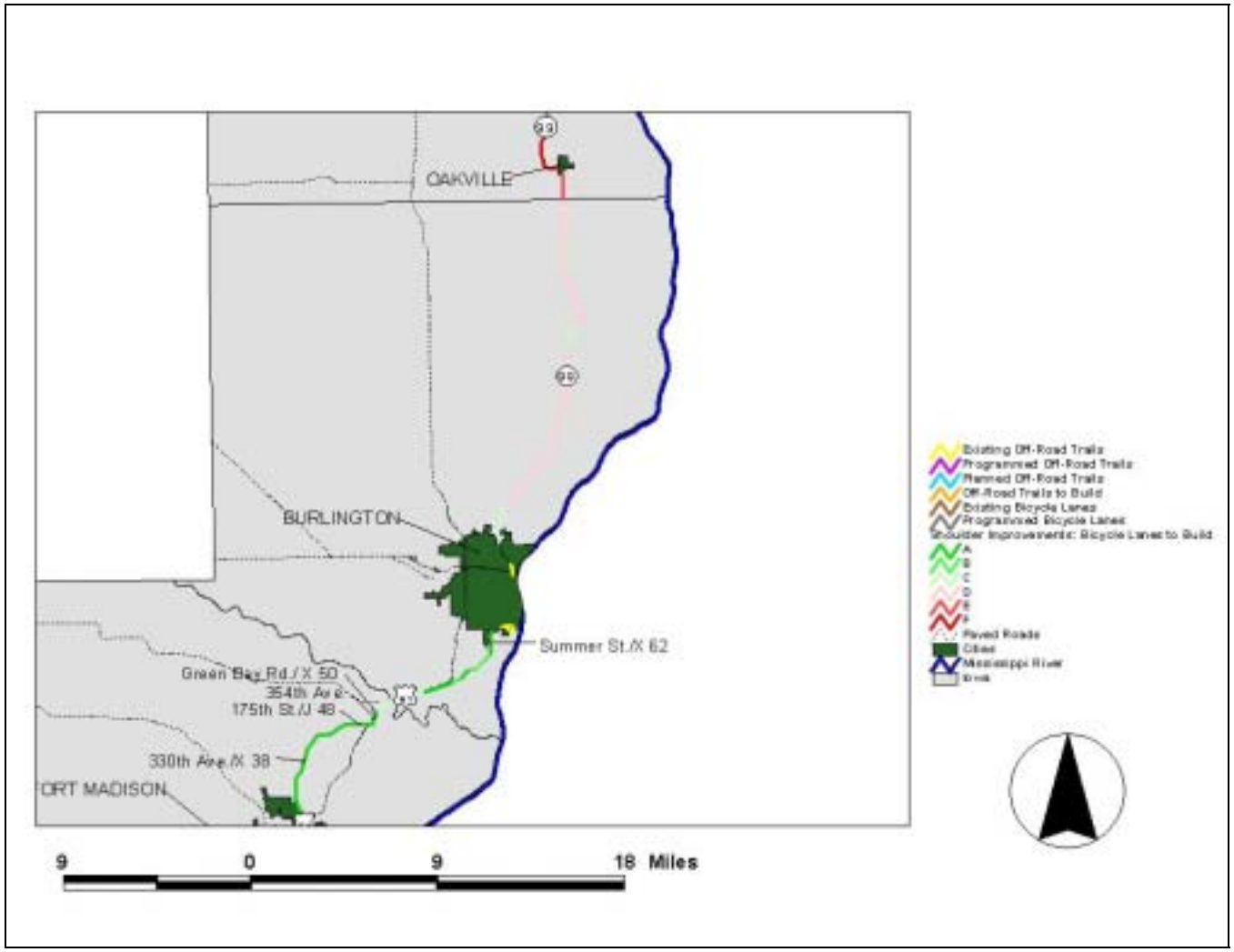


Figure B.38. Shoulder Improvements Study: Des Moines County

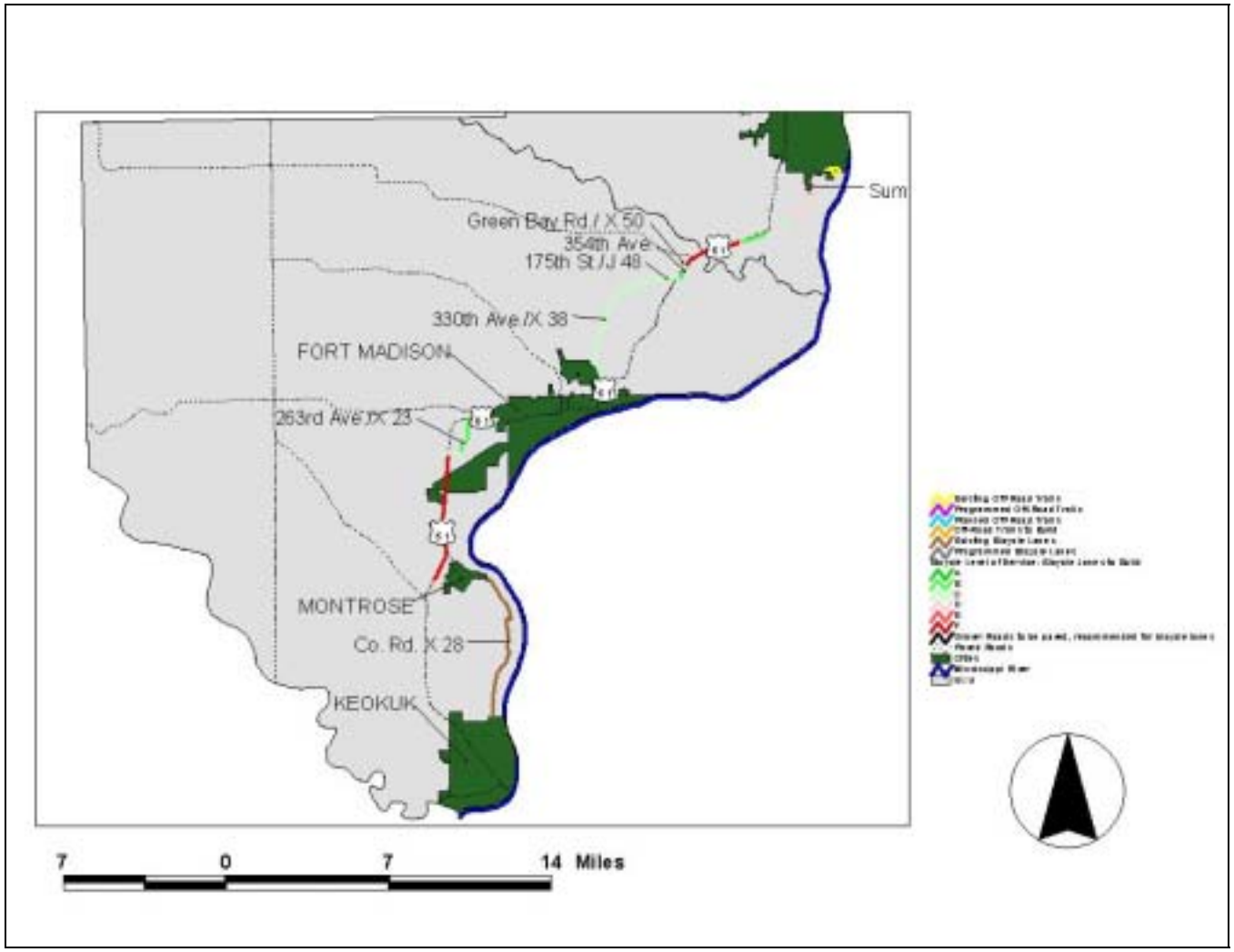


Figure B.39. Bicycle Level of Service Study: Lee County

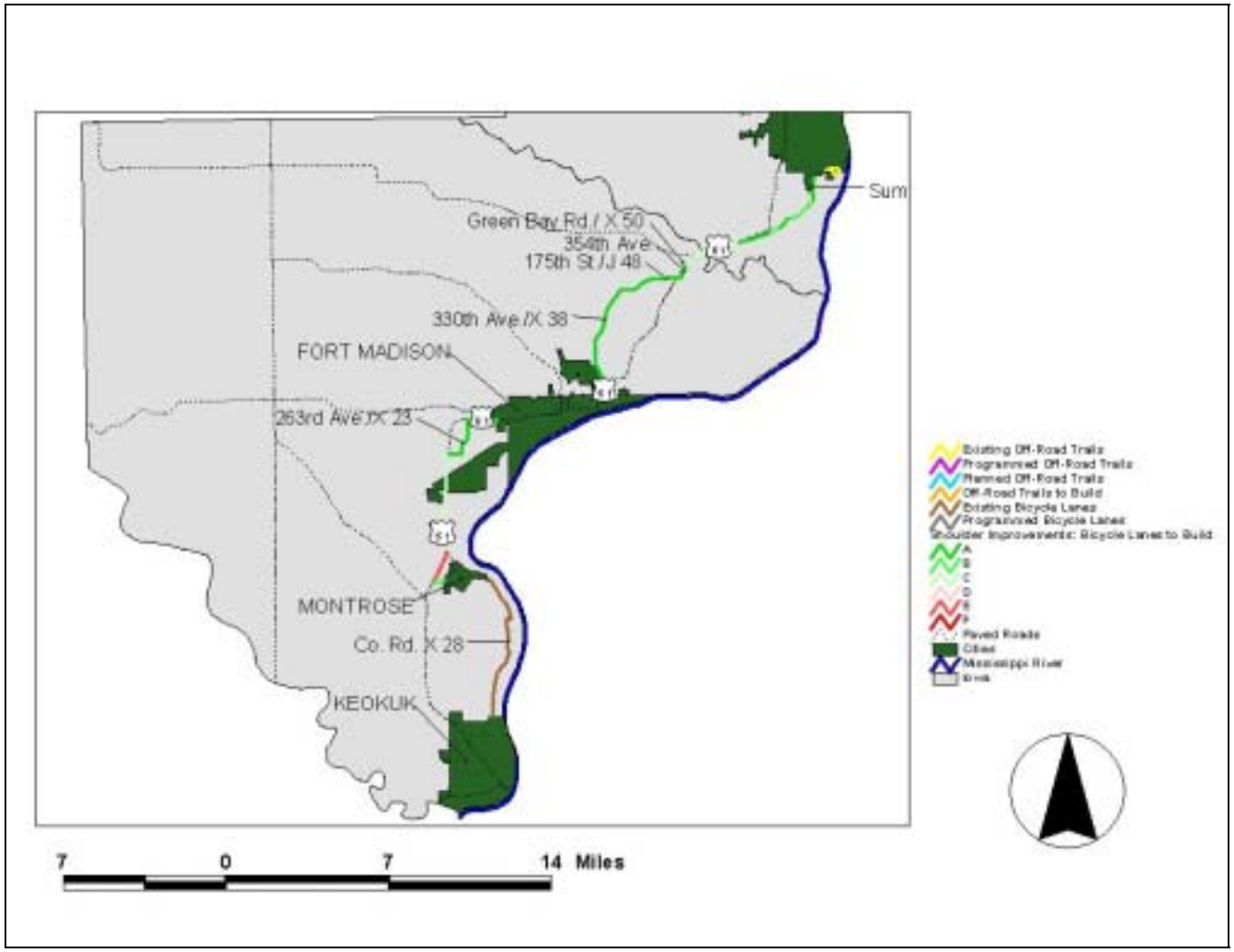


Figure B.40. Shoulder Improvements Study: Lee County

APPENDIX C. PUBLIC INPUT

July 16, 2002, Lansing, Iowa, Public Input Meeting

Afternoon stakeholder meeting: 24
Evening open house: 7
Total attendance: 31
Key comments:

- Overall, there was great support for the MRT concept.
- One attendee expressed support for off-road trails rather than on-road trails. He felt on-road cycling should be discouraged.
- The Iowa Department of Natural Resources indicated its support for routing the MRT through its parklands, especially at Pikes Peak State Park.
- The City of Lansing indicated that it will be developing a city trail system, but no details were provided. There was some talk about a bluff-top route.
- The Trail of Two Cities project in Marquette-McGregor is looking at an alternative to its preferred alignment along the railroad, probably up on the bluff. The City has received little cooperation from the railroad and now ownership is changing.
- Biggest problem area is State Highway 76 north of Marquette; need an alternative to an on-road trail there. It was suggested to be unsafe.
- The Effigy Mounds National Monument would like to have the trail routed nearby, but not through the park. They are concerned about non-cyclists using the trail and ultimately about protecting the mounds.
- Route the trail in Guttenberg through the downtown near the levee.
- The Heritage Trail will be extended from existing terminus into Dubuque and perhaps down as far as Mines of Spain.
- One letter received after the meeting indicated general support for the MRT as an economic development strategy for the region.

July 17, 2002, Davenport, Iowa, Public Input Meeting

Afternoon stakeholder meeting: 16
Evening open house: 19
Total attendance: 35
Key comments:

- Overall, there was great support for the MRT concept.
- Some attendees expressed strong support for using county roads for the MRT route, provided shoulders are paved or traffic is very light.
- Routes to find alternatives for: U.S. Highway 67 between LeClaire and Princeton; routes near Wildcat Den State Park (e.g., the Park Road and State Highway 22).

- Need a good way to exit Clinton to the south: most suggested using U.S. Highway 30 bicycle accommodation to exit west and then use a paved county road to turn south.
- U.S. Highway 52 south of Green Island is definitely not suitable for cyclists (same as is indicated on your map).
- Davenport and Muscatine are planning very extensive trail networks, mainly off-road. Plans are also pending in Riverdale, Buffalo, and LeClaire. These should be coordinated with.
- Explore potential levee routing south from Muscatine.
- Suggested scenic route for a trail: South Concord in Davenport.

July 18, 2002, Fort Madison, Iowa, Public Input Meeting

Afternoon stakeholder meeting: 6
Evening open house: 18
Total attendance: 24
Key comments:

- Overall, there was great support for the MRT concept, especially using public roads where feasible.
- The city of Burlington indicated that it will be developing a city trail system.
- Routes to find alternatives for: U.S. Highway 61 near Fort Madison (perhaps separate trail on highway backslopes).
- State Highway 99 is a better road to ride than your analysis indicates.
- Some advanced cyclists actually do ride the new four-lane portions of U.S. Highway 61 now, using the paved shoulders. They generally report the experience as good. Motorists do move aside for them.
- Finding an alternative route to U.S. Highway 61 between Burlington and Fort Madison will be a big problem; local cyclists have been trying to find routes for years. County Roads X32 and X38 are possible. You may have to route along U.S. Highway 61 for a short stretch no matter what.
- Potential routes: abandoned railroad east from State Highway 99 at Wever toward the waterfront at Burlington; levees north of Burlington to Oakville and beyond; waterfront route in Burlington; existing trail along the county road between Keokuk and Montrose (X28); the mansion area of Keokuk; Main Street and Summer Street in Burlington.

APPENDIX D. PUBLIC COMMENTS

Public comment for the Mississippi River Trail plan was collected by electronic mail through a website created for the MRT plan (http://www.ctre.iastate.edu/mrt/). The website was created so that users could access all parts of the plan, view all related maps, and leave comments on the recommended trail. The MRT website was publicized through press releases in local newspapers and a feature on WOI radio.

The public comments received were generally of four types:

1. One type of public comment praised the push for trail building and showed full support for the MRT.
2. A second type of comment expressed funding concerns.
3. A third type of comment expressed safety concerns.
4. Finally, another type of public comment received showed support for trails but showed dissatisfaction with recommended MRT routing on bicycle lanes.

These public comments were used to further analyze and amend the plan for the recommended MRT.

Positive Support for the MRT

Comment from January 28, 2003

I am passionately exuberant about the trail! I live in Clinton County and have reviewed the draft map carefully. Can you share your reason for going to so far away from the river on dangerous county roads through Miles and Andover rather than the river route through Sabula and on to Clinton?

Is it still possible to get communities and businesses involved (ADM has a factory along the slough as well as a number of others that might be willing to work together to get a trail similar to the Illinois and Iowa Quad-Cities segments) to create a trail along the river through Clinton and Camanche?

Is there an active group working on this? Can you give me the name of the chairman and who might be holding the local community meetings?

A number of possibilities to connect with existing bike/pedestrian trail along the newly completed Highway30/67 corridor between Clinton and Camanche are not shown on the draft map & may already be in the planning stages. This would tie in nicely with a trail along the river from the existing paved riverfront trail in Clinton on south to Camanche and then on to Scott County.

Comment from February 13, 2003

Read about this project, for the first time, in our local-area newspaper. Please keep advertising - as work progresses. Noted that a "Mark Twain" quote was used in your web-page discussion. Most folks (in Iowa) are not aware that Iowa has a history/connection to Samuel L. Clemens. Sam was 9 years old when his Great Grandmother (whose grave site is in the City Cemetery at West

Point, Iowa) passed away. Iowa has living, Clemens family decedents, residing in the small West Point community, which is situated 9 miles uphill (on State Highway 103) from the muddy Mississippi. Young Sam's Great Grandmother was a member of the first brick church built in Iowa, still in use today, in West Point (Lee County, Iowa).

The MRT project was being discussed in the many small town shops in our community this week (its influence on/to tourism!). MRT users will learn a great deal about Iowa when they travel through Lee County, where the first white man (Marquette) set foot in/discovered Iowa in 1673. MRT travelers will be able to visit the first National Cemetery established west of the Mississippi River in Lee County (in Keokuk, Iowa, another Mississippi River town). This national cemetery was established at the same time as Arlington National Cemetery (in Washington, DC). MRT bike enthusiast will learn that the majority of Iowa men (an estimated 85,000) who served in the Civil War, entered into the War of the Rebellion at camps set-up in Lee County. And MRT fans will discover that a young attorney by the name of Francis Scott Key, employed by a New York firm, was directly involved in the 1834 lottery and sale of the "Half-Breed" tract, in Lee County.

Please keep us informed about the MRT project. As you can see from the above data, we have a lot of history to share about Iowa, with the rest of the nation. Are there any plans to conduct presentations/discussions at the local-level (possibly in conjunction with County Board of Supervisors meetings)?

Sincerely, President, Community Public Library Foundation (fund-raising arm of the West Point Library/Museum/Tourist Information Center Project)

Comment from February 18, 2003

I'd like to open up the discussion of the purposed trail through SE Iowa.

Our group, the Des Moines County Nature Trail Association, DMCNTA, was formed in 2002. We would like to assist in the completion of the MRT in SE Iowa. We are in the process of developing a system of nature trails through out Des Moines County. We have so far completed a 3/4-mile section of the old Rock Island ROW north of Burlington.

Last week, two of us met with the Board of the Two Rivers Levee District. We explained to them the purposed MRT and to explore the use of their Levee in this area. They are supportive but have concerns. So as not to reinvent the wheel here: Has anyone else purposed or actually put a trail on a levee? Is it true that the levee CANNOT be raised with the topping off with 6" of rock or crushed limestone? That in effect, the top has to be lower 1st, before trail surface can be added.

Your comments or suggestions would be appreciated. Oh, one more thing. Would you like to add some pictures to your sight? I have numerous JPEGs I have taken with my digital camera I would send, if you're interested.

Comment from February 23, 2003

I think your plan is awesome! Building bike routes is the best investment that a community can make. This route will attract people from a variety of areas to ride it just as the Katy Trail in Missouri does. I certainly will if I am not too old by the time it gets finished.

Comment from February 24, 2003

What an excellent concept---go for it!!!

Comment from February 24, 2003

As the Mayor of Davenport, I want to assure you of the whole-hearted support and assistance of this City and all her citizens. We want this trail to happen, and we will do whatever it takes to help make it happen. We already have 10 miles of trail along the Mississippi River, and a short gap on Bettendorf's riverfront will soon disappear, so it will be even better. We already have a ramp onto the Government Bridge to access the Rock Island Arsenal; and the Illinois trails, which go 60 miles up the river and about that far into Illinois along the former Hennepin Canal. Along the southern part of our riverfront trail there are 100s of eagles in the winter and our Nahant Marsh. We're ready. Let's go.

Comment from February 24, 2003

Thank you for offering input possibilities on this project. The goals of this project are good for Iowa and good for public recreation. Like most public projects, ultimate success often relies on public involvement and support. I have previously offered input on the route north of Lansing, and attended an meeting sponsored by DOT and ISU last year. Unfortunately, the meeting was not publicized and I was the only one there from the general public about the MRT, a few others were there for related issues. I knew about the meeting only from my involvement in other Mississippi River issues and organizations. I am a community planner by occupation and do work in trail planning and design at the state and community level; I live in Lansing.

Its important that the general public in Lansing know about this trail and have opportunities to input into it. Its particularly important that the Lansing city government is given a formal opportunity to know project details and submit input on trail issues. Particular concerns involve connections to the community and the city's responsibility to safely accommodate the new bike traffic that is planned to be marketed to this facility. There should be concern for the safety of the tourist that are intended to be attracted to this project, since it is being promoted as a multi-use "recreational trail". The common speed on this highway is 60 to 70 mph, with the common transit of oversized vehicle cargo. Connecting into Lansing will be particular safety; its unlikely this can be done without city government cost; the sooner they start planning for it the better.

There are prime opportunities for planning some off-road trail segments north of Lansing.; some of this was checked into several years ago when I was doing some consulting tourism and recreation planning for a county tourism and economic development commission. Of course, Interim arrangements are often necessary, but they must be part of a master plan. Of particular concern is the importance of the road shoulder north of Lansing remaining available in key locations for the parking of vehicles for fishing activity and also for duck hunting and other public lands activities, which are long-standing activities in this area. Earlier, the DOT said that the entire shoulder would be posted against parking. Any attempt to do this will raise a storm of opposition, including from the DNR and Fish and Wildlife Service who are also promoting programs to use the refuge more. Its important that people in this area be able to see the details of what is being proposed. I believe a compatible bike route can be planned, to be implemented in phases; but its important that the public be involved and knowledgeable.

There should also be concern about trail continuity at the state line. In my work with Minnesota DOT on transportation and trail issues, its clear that they are concerned about the safety of placing a formal bike trail along the extension of Highway 26. They also have potential for off-road segments of such a trail within this highway corridor. A comprehensive and multi-phased plan is a natural in this difficult corridor; we don't want to establish credibility problems with the concept at the beginning. Over the years, many worthwhile recreational type ideas have be proposed for this area, with many being defeated or seriously compromised due to lack of public understanding and support. Our area can use the benefits of such ideas, but as we all know, the devil is in the details.

Comment from March 3, 2003

How excellent to be able to put such a plan together and for Iowa to be a part of this trail.

My granddaughters and I do an all girls vacation every year, it would be an excellent way for them to see the sights. We do a lot of camping on our trips; this would be excellent.

We'd also be more than happy to be part of brochure to promote this area.

Comment from March 5, 2003

I'm sending this for my husband. He is president of Harpers Ferry Boosters. The Boosters is a small group that gets together once per month and works at bettering our little town. We are very much interested in the MRT. Please keep us informed about plans to build trail near Harpers Ferry.

Comment from March 10, 2003

I am sorry that I don't have the time to study this plan in detail right now, but I think the idea is *long past due*. The Mississippi River is near and dear to my heart. I grew up in Clinton. My parents are natives of Dubuque and Muscatine, as were their parents and grandparents. I know how integral a part of life the river is to those who live on it's banks. It is our state's *best feature* for attracting tourism dollars. We are remiss in not making the most of it. A trail would attract adventure tourists and would provide needed increased recreation for Iowa's citizens. It would hopefully end up revitalizing towns like Clinton that have steadily declined over the past twenty or so years. I would hope that the trail would increase awareness of the need to clean up and preserve the river and it's floodplains. I would like to see the trail result in a sustainable bio-system: a win-win scenario for land & water, people, flora, and fauna. The resurgence of the eagle population indicates that we're possibly on the right track. It would be wise to include safeguards that would deter development at the expense of the resource. I would not want to see the trail developed to the point that we have another 'Wisconsin Dells' or 'Minnesota lakes' (completely lined with vacation homes and resorts). Vacation homes/development projects lining *every mile* of the river would only take away from its beauty and appeal. In other words, the trail concept is fabulous only as long as 'urban sprawl' is avoided. I don't know how you'll be able to encourage that. Also, don't forget that The Mighty Mississippi has a will of her own every so often. *Plan* on needing to repair the trail every so often when she floods.

Comment from March 10, 2003

I am delighted to hear that this is going forward. I started taking my children to trails back in 1975. Naturally at that time it involved going to Elroy Sparta and the Root River Trails. The kids are now grown and still have good memories of those experiences. The grandchildren now go with me.

Comment from March 10, 2003

As a Burlington native (now living in Iowa City for many years) and avid bicyclist, I wholeheartedly support the MRT plan: I'd love another Iowa trail to ride (particularly one as scenic as this will be), and I am strongly in favor of anything that would help kick-start the economies of ailing river towns -- Burlington being one of them. I spend a few weeks in northern Minnesota each summer and have seen first-hand what an extensive trail system has meant to the small towns along the way. Iowa is way behind its neighboring states in recreational trail development, not to mention

tourism-related development of its most majestic natural resource, the Mississippi. Count mine as a strong vote in favor of the MRT project! Thanks.

Phone Call on March 11, 2003

I got a phone call from a 65-year-old gentleman from Williamsburg, Iowa, regarding the MRT route. He said he was very much in support of the development of the MRT and had ridden trails in other states. He said that it had the potential to become a major tourist attraction like the Appalachian Trail on the east coast. This call may have been generated by the WHO radio interview last Friday.

Comment from March 11, 2003

We believe this to be a very desirable idea and should go forward as soon as possible. I am a member of the Iowa Natural Heritage Foundation and am wondering if they are working with you. This sounds like something right up their alley. Here's to a great idea.

Comment from March 13, 2003

Thank you for your support of the Iowa MRT. I often tell visitors to Iowa that our bike trails are "Iowa's hidden treasure." The MRT would be the crown jewel of that treasure. Keep up the good work!

Comment from March 15, 2003

"Connectivity" program between Effigy Mounds and the new Sny Magill parcel by Feds feeds this idea wonderfully and could provide funds. I'm sure you have thought of this already. Trail between McGregor and Marquette at river level is highly desirable but difficult. Needs creative thinking. The narrow road north of Marquette, Highway 76, has the same problems. River level trail would have much more attraction than up and down the hills. How can we help? GREAT PROGRAM!!!

Comment from March 15, 2003

Go Go Go

Comment from March 16, 2003

My husband and I are encouraged by the plans for this trail, and support its development. We want to be sure that the trail protects the environment it passes through, and helps people gain appreciation for Iowa's natural resources and river communities. I would encourage "someone" to produce a guide that indicates inns and restaurants/pubs along the way for R&R. I could easily see making a vacation trip out of the trail and its host communities.

Comment from March 16, 2003

I think the plan sounds good. A bike trail would be wonderful, especially for the residents of Iowa and people who live around the trail.

Comment from March 22, 2003

Last weekend we took a bike tour from Marquette, north to La Crescent, over to La Crosse and back down to Praire du Chen, in two days.

The Wisconsin side of our trip was wonderful with wide shoulders. 100% of the time Wisconsin provided at least a 2-foot shoulder, 85% of the time it was a 5 foot shoulder and we estimated the amount of actual time spent on the same portion of the road as vehicles was about 30 seconds.... a couple rough spots on the shoulders, and then crossing the road to get to the other side. The shoulders were in pretty good shape, very little sand and/or obstacles.

Iowa, on the other hand, did not provide any shoulders. We were constantly checking our mirrors, making sure the next vehicle coming around the corner had seen us. It was very unnerving with all the twists and hills, making sure drivers were paying attention. Iowa drivers were relatively courteous, but some of those roads along the river, there isn't much room for error. The only safety net, if needed was down into a ravine--literally no place to go but down. Iowa needs to compete with Wisconsin and Illinois in order to get the touring cyclists to our side if the river. We need to widen the shoulders to at least 4 feet, and get these small towns to clean up (remove old cars, mobile homes, and tires) and to cater to cyclists.

MRT is a great opportunity to get the communities along the route aware of bicyclists and educate drivers in the area how to "Share the Road" by slowing down, allowing plenty of room, and then when the cyclist gets into town be friendly and take their tourism dollars and run.

Bicycle touring is a great way to see our beautiful state. Bicycle tourist need places to camp/B&B's/hotels, places to get water, places to air up their tires (bike shops?) and a place to take a break.

Off road trails are nice also, but wide shoulders are splendid. "Share the Road" signs and education will certainly help.

Comment from March 31, 2003

I think the overall design of the Iowa MRT is grand. I have ridden in the Pikes Peak area several times and as beautiful as that area is, cycling on those roads was a safety concern of mine. I would be interested to read more detail about improving bicycle access on the bridges crossing to Illinois, in particular, those that cross and would provide access to the trail system already in place in Illinois along the Mississippi. I would like to see some suggestion that other trails in Iowa, such as the one from Dyersville to Dubuque, would be encouraged and designed to connect to the Iowa MRT. I would also like to have ANY and ALL Iowa roadways that are scheduled for improvement or redesign have a hard surface bike lane included into the budget. Thanks and continue your efforts!

Funding Concerns

Comment from February 24, 2003

I am very much against the proposed trail, in view of the state’s budget and problems. I am against spending gasoline tax, road use tax, and any tax money for bicycles, ATVs, and the likes benefits. Improve the useful roads we do have.

Safety Concerns

Comment from February 25, 2003

Recently discovered your web site, and the proposed Mississippi River Bike Trail proposal and information. I take it you would like some feedback from the public, and or are avid bikers?

My wife and I and our four children, from the earliest times, with trainer wheels, to this last summer when we biked the bike trail in the Itasca State Park at the headwaters of the Mississippi River, have been active bikers in Iowa, Wisconsin, and Minnesota.

I would like to share a prime safety issue. I do not think bikes and vehicular traffic along a highway mix well, regardless of how much space is provided along the shoulder. The only way I would feel safe with my family biking along this environment, would be with concrete barrier rail separating us from the motorized vehicles. Casualties will occur, how many are acceptable is the real question.

We have felt relatively safe on the reclaimed railroad corridor bike trails due to the lack of contact with motorized vehicles. We have biked almost all rails to trails bike trails in Iowa. Probably six different rails to trails settings in Wisconsin, and five in Minnesota.

The issue of safety revolves around respect, courtesy, and drivers of motorized vehicles concentrating on their task at hand, simply paying urgent attention to their job of controlling their cars, trucks vans and busses at an appropriate speed for the conditions of the roadway.

When I drive my Honda Accord around town, or on the roadway, I see so many people driving excessive speeds, over the posted speed limit, raging on other drivers to get out of their way, tail-gating, weaving in and out, crossing over in front lane changes, it is just amazing there are not more multi-vehicle pileups and massive loss of life.

When I see in the newspaper, that someone is killed in a traffic accident, due to a load shifting off a truck and killing a young woman, and there are no consequences, a drunk driver killing a biker and no consequences, getting probation, the message is clear, you can kill with your motorized vehicle, and there are few laws to prosecute the idiot drivers.

I applaud your efforts to offer more routes for bikers, but I do not think the dangers can be mitigated. The risks are many, including wide vehicles, large mirror extensions from trucks towing boats, and campers.

I think in many cases people get lazy, drift off, get distracted, and then by the time they may see a bike along the road, they are going to fast to react to avoid a tragedy. Public awareness may help, but barrier rail separation is clearly the best means to achieve the necessary safety to parallel the new proposed bike trails along existing roadways.

I think the cost of barrier rails would be problematic, however, but they offer the best practical solution to avoiding preventable accidents.

Anticipating problems with this corridor plan for bike travel should be a top priority. I have had several close calls in the city with inattentive car drivers, and my conclusion is that people drive to fast, do not pay attention to what they are doing, are distracted by the cell phone, radio, children, friends, and only after an accident does it become obvious they were negligent.

It all comes down to this, you the individual are responsible for your own safety. Signs should be posted to this effect on your new along the shoulder bike trails to at least make people aware of this reality.

Hope you read this and it makes you think about a few things from a bike person's perspective.

Comment from March 27, 2003

Will you have bike symbols in the asphalt along some of the paths?

Recommended Trail Alignment, Facility Type, and Modal Concerns

Comment from February 18, 2003

I am the Clinton County Engineer. The following are my comments on the proposed plan. The alignment of the MRT through Clinton County wanders 6 or 7 miles from the River in some areas and runs through Ag areas and along the County landfill. I would like to see the trail hug the River as close and as frequent as possible and utilize the existing trail through part of the city of Clinton. Thank you for asking for comments.

Comment from February, 3 2003

I sure would like to see the trail take on a whole new direction. First the new highway 30/67 segments that were built along the Camanche Avenue-Lincoln Way corridor in Clinton have a protected bike lane all the way to the Camanche-Hwy 67 interchange. It wouldn't take more than a mile to connect the current riverfront path to the new highway 30 segment and that would run along behind the municipal dock and ADM. It seems like they put a lot of effort into off road trail in Illinois and that is generally where I rollerblade because it is tree covered and scenic. I think that is the model that would be absolutely perfect from Sabula to Follets. I completely understand that it would be very costly but if it were in the design all along wouldn't that help communities with grant writing? And last but not least is it too late to change? My county engineer is on a local committee through our chamber of commerce and he had some great ideas too.

Comment from March, 3 2003

Thanks for the good work on the MRT. Muscatine Trails Team recommends the route continuing our River Front Trail down the levee, all the way to Toolesboro. We much prefer the levee route to old Highway 61, which is in the current suggested MRT route south of Muscatine. We are initiating talks with city, county, industries, levee district and COE to develop the levee route. We request you change the recommended MRT route to a continued trail down the levee.

Thank you in advance. Please let me know your thoughts. As we seek funds to complete this segment of levee trail it would be very helpful to us to have the levee route as the recommended MRT route connecting to our riverfront trail extending south to Toolesboro.

We appreciate your consideration of this change.

Comment from March, 3 2003

I am glad that the specs call for asphalt, so that the bike trail can be used by rollerbladers as well. Hopefully the bridges can have an asphalt surface as well -- planks don't work too well for rollerbladers. But the insistence of following highways tremendously takes away much of the beauty that the trail could have had. Most of the trail will not even have the Mississippi river within view. It is like traveling the "Great River Road" when on the Iowa side you can almost never see the river -- while if you go across the river and try the Illinois side they manage to have many roads right down by the river. I think we need to take our time and build a trail that is off-road and will truly capture the beauty that is the Mississippi River. Most of this is just a trail along the highway through farm land. Not very exciting.

Comment from March, 10 2003

Times are a changing. There is a new and expanding group of paved trail user that you make no mention of---Inline skaters (rollerblades). Wish you would give some consideration to this group now instead of trying to bandaide later. Roadside "bike" trails are usually covered with rocks and junk that gets blown off the roadway and mower "hay". Not so pleasant for everyone and impossible to skate on. More paved off road trails please. Yes, I know they are more expensive. Sorry to sound so negative but you asked. I do like paved trails. I'm 62 by the way.

Comment from March, 10 2003

Thank you very much for a detailed, comprehensive, and thoughtful study for sitting the Mississippi River Trail in Iowa. It certainly was a formidable task, especially because of some confusion as to the ultimate aims of the MRT.

In short, the MRT is caught between the horns of a dilemma. Should it be a route for experienced, mature, and long distance bicyclists to explore the length of the river? Or should it be as is the East Coast Greenway: "an off-road multi-use trail linking cities and towns"?

Right now the MRT is ambivalent. It seems to want both. "The ultimate vision is of a route that is off-road as much as possible along abandoned rail corridors and other landscape features. Where necessary is will be on low-volume rural roads and on paved shoulders along bikeable routes."

Iowa's Draft MRT plan certainly skirts the "ultimate vision" in favor of more immediacy. "The MRT will add bicycle lanes to many roadways and thereby remove cyclists from the same travel path as automobiles and trucks. The additional paved shoulder width required for bicycle lanes has also been shown to reduce motor vehicle crashes."

It calls for only 9 miles of new off-road trails, while putting great emphasis on constructing paved shoulders on existing roads - most of them major highways. It calls for 255 miles of such shoulders, with 205 miles needing to be constructed.

The draft plan puts its eggs in the shoulder basket, a design concept that has some flaws:

1. Shoulders along major highways do not appeal to casual bicyclists, simply because they sense a lack of safety.
2. They are right. Bicycling on shoulders of high speed highways is not safe, especially when the shoulders are also to be used in case of vehicle accidents and pull-overs.
3. The fun of bicycling is greatly diminished by utilizing many highway corridors. Cyclists have major problems with debris, dirt, and road noises.

4. Commercial and industrial usage greatly limits the scenic value of bicycling on highway shoulders.

But the main flaw with highway shoulders is that they are not needed. The experienced cyclist will do long distance bicycling without them. They are a nice amenity, but not imperative. This cyclist knows that he has the right to be on the roads, and will use the roads no matter what their condition.

The experienced cyclist really needs a fairly simple "suggested route" that will give directions to confusing routing situations, advice about the best routes in an area, and point to amenities, attractions, and food, drink, and rooming facilities along the route.

The casual cyclist, on the other hand, does need either an off-road trail or roads with very limited traffic in order to enjoy cycling. This cyclist, usually biking in the local community, is the very focus of the often repeated slogan: "Healthy trails build healthy communities." But this cyclist can expand from the local community to surrounding ones; can utilize off-road trails in the area to do errands and bike to work; and can use an expanding network of trails and roads to enjoy fitness, scenery, the natural environment, and events in the area.

Should the MRT seek to allow this cyclist to expand bicycling parameters, or should it be a long distance route for the experienced biker. Should it ultimately cater to the great number of casual bikers, or simply be an amenity for the very few cross-county cyclists?

The present direction of the Iowa MRT draft plan, with only 9 miles out of 255 miles devoted to off-road trails, is decidedly with the experienced cyclist.

I think it should be a plan for both.

For the experienced cyclists, identify viable routes that can be used right now. Publish the results as a guide, not as a definitive MRT route.

For the casual cyclist, start the web building process by which communities reach out to the riverbanks in and outside their boundaries as locations for off-road paths. Ultimately, this web will mesh with little used county roads and neighboring communities to establish a true Mississippi River Trail. Identify the major routing for this web, and publish it as the Mississippi River Trail.

Iowa needs a MR Trail, not a MR Shouldered Road.

Comment from March 14, 2003

Please look at a route around the Fort Madison area. There is an interest in our local area. We have had meetings with the Iowa DOT, in regards to the Highway 61 bypass. We have been put on hold though. Thanks.

Comment from March 21, 2003

The MRT should be designed to allow persons to travel safely by horseback, too. Campgrounds should be developed along the way.

Comment from April 23, 2003

Notes about Iowa MRT Draft plan:

The plan is just about out of town roads and highways. It assumes that towns will handle - and build - trails within their boundaries.

But it still insists that the way to officially mark the MRT is with widened shoulders (or bike lanes, which it sometimes calls them).

This is a DOT document - attuned to what the DOT has to do to make a MRT.

It relies upon somewhat questionable data. For instance, it considers the roadway between Bettendorf and LeClaire as a "B," suitable for the average adult rider.

Also at only two points in the entire sweep of Iowa MRT out-of-town roadway does it consider the "C" rider - the family and child rider. Both of these are the off-road paths that it uses for segments that have just too much traffic for lanes.

Paved shoulders for ordinary bicyclists are not a completely "safe" option. A shoulder, by definition, is a safety feature for vehicles. In case of having a vehicle veer off the roadway, the shoulder prevents a vehicle from going into soft areas and possibly interacting with trees, structures, etc. A bicycle traveling on a shoulder compounds this safety feature. Also high speed traffic creates wind drafts that sometimes impact bicyclists on shoulders; young, inexperienced cyclists, especially, can not handle this.

It makes no discrimination between country roads and major highways in its use of 6-foot shoulders for the MRT. Thus roads such as New Era Road get a 6-foot shoulder (actually 12 feet of concrete, 6 feet on both sides) the same as busy Hwy 67 or 22.
It makes no provision for funding options for the municipalities along the route. As it states, "it does not address the urban trails to complete the Iowa MRT."

And fundamentally, it does not address - except peripherally - the basic problem with the MRT at this time in its growth: is it a route for cross-country, mature bicyclists; or is it a catalyst to develop a true trail - off-road and friendly to every type of bicyclist?

If it is indeed a route for the serious cyclist, all the shoulders are not needed, although they make a nice amenity. Such a cyclist can do without them. Give this cyclist a route on decent roads and he will be happy.

Also if is just for the long distance cyclist, why all the emphasis on off-road trail development, as in the recent T-3 earmarking? Why weren't we urged to write up shoulder enhancements for rural segments of the MRT instead of what took place: off-road trails all along the MRT.

Finally, what rankles is that the draft plan "sets in stone" a route (it calls it a trail, but it s not) that just could hinder the construction of off-road trails along a significant portion of Mississippi River shoreline. By locating the "MRT" on a shoulder route using existing roads and highways, what will push the DOT, counties, and municipalities to build true trail connections?

The Iowa MRT draft plan represents an expensive amenity for the cross-county bike traveler, and a missed opportunity for the ordinary citizen-bicyclist who would like to bicycle along the Mississippi River.

APPENDIX E. REFERENCES

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