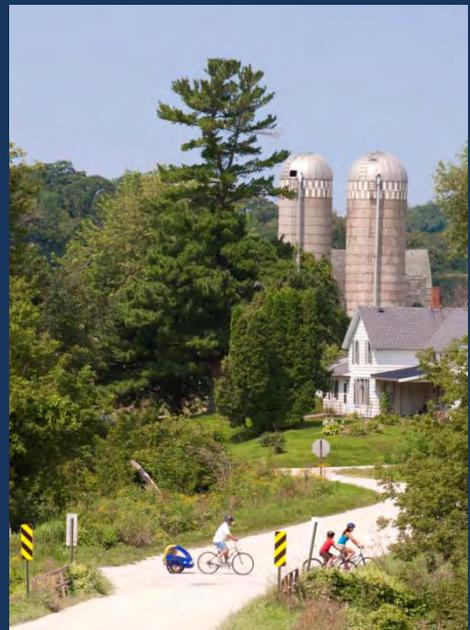


# ROOT RIVER STATE TRAIL EXTENSION HOUSTON TO LA CRESCENT MASTER PLAN



Minnesota Department of Natural Resources  
Division of Parks and Trails  
December 2011



The Minnesota Department of Natural Resources, Parks and Trails Division would like to thank all who participated in this master planning process. Many individuals and groups in trail communities have been working for many years to help establish this trail. The Houston County Trails Committee has played a leading role in these efforts and continues to do so. Many DNR staff, city, county, state and federal officials, trail association members and local citizens contributed their time and energy to the planning process as well.

This master plan was prepared by:

- Dennis Thompson, Principal Planner (2008-09)
- Suzanne Rhees, AICP, Principal Planner

December 2011, Minnesota Department of Natural Resources.

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# Minnesota Department of Natural Resources

500 Lafayette Road · Saint Paul, Minnesota · 55155-4037

Office of the Commissioner

651-259-5555



December 22, 2011

RE: Department of Natural Resources Approval of Root River State Trail Extension Master Plan

Minnesota Statutes, Section 86A.09, requires that a master plan be prepared for units of Minnesota's outdoor recreation system, including state trails. This master plan addresses the extension of the Root River State Trail from its existing terminus in Houston to the City of La Crescent, a distance of approximately 18 miles. The trail extension was authorized as part of the Blufflands Trail System in 1992, in Minnesota Statutes, Section 85.015, Subdivision 7.

The Minnesota Department of Natural Resources interdisciplinary team developed the Master Plan, with the assistance of the Houston County Trails Subcommittee and the cities of Houston, Hokah and La Crescent. The plan received input and comments from the public, including two public open houses and additional meetings with regional and state agencies.

The Root River State Trail Extension Master Plan has been reviewed by the Division of Parks and Trails and by the Central Region Management Team.

I have reviewed this master plan and determined that it complies with Minnesota Statutes 86A.09 and find it provides for the administration of the extension of the Root River State Trail in a manner that is consistent with the purpose for which the trail was authorized.

Sincerely,

A handwritten signature in black ink, appearing to read "Tom Landwehr". The signature is fluid and cursive, with a large initial "T" and "L".

Tom Landwehr  
Commissioner



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## **Executive Summary**

### ***Trail Alignment and Development***

The Root River State Trail is one of the oldest and most popular rail-trails in Minnesota, legislatively authorized in 1971 and developed in the early 1980s. The Root River Trail is now a segment of the Blufflands Trail System, extending through Fillmore, Olmsted, Winona, and Houston Counties.

The proposed trail segment will begin at the current terminus of the Root River State Trail in the City of Houston and will follow the Root River Valley through the City of Hokah to Miller's Corner (the junction of Minnesota Trunk Highways 16 and 26). From that point the trail will turn north and parallel Highway 16 to the city of La Crescent. The easternmost segment, known as the Wagon Wheel Trail, will extend from U.S. Highway 61 in La Crescent to the Mississippi River, then south to the Highway 14/61 bridge across the Mississippi to La Crosse, Wisconsin, providing a connection to over 100 miles of Wisconsin state trails.

An alignment for the Wagon Wheel Trail segment has been identified. Throughout the remainder of the trail search corridor, specific alignments have not been finalized and will depend upon further discussions with landowners, road authorities, communities and managers of public landholdings.

The trail will be approximately 18 miles in length when complete. It is currently envisioned that the certain segments of the trail will be paved, while others may initially be surfaced with limestone screenings, which produce a hard surface when rolled. There are advantages and disadvantages to each type of trail surface, and these will continue to be evaluated as trail segments are designed.

### ***Recommended Trail Uses***

The Root River State Trail Extension is a multi-use state trail and will allow all the uses allowed on the existing Root River State Trail, including bicycling, hiking and walking, running, and similar uses. Hunting will be allowed except where regulated by community ordinances. Snowmobiling will be allowed between Houston and Miller's Corner. Horseback riding will be accommodated on portions of the trail where sufficient right-of-way is available.

### ***Trail Management***

The plan contains recommendations for maintenance, enforcement, and interpretation of natural and cultural resources. Trail maintenance is critical to provide and sustain the quality experience trail users expect and appreciate. The plan recommends that an adequate level of enforcement be provided via a multifaceted approach, to help maintain a safe and secure trail environment. It is also a goal to encourage trail users to understand and obey trail rules, respect other trail users and respect adjoining properties.

### ***Natural and Cultural Resources***

The ecological value of the trail corridor will be enhanced wherever possible through intensive resource management. The vegetation within the trail right-of-way will be managed to provide a healthy diversity of native woodland, wetland, and prairie communities for wildlife habitat and for the enjoyment of trail users and adjoining landowners. Native flowers, grasses, trees and shrubs that are consistent with the natural plant communities of the area will be planted and managed. Areas disturbed during construction will be seeded with native plants. Cultural resources will be preserved and managed for interpretive purposes. Some native plant community management may include cooperative efforts with adjacent land owners. Trail users will have opportunities to experience the history of the Blufflands region through existing historical and proposed interpretive sites.

# **1. Planning Process, Purpose and Scope**

The Root River State Trail Extension, Houston to La Crescent Master Plan was prepared by the Minnesota Department of Natural Resources, with assistance from the National Park Service (Rivers, Trails and Conservation Assistance), the Trails Subcommittee of the Houston County Economic Development Authority, and the Center for Urban and Regional Affairs at the University of Minnesota.

## **Planning History and Process**

The Root River trail was authorized in 1971, trail development began in the 1980s, and the trail was extended from Rushford to Houston in 1998. The Root River State Trail Master Plan was completed in 1979, followed by master plans for the Harmony – Preston Valley State Trail in 1995 and the Houston Extension of the Root River Trail in 1998.

Interested citizens have been working with DNR staff since around 1992 to extend the trail in Houston County. The informal group became an official subcommittee of the County's Economic Development Authority in 2004.

In January, 2005, the Houston County Trails Subcommittee, partnering with the National Park Service's Rivers, Trails and Conservation Assistance Program and the Community Assistantship Program at the University of Minnesota's Center for Urban and Regional Affairs, began analyzing possible trail alignments between La Crescent, Hokah and Houston. The partnership produced a report that included inventory and assessment information about the proposed trail corridor and identifies potential trail alignments for further study. The findings of the report have been incorporated in this trail master plan.

In 2006-07 the group obtained State and Federal funding to begin buying land and building the trail. In 2007 a trail segment in La Crescent (the Wagon Wheel Trail) received a Transportation Enhancements Grant from the Minnesota Department of Transportation. Design of this segment is largely complete and construction is planned within the next several years. In 2007 the Committee also began negotiating with landowners for the purchase of trail corridors in La Crescent and east of Houston, in order to begin trail development from both ends of the corridor.

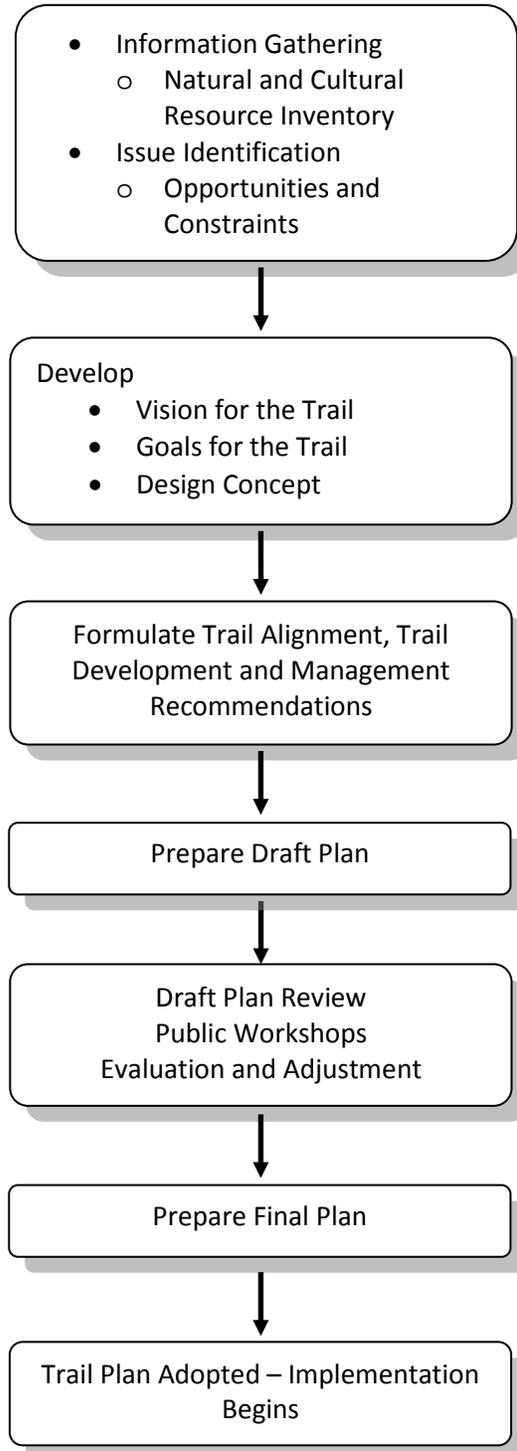
The diagram on the following page illustrates the planning process used in developing the trail master plan.

# Trail Planning Process Chart

## Who's Involved

- Houston County EDA Trails Subcommittee
- National Park Service
- US Fish and Wildlife Service
- University of Minnesota
- DNR Resource Managers
- Community Leaders
- Scenic Byways
- Elected Officials
- Other Agencies
- Citizens
- Adjacent Landowners
- Trail Users

## Steps in the Process



## **Public Involvement and Partnerships**

Throughout the five-year period of trail planning, numerous meetings and public outreach events have been organized by the Houston County Trails Committee. The Trails Committee has worked for the past five years with DNR and Mn/DOT staff as part of the Southeastern Minnesota Association of Regional Trails (SMART), a partnership with local governmental agencies, trail groups, Region IV DNR and Mn/DOT, District 6 (Rochester). SMART “envisions a trail system for alternative modes of transportation connecting locally, regionally and to neighboring states, thereby enhancing environmental, socioeconomic and recreational benefits in Southeastern Minnesota.” Other project partners have included the U.S. Fish and Wildlife Service and the cities of La Crescent, Hokah and Houston.

An initial open house was held in August 2005 at the Hokah Fire Hall. Large color maps depicting the natural resources inventory, proposed trail alignments for the La Crescent-Hokah segment, and images of the abandoned railroad bed were on display, with Trails Committee members stationed near the images to answer questions. A short presentation outlined the goals of the trail, trail benefits, natural and cultural resources inventory, proposed trail alignments and future work.

Concerns were addressed regarding many issues with trails on private property: liability, trail maintenance, wildlife management, hunting, and safety issues. Other topics included avoiding displacement of rare species and whether a trail would bring economic benefits to the area.

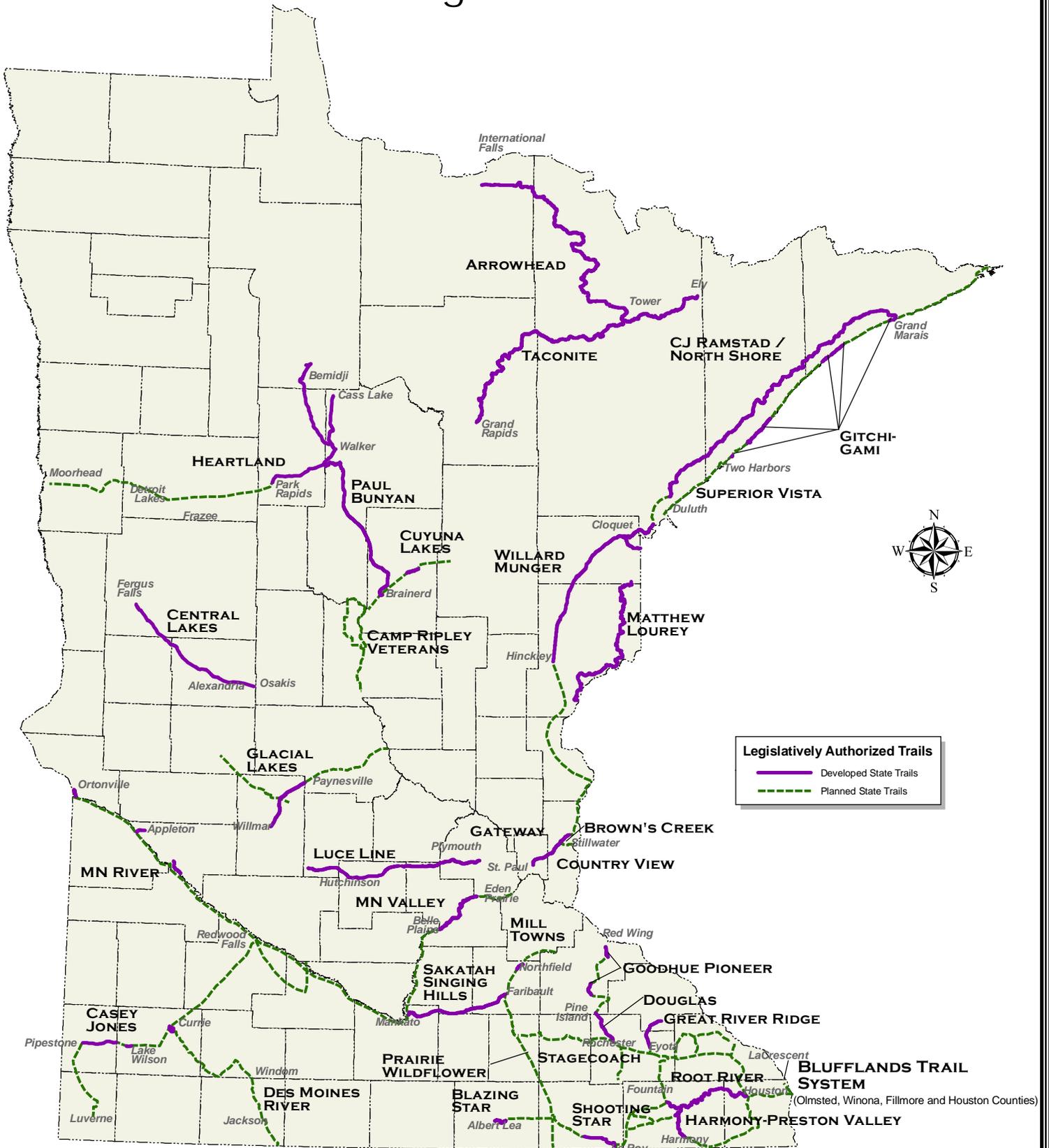
Two open houses were held in January and February 2011 to review the draft master plan and discuss conditions and issues in the entire trail corridor. The first meeting was held in La Crescent on January 20 in conjunction with a citywide trail visioning process. Most attendees expressed interest in the trail and support for better connections between La Crescent and state trails in Minnesota and Wisconsin. The second meeting was held on February 15 at the Valley High Golf Club in Houston and was focused on outreach to area landowners. Over 60 landowners and other area residents attended. Discussion focused primarily on landowner concerns and questions regarding land acquisition, trail management, and potential trail uses.

More detailed meeting summaries are provided in Appendix A.

# STATE PARKS AND TRAILS



Figure 1: Minnesota State Trails



## Legislative Authorization

Legislation authorizing the Root River State Trail system was first passed in 1971. This statute was subsequently amended several times to include more counties, cities, and an eventual name change to “Blufflands Trail System.” The 18-mile section of trail connecting La Crescent and Houston was legislatively authorized in 1992. Figure 1 depicts the legislatively authorized state trail system. Current legislative language is as follows:

Minnesota Statutes, 2009, Section 85.015, Subdivision 7, Blufflands Trail system, Fillmore, Olmsted, Winona, and Houston Counties.

*(a) The Root River Trail shall originate at Chatfield in Fillmore County, and thence extend easterly in the Root River Valley to the intersection of the river with Minnesota Trunk Highway No. 26 in Houston County, and extend to the Mississippi River.*

*(b) Additional trails may be established that extend the Blufflands Trail system to include La Crescent, Hokah, Caledonia, and Spring Grove in Houston County; Preston, Harmony, Fountain, Wykoff, Spring Valley, Mabel, Canton, and Ostrander in Fillmore County; Rochester, Dover, Eyota, Stewartville, Byron, and Chester Woods County Park in Olmsted County; and Winona, Minnesota City, Rollingstone, Altura, Lewiston, Utica, St. Charles, and Elba in Winona County. In addition to the criteria in section 86A.05, subdivision 4, these trails must utilize abandoned railroad rights-of-way where possible.*

*(c) The trails shall be developed primarily for nonmotorized riding and hiking.*

## Outdoor Recreation Act

The Blufflands State Trail system is one of the legislatively authorized state trails in the Minnesota State Trail System (see Figure 1). State trails are one unit of the state’s outdoor recreation system established by the Legislature. In 1975, the Minnesota Legislature enacted the Outdoor Recreation Act (ORA) (Minnesota Statutes, Section 86A.05, Subdivision 4 and Section 85.015). This act established an outdoor recreation system comprised of eleven components or “units” classifying all state-managed recreation lands. The ORA requires that the managing agency prepare a master plan for the establishment and development of each unit. This plan fulfills this mandate. The La Crescent Extension of the Root River State Trail meets the following criteria established for state trails in the ORA:

*a. A state trail shall be established to provide a recreational travel route which connects units of the outdoor recreational system or the national trail system, provides access to or passage through other areas which have significant scenic, historic, scientific, or recreational qualities or reestablishes*

*or permits travel along an historically prominent travel route or which provides commuter transportation.*

The La Crescent Extension of the Root River State Trail will eventually link state trails, forestry units and state parks to communities along the trail. It continues the scenic route along the Root River valley, paralleling the river for much of its length, and provides access to the Root River itself, a designated Water Trail. In addition to connecting to state trails in Minnesota, the extension will also provide access through the city of La Crosse to over a hundred miles of Wisconsin State Trails.

- b. No unit shall be authorized as a state trail unless its proposed location substantially satisfies the following criteria:*
- 1. permits travel in an appropriate manner along a route which provides at least one of the following recreational opportunities:*
    - (i) travel along a route which connects areas or points of natural, scientific, cultural, and historic interest;*

The La Crescent-Hokah segment runs through the Root River valley and adjacent to the Mississippi River valley. These two river valleys influenced the development of the rich cultural and historical resources possessed by these two communities. The Upper Mississippi River National Wildlife and Fish Refuge lies east of the trail, while the Root River Wildlife Management Area lies to the north of Hokah.

The Hokah-Houston segment runs through the Root River valley. The Mound Prairie Wildlife Management Area is located between these communities, as is a unit of the Richard J. Dorer Hardwood State Forest. The public lands in both segments add to the natural and scientific interest of the trail.

Additionally, both segments run through the same river valleys as the Historic Bluff Country Scenic Byway, which runs east-west from La Crescent to Dexter along MN Trunk Highway 16, and the Great River Road, which follows the Mississippi River from Lake Itasca in northern Minnesota all the way to the Gulf of Mexico. The Mississippi River Trail, a nationally-designated bicycle route, follows or parallels portions of the corridor.

- (ii) travel through an area which possesses outstanding scenic beauty;*

Trail users will enjoy the outstanding scenic beauty provided by the dramatic bluffs unique to the southeastern portion of Minnesota. The bluffs appear even more dramatic when contrasted with the wetlands

which are prevalent in the area between La Crescent and Hokah and the level agricultural fields between Hokah and Houston.

*(iii) travel over a route designed to enhance and utilize the unique qualities of a particular manner of travel in harmony with the natural environment;*

Wherever it is possible, it is recommended that the trail alignment take advantage of an abandoned railroad bed. By utilizing the abandoned rail grade, trail users will be able to enjoy the natural and cultural amenities, with reduced impact to the environment. Additionally, the trail affords bikers, hikers, and wildlife enthusiasts a way to safely enjoy the scenery and cultural and natural amenities by separating slower-paced trail users from faster-paced highway users.

*(iv) travel along a route which is historically significant as a route of migration, commerce, or communication;*

The Root River and its banks provided a historically significant route of travel, first for the prehistoric people and American Indians of the area. In the 1850's, steamboats used the Root River to reach Hokah and Houston. Later, the railroad, first the Southern Minnesota Railroad and later the Chicago, Milwaukee and St. Paul Railroad, replaced the steamboats. This railroad was the first to connect the communities of Houston, Hokah and later, La Crescent, to the more distant cities of St. Paul, Milwaukee and Chicago.

*(v) travel between units of the state outdoor recreation system or the national trail system; and*

The trail segments between Houston, Hokah, and La Crescent are part of the as-yet incomplete Blufflands Trail System. Ultimately, the Blufflands Trail System will provide connections to trails such as the Shooting Star State Trail, Stagecoach State Trail and Goodhue Pioneer State Trail. Additionally, this trail extension will allow for access to trails connecting La Crescent to La Crosse, providing access to the Wisconsin State Trail System. Finally, the La Crescent-to-Houston Trail will allow long-distance cyclists a side journey from the Mississippi River Trail, a planned bike route that will ultimately follow the Mississippi River from northern Minnesota to the Gulf of Mexico.

2. *Utilizes, to the greatest extent possible consistent with the purposes of this subdivision, public lands, rights-of-way, and the like; and*

Portions of the trail will utilize an abandoned railroad bed. Remaining portions of the trail will utilize a combination of road and rail right-of-ways, public lands and lands acquired from private entities.

3. *Provides maximum potential for the appreciation, conservation, and enjoyment of significant scenic, historical, natural, or cultural qualities of the areas through which the trail may pass; and*

By concentrating trail development on the abandoned railroad grade wherever possible, the impacts of new trail development to wetlands and floodplain in this unique area can be avoided or minimized.

Overlooks and interpretive facilities are proposed to increase trail users' appreciation and understanding of the natural and cultural resources of the area. Plant community restoration projects, wildlife habitat improvement projects, and development of environmental education information are all projects that could benefit trail users.

The trail corridor can be a corridor for both habitat and recreation, across landscapes developed for agricultural, commercial, and residential use. The ecological value of the corridor could be enhanced by working to restore healthy native plant communities.

4. *Takes into consideration predicted public demand and future uses.*

The master plan evaluates and uses current research and trends on existing use of trails and demand for trail opportunities. Current demographic data is taken into account, as well as information gathered at public workshops.

## **Guiding Principles for Sustainable Trails**

Guiding principles for ecologically sustainable trails provide the underlying rationale for actions related to protecting, restoring, and managing natural environments associated with trail development. There are seven core principles:

1. Avoid sensitive ecological areas and critical habitats.
2. Develop trails in areas already influenced by human activity.
3. Provide buffers to avoid/protect sensitive ecological and hydrologic systems.
4. Use natural infiltration and best practices for stormwater management.
5. Provide ongoing stewardship of the trails and adjoining natural systems.
6. Ensure that trails remain sustainable.
7. Formally decommission and restore unsustainable trail corridors.<sup>1</sup>

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<sup>1</sup> MN DNR, *Trail Planning, Design and Development Guidelines*. 2007.

Applications of these principles will minimize the impact of trails on natural resources and sensitive ecological systems. Importantly, the strict application of these guiding principles has to be balanced against the need to locate trails where they will be of high recreational value to the targeted users, who often want to be close to nature, enjoy beautiful scenes, and observe wildlife. This is an important consideration and underscores the need for resource managers, trail designers, and other interested individuals to work together to determine which values are the most important for any given trail alignment.

## **Vision and Goals for the Blufflands State Trail System in Houston County**

### ***Vision:***

Provide opportunities for people to safely enjoy the unique natural beauty of this area in all seasons while improving their personal health and well being.

### ***Overall Goal:***

Provide a high quality, multi-use trail extending the Root River State Trail from the city of Houston to the city of La Crescent that is managed in harmony with the Blufflands Landscape and meets the needs of trail users and surrounding communities.

### ***Community Goals:***

- Improve the quality of life for local residents.
- Provide a safe way to recreate, and to commute to work or school.
- Showcase the positive scenic, historic and natural assets and amenities of the area.
- Maximize benefits for local residents and communities as a top priority.
- Pursue the following lower priority community goals where possible:
  - Encourage tourism related businesses, such as lodging and retail services.
  - Build on the success of Houston and other communities with trails to revitalize the downtown areas of Houston County's cities.
  - Increase opportunities for agricultural and eco-tourism.

### ***Connectivity Goals:***

- Connect the Wisconsin and Minnesota trail systems in the Seven Rivers Region and the Mississippi River corridor to provide an interstate trail option, making this trail system a preeminent trail system in the nation.

- Connect to and complement the Mississippi River trail system, the Great River Road National Scenic Byway, and the Historic Bluff Country National Scenic Byway.
- Connect and provide directional signs to points of interest in Houston County in order to encourage appreciation of the area's historic and natural features.

#### ***Environmental Goals***

- Manage and enhance the natural and cultural features of the trail and the Blufflands Landscape.
- Design, construct, and maintain the trail in a way that enhances the natural environment and minimizes trail users' impact.
- Restore and manage plant communities, wildlife, soil and water resources in a manner appropriate to the Blufflands Landscape.

#### ***Meeting Trail User Needs***

- Provide access for a wide range of people with varying degrees of capabilities, including those with disabilities.

#### ***Adjacent Landowner Relationships***

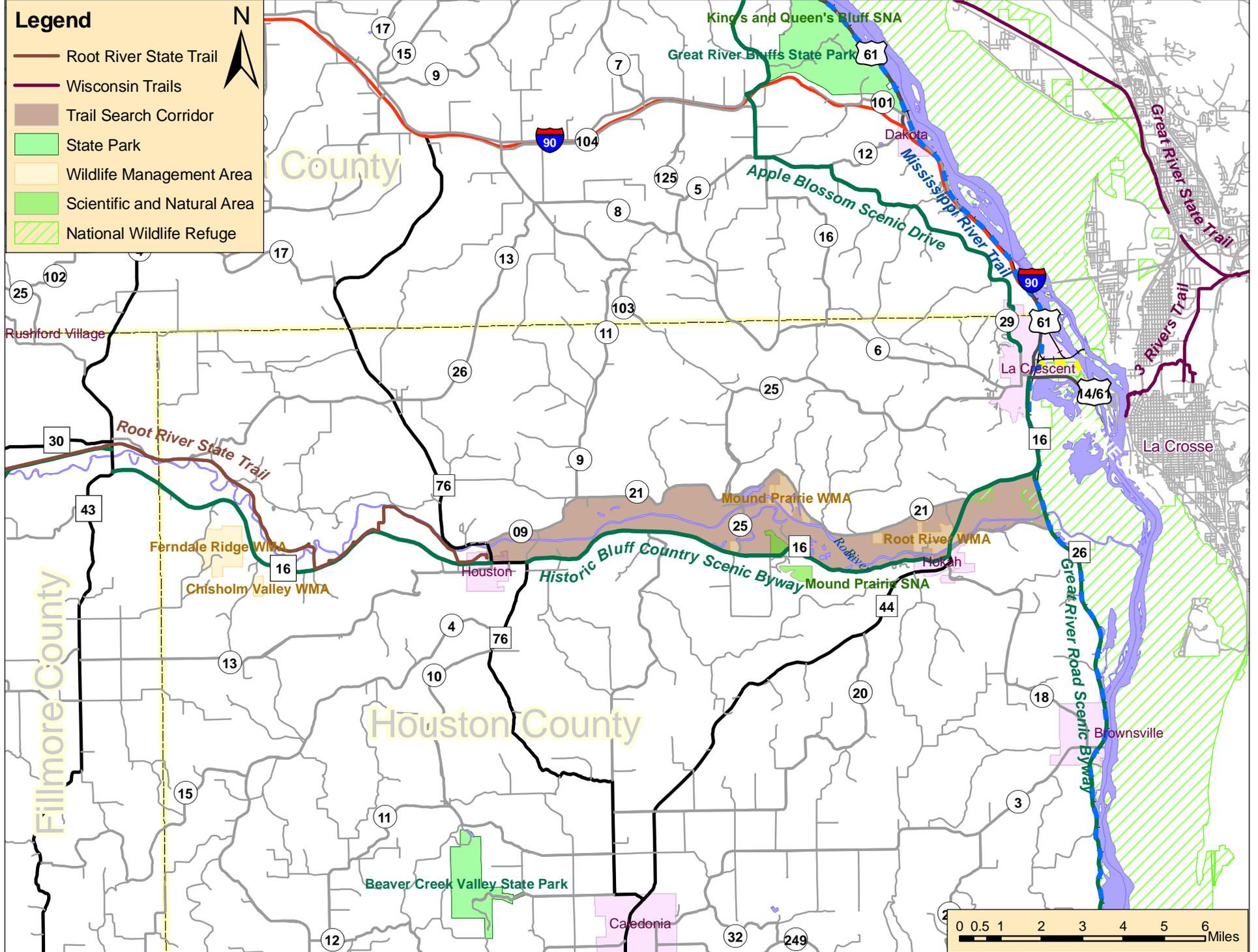
- Develop and maintain the trail so that impacts on adjacent landowners are avoided or minimized.
- Coordinate land management activities with adjacent land owners when possible and appropriate.

ROOT RIVER STATE TRAIL EXTENSION: HOUSTON TO LA CRESCENT

Figure 2: Regional Context

**Legend**

- Root River State Trail
- Wisconsin Trails
- Trail Search Corridor
- State Park
- Wildlife Management Area
- Scientific and Natural Area
- National Wildlife Refuge



## 2. Potential Trail Uses

The trail connecting La Crescent, Hokah and Houston will be primarily a multi-use trail, with different uses appropriate at different times of the year. The trail may be closed as necessary to specific types of use due to the flood conditions in this area, to minimize trail damage. Respecting seasonal trail use limitations will aid in preserving and maintaining the trail.

Several surface types have been explored during the planning process. Some segments of the trail may be paved with asphalt, while other segments may be surfaced with crushed limestone screenings (aggregate), which produce a hard surface when rolled. There are advantages and disadvantages to each type of trail surface, and these will continue to be evaluated as trail segments are designed. Specifically, a limestone surface is more prone to erosion, so that good drainage is critical. Sediment runoff can result from flooding. However, runoff velocity is greater on an asphalt surface. Both surface types are suitable for the trail uses listed below.

The recommended allowable uses for the trail include the following:

### **Bicycling**

Bicycling is a popular activity in Minnesota, with approximately 600 miles of paved or hardened/improved state trails to accommodate a portion of this rising demand. Although advanced cyclists often prefer riding on roads, trails provide a more comfortable and safer option for casual and recreational cyclists and children. Bicycling is a recommended use throughout the entire length of the trail. An aggregate surface, typical on Wisconsin's state trails, is suitable for most types of bicycles, with the exception of racing bikes.

### **Hiking and Walking**

The relative flatness of this trail lends itself to hiking and walking activities, which are second only to bicycling as popular low-impact cardiovascular fitness activities on state trails. This trail provides these users with a safe alternative in which to enjoy the beauty of the surrounding Blufflands without forcing them to use busy highway shoulders. Hiking and walking are recommended as a use on the entire length of the trail.

### **Running and Jogging**

Many people use the state trails for running and jogging. In addition to individuals who regularly use the trails for exercise, local school track and cross-country teams will be able to use this scenic trail for training purposes. Running and jogging are recommended uses along the entire length of the trail.



### **In-Line Skating / Skate Skiing**

In-line skating levels of use have declined, but it remains a popular sport. This activity requires a paved trail with a smooth, wide surface, and thus would be feasible only on paved segments of the trail.

### **Dog Walking**

Dog walking is allowed along the entire length of the trail so long as dogs are leashed and owners properly dispose of pet wastes. State trail rules require all pets to be attended and restrained by a leash of not more than six feet in length.

### **Horseback Riding**

Horseback riding is a popular activity in Southeastern Minnesota and there is a horse-boarding stable on County Highway 7. Given the proximity to a boarding stable, horseback riding is a desired use for the trail segments between La Crescent and Hokah. Horseback riders could ride the trail between the stable and Hokah, where riders can then proceed on private horse trails into the bluffs. A horseback trail would need to be located on a separate treadway from the primary trail, or within an entirely separate corridor. Horseback riding is recommended only along sections of the trail where the right-of-way is wide enough to accommodate this additional use.

### **Snowmobiling**

Snowmobiling will be allowed on the trail between Miller's Corner and Houston. Snowmobiling is a thriving activity in Southeastern Minnesota and snowmobile clubs in the area support snowmobile use on this part of the trail. The U.S. Fish and Wildlife Service recently acquired several parcels with existing snowmobile trails in the Root River Bottoms between Miller's Corner and Hokah. The USFWS generally does not allow the use of snowmobiles in upland areas, but is allowing trail use to continue on these parcels on an interim basis. However, USFWS and local snowmobilers have a strong interest in establishing sustainable trail alignments outside of National Wildlife Refuge lands. The trail extension could potentially accommodate this desire.

By concentrating snowmobile use on the trail, environmental impacts will be limited to the trail corridor. This is especially important in those portions of the corridor with extensive wetland environments.

### **Cross-Country Skiing and Snowshoeing**

The relatively flat terrain of this trail makes cross-country skiing a possible winter use when snow conditions permit. Snowshoeing is also feasible within the trail corridor, outside of cross-country ski lanes. Planned snowmobile use on portions of the trail may make it less desirable for skiing and snowshoeing.

However, the La Crescent to Miller's Corner segment, which is not planned for snowmobiling, has been identified as ideal for these activities.

### **Hunting**

State trails allow hunting within the trail right-of-way during the legal hunting season, except where restricted by local ordinance. The current rule states: "No firearm or bow and arrow shall be discharged within the trail at any time, except for the purpose of lawful hunting during the period from September 15 to March 30 only. No rifle, shotgun with slug, or bow and arrow shall be discharged upon, over, or across the trail treadway at any time."

Communities may restrict firearms or bow and arrow discharge, or trapping, by ordinance. These ordinances take precedence over state trail rules.

### **Environmental Education/Interpretation**

Use of the state trail for environmental education, both for individual trail users and formal groups, is encouraged. Schools or organizations that wish to use a trail can work with DNR staff on specific projects. Interpretive displays on the environment and history of the trail can enhance the trail users' experience.

### **Accessibility**

The trail will be accessible to people with disabilities wherever possible. Grades in excess of 5% may be unavoidable in some locations where the trail must match a parallel transportation corridor or where one of the exceptions in the Federal accessibility guidelines is met. (Aggregate pavement of sufficiently small diameter (Class II) is considered acceptable for accessibility, provided that drainage is good.)

### **Fishing Access**

The trail will provide access to the Root River and its tributaries, many of which are state designated trout streams. Provision of fishing access will be considered in the design of the trail and its bridges.

## 3. Trail Alignment

### Overview

The Houston to La Crescent Extension of the Root River Trail is part of the legislatively authorized Blufflands State Trail System. The entire trail segment is approximately 18 miles in length, although actual mileage will vary based on which alignments are ultimately selected. In addition to connecting to the existing 60 miles of the existing Root River Trail and Harmony-Preston Extension, the extension will also provide connections to over 100 miles of Wisconsin state trails.

The unique geology of the Blufflands area is a distinct asset for the trail; its dramatic elevation changes, long distant views and rock outcrops create spectacular scenery. Likewise, the valley bottoms provide an opportunity for trail users to view the surrounding bluffs from relatively flat terrain. The varying seasons and climatic changes allow for different uses at different times of the year making trail use attractive year round. Additionally, the three state designated trout streams between La Crescent and Houston and the wildlife and vegetation of the surrounding wetlands all add to the quality of the trail experience.

For the purposes of this plan, the Houston to La Crescent Extension alignment has been divided into five planning segments:

1. La Crescent to Mississippi River (Wagon Wheel Trail)
2. La Crescent to Miller's Corner
3. Miller's Corner to Hokah
4. Hokah to Mound Prairie
5. Mound Prairie to Houston

Most of the trail corridors illustrated in this section, with the exception of the already programmed Wagon Wheel Trail segment, represent "search area" corridors for specific trail alignments. The alignments generally follow road or abandoned railroad corridors. Where road corridors are used, the goal is to find alignments that take trail users off road rights-of-way, providing access to natural and cultural amenities and finding scenic routes that showcase the landscape. Land acquisition from willing sellers will be necessary to accomplish this goal.

### Criteria for Location of the Trail

- Provide a scenic route that showcases the Blufflands landscape.
- Minimize trail user exposure to vehicular traffic.
- Minimize impact on wetlands and floodplain.

- Avoid negative impacts on rare and endangered species and avoid fragmentation or disturbance of significant native plant communities.
- Provide snowmobile and horseback riding access where they can be safely accommodated.

## Segment 1: Mississippi River to La Crescent (Wagon Wheel Trail)

The Wagon Wheel Trail, as its name implies, follows an old wagon route once used to transport supplies from a riverboat landing up the bluff into the town of La Crescent. The trail alignment would extend through city-owned land from U.S. Highway 61 east a distance of just under a mile to Shore Acres Road. The alignment begins on the west side as an extension of Main Street, currently serving several industries. The trail continues as a narrow strip of land between the wetlands and river channels of the Upper Mississippi River National Wildlife and Fish Refuge and an active Canadian Pacific railroad line. A low water crossing is planned to cross a wetland area near Shore Acres Road. The trail then continues south on the west side of Shore Acres Road, following the river, then turns west on Monte Carlo Road, a private road, to connect with MN 14/U.S. 61. From this point the trail would extend across the West Channel Bridge into La Crosse. The south sidewalk on the MN 14/61 bridge crossing accommodates bicycles and pedestrians. The bridge provides a connection to the Three Rivers Trail and other Wisconsin state trails.

Most of the trail alignment is narrow and closely bordered by the wetlands and river channels of the National Wildlife Refuge. These conditions will make it ideal for wildlife observations, but may require careful design of the trail corridor to provide sufficient width for trail uses and to avoid wetlands. The trail alignment has historical significance as a transportation corridor that has retained its integrity since it was developed in the 19<sup>th</sup> century. The city plans to install interpretive signs to detail the trail's history.

### Segment 1 Trail Communities and Connections

#### *City of La Crescent*

La Crescent was founded in 1851 by Peter Cameron, a native of the state of New York, and was originally called "Camerons." He built a claim shanty and began doing business lumbering and trading fur. Cameron also tried to dig a canal to change the flow of the Mississippi River so it would flow closer to La Crescent and bypass La Crosse, Wisconsin across the river. He died 10 weeks before its scheduled completion in 1857, and the canal was never finished, although its traces can still be seen in aerial photographs of the city.



Extension of Main Street in La Crescent



Wet conditions along trail alignment



Shore Acres Road looking north to railroad overpass



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ROOT RIVER STATE TRAIL EXTENSION - HOUSTON TO LA CRESCENT

Figure 4. Planning Segment 1 - Wagon Wheel Trail



Soon after Cameron's death in 1855, Harvey and William Gillett platted a village, called "Manton," on 240 acres, which was then sold to the Kentucky Land Company. The company changed the name of the village from Manton to La Crescent, after the bend or "crescent" shape of the Mississippi River around the town.

John S. Harris arrived in La Crescent in 1856 and soon gave the town its identity of "Apple Capital of Minnesota," a title that the city copyrighted in 2002. Despite the common belief that apples could not grow in Minnesota, Harris planted his first apple trees there in 1857 and experimented with them until he grew trees hardy enough to withstand the severe Minnesota winters. He planted thousands of apple trees and hundreds of varieties, a full half of which he said were complete and total failures. Harris became known as "Father of the Orchardists" in Minnesota and was also a founding member of the Minnesota State Horticultural Society. La Crescent is still a center for apple cultivation, producing unusual apple varieties not common elsewhere in orchards around the city. Since 1947, La Crescent has celebrated this apple heritage with a September weekend festival known as Applefest.

Although La Crescent sought to surpass the development occurring in nearby La Crosse, growth never met expectations, primarily due to a lack of good transportation. The first railroad in the county, the Southern Minnesota Railroad, stopped in Hokah, south of La Crescent, in 1866. Railroad transportation came to La Crescent later in 1875.

Since then, La Crescent has enjoyed steady growth, due primarily to the ample opportunities for employment in nearby La Crosse. As of 2010, the city was home to 4,830 residents. The downtown business district includes stores and restaurants that will appeal to trail users, as well as a city pool and several city parks. The Daniel Cameron House in La Crescent is on the National Register of Historic Places.

#### **Local Connections to La Crescent**

One of the primary challenges in La Crescent is to provide a safe crossing of MN 14/61 at or near Main Street to provide a local connection to the Wagon Wheel Trail. The 3<sup>rd</sup> Street intersection has been recently rebuilt, and Mn/DOT has constructed a trail segment leading from Chestnut Street, on the east side of MN 61, to the signalized crossing. A grade-separated highway crossing, either an over- or underpass, is planned as part of Phase III of the Wagon Wheel Trail project.

The city is currently engaged in a transportation-oriented trail planning effort, which will provide additional guidance regarding trail connections. One route could lead from the Wagon Wheel Trail across MN 14/61 directly to Main Street



Chestnut Street, La Crescent



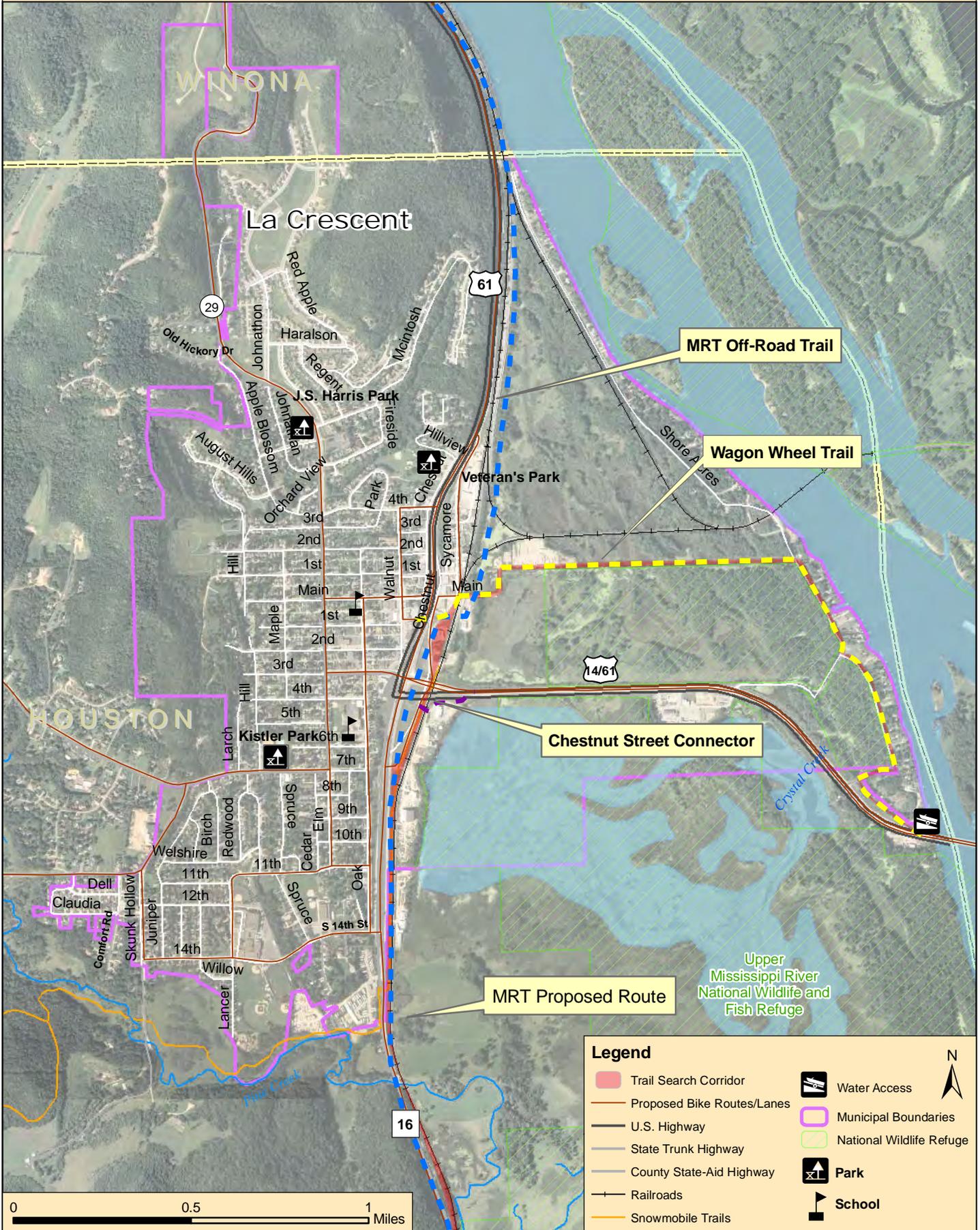
Veteran's Park, La Crescent



Apple orchards near La Crescent, 1958. Minnesota Historical Society.

ROOT RIVER STATE TRAIL EXTENSION - HOUSTON TO LA CRESCENT

Figure 5: City of La Crescent



**Legend**

- Trail Search Corridor
- Proposed Bike Routes/Lanes
- U.S. Highway
- State Trunk Highway
- County State-Aid Highway
- Railroads
- Snowmobile Trails
- Water Access
- Municipal Boundaries
- National Wildlife Refuge
- Park
- School

and immediately south along Oak Street, connecting to MN 16 at South 14<sup>th</sup> Street. Another north-south option is Elm Street, several blocks west of Oak Street, which already includes bike lanes. To the north, Elm Street becomes the Apple Blossom Drive Scenic Byway.

The *La Crescent Bicycle and Pedestrian Plan* recommends a pedestrian and bicycle signal to facilitate safe crossings at the intersection of South 14<sup>th</sup> Street and MN 16.

### ***The Mississippi River Trail***

The Mississippi River Trail (MRT) is a designated bicycle route that will, when complete, extend 3,000 miles from the river's headwaters in Lake Itasca State Park all the way to the Gulf of Mexico. Beginning in 1996, the MRT was established south of St. Louis as an economic development strategy for the Delta region. In 1999, MRT, Inc. invited the northern five states to participate in extending the route to the river's headwaters. In Minnesota, the bicycle route is largely on the shoulders of low traffic paved roads but includes relatively long segments of scenic state and regional trails.

In 2010 Mn/DOT reviewed and refined the route, conducted evaluation rides to confirm earlier route decisions, developed a signing plan for state highway road segments, created a marketing platform for future promotion, and posted maps on its website.

In 2011 Mn/DOT is continuing marketing and outreach efforts, convening additional statewide meetings to improve the alignment, and completing a signing plan for non-state highway segments. From Hastings south through Goodhue and Winona counties, the MRT primarily follows U.S. Highway 61. However, the interstate highway system is off-limits to trail use. Therefore, an off-road trail is planned between the city of Dakota in Winona County, where Interstate 90 joins U.S. 61, and the I-90 Dresbach Bridge to Wisconsin (just north of La Crescent). The trail will use an existing local trail and township roads.

The MRT follows U.S. 61 through La Crescent and continues to parallel the river along MN Trunk Highways 16 and 26 to the Iowa border. The ability to use the off-road Root River State Trail Extension as part of the MRT would greatly enhance the experience of MRT travelers and provide a desirable link to the entire Root River Trail system.

### ***Upper Mississippi River National Wildlife and Fish Refuge***

The Upper Mississippi River National Wildlife and Fish Refuge of the US Fish and Wildlife Service (USFWS) is located primarily east of Highway 26, with some parcels located in the area between Miller's Corner and Hokah. Excluding river refuges in Alaska, the Upper Mississippi River WFR is the largest river refuge in the country, covering over 261 river miles, from Wabasha to Rock Island, Ill. The



Local trail in Dresbach, to be improved as part of Mississippi River Trail

goal of the USFWS refuges is to “conserve, protect and enhance fish, wildlife and plants and their habitats for the continuing benefit of the American people.” Refuge lands are used largely for fishing, boating and hunting, but also include hiking, biking, trapping, birding and camping.

The Comprehensive Conservation Plan for the refuge, completed in 2006, indicates that USFWS will pursue expansions of the refuge within approved boundaries, including much of the area between Miller’s Corner and Hokah (TH 16 and County 7). USFWS recently acquired several properties within this area. Acquisitions are from willing sellers; other land protection options include acquisition of easements and cooperative arrangements with state and local governments.

USFWS land acquisition generally includes use limitations. While trails are allowed within wildlife refuges, the use of snowmobiles is generally prohibited in upland areas. However, recently-acquired properties include active snowmobile trails, which remain in use. USFWS will pursue opportunities for land exchanges to enable these trails to be relocated.

## **Segment 2: La Crescent to Miller’s Corner**

From the west end of the Wagon Wheel Trail, the trail corridor would turn south on the east side of MN 16. Given physical constraints, the most viable route for the trail is to continue between the railroad and MN 16 through La Crescent and south to Miller’s Corner, where Highways 16 and 26 diverge.

Constraints within this segment include steep bluffs to the west of the highway, and a series of mitigation wetlands and an active Canadian Pacific rail line to the east. The most feasible alignment would be located between the highway and the railroad, within portions of either or both rights-of-way. (MN Trunk Highway 16 is the designated Historic Bluff Country Scenic Byway, and is designed with wide paved and striped shoulders, making it usable as an on-road bike route on an interim basis.)

This section of the trail is described in the *2035 Coulee Regional Bicycle Plan* (2010) and in the 2003 *La Crescent Bicycle and Pedestrian Plan*, both developed by the La Crosse Area Planning Committee. The 2035 Plan identifies MN 16 as a regional bicycle route. The La Crescent plan discusses grade and right-of-way constraints and mentions that Mn/DOT is considering the future widening of MN 16 into a four-lane highway in this location.

### Segment 3: Miller's Corner to Hokah

Miller's Corner is the name for the intersection of Trunk Highways 16 and 26, where the active CP rail line splits from Highway 16 and continues south. A former channel of the Root River at this location is known as Miller's Pond. The highway bridge across this channel was originally designed with an underpass for bicyclists; however, it is subject to frequent flooding.

An abandoned railroad grade, originally part of the Southern Minnesota Railroad and later a part of the Milwaukee Road system, begins at Miller's Corner and continues west through Hokah, Mound Prairie and Houston, where it meets the existing Root River State Trail. Its elevation is generally about ten feet above the surrounding lands. The entire railroad right-of-way was abandoned in 1980 and is now owned by adjacent landowners. The railbed cuts a straight path across the broad floodplain of the Root River, through extensive wetlands and diked farm fields, until it reaches the river, where a bridge no longer exists. The railbed is intact in some locations but has been completely washed out in others. It continues into Hokah on the south side of the river within the narrow area between County Highway 7 and the riverbank.

The trail alignment between Miller's Corner and Hokah has not yet been finalized. The search area is the triangle formed by TH 16, TH 26 and County Highway 7. The preferred route would follow the railroad grade, the most direct route through the valley. The advantages of this route include minimizing the exposure of trail users to vehicular traffic, taking advantage of the relatively flat terrain, and providing the most scenic views of the river valley, while avoiding the floodplain and wetlands that predominate on the valley floor. However, land acquisition from willing sellers may not be feasible throughout the entire segment. Alignments that use the right-of-way of the adjacent roads or other private landholdings will also be considered.

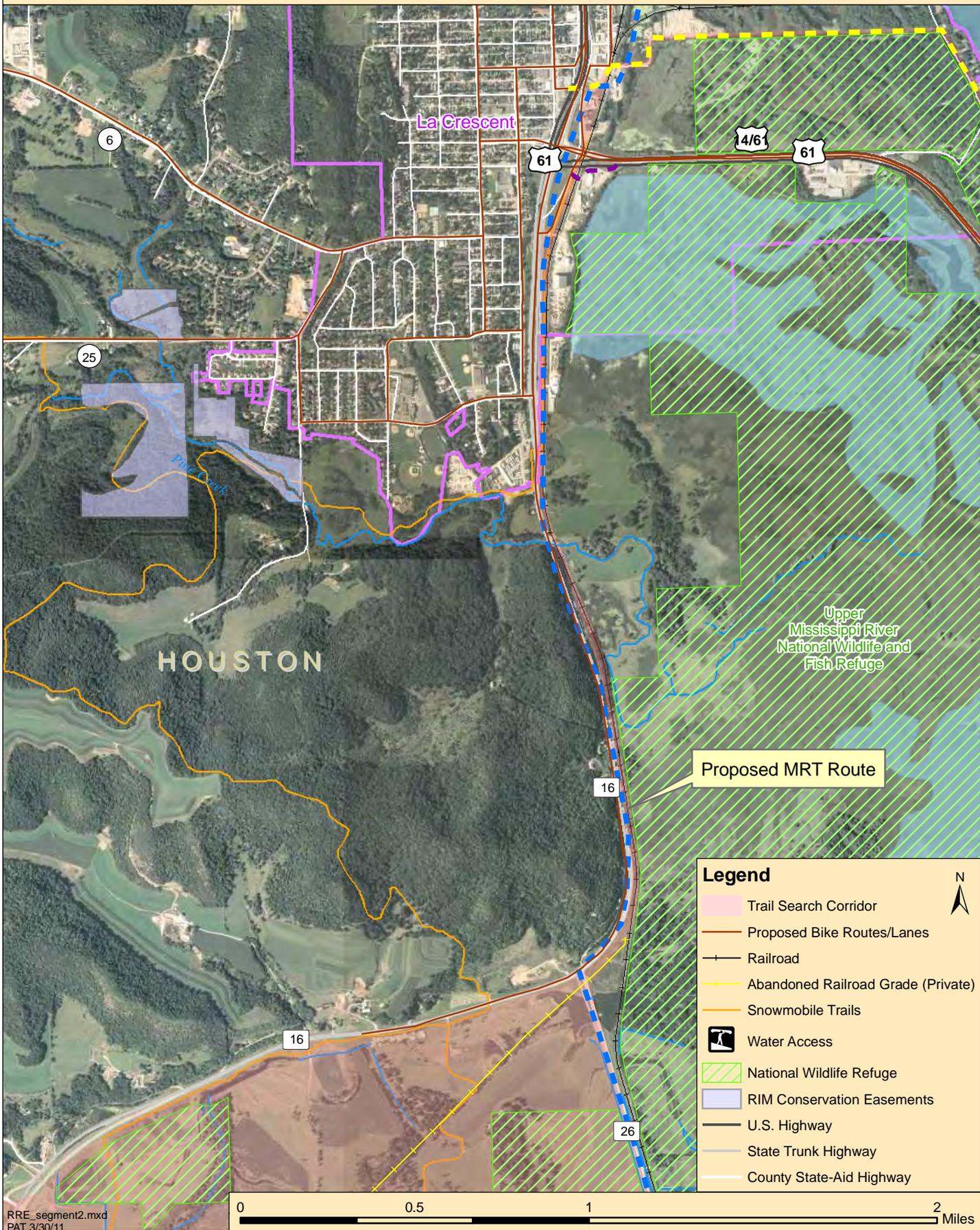
The main unit of the Root River Wildlife Management Area (WMA) borders the north bank of the Root River just north of Hokah. Paved trails are generally prohibited within WMAs. In addition, the U.S. Fish and Wildlife Service has recently acquired some properties within the search area "triangle" as an expansion of the Upper Mississippi River National Wildlife and Fish Refuge. As mentioned above, USFWS will pursue opportunities for land exchanges to enable existing trails on these properties to be relocated, preferably to the Root River State Trail Extension.



Channel and bluffs at Miller's Corner

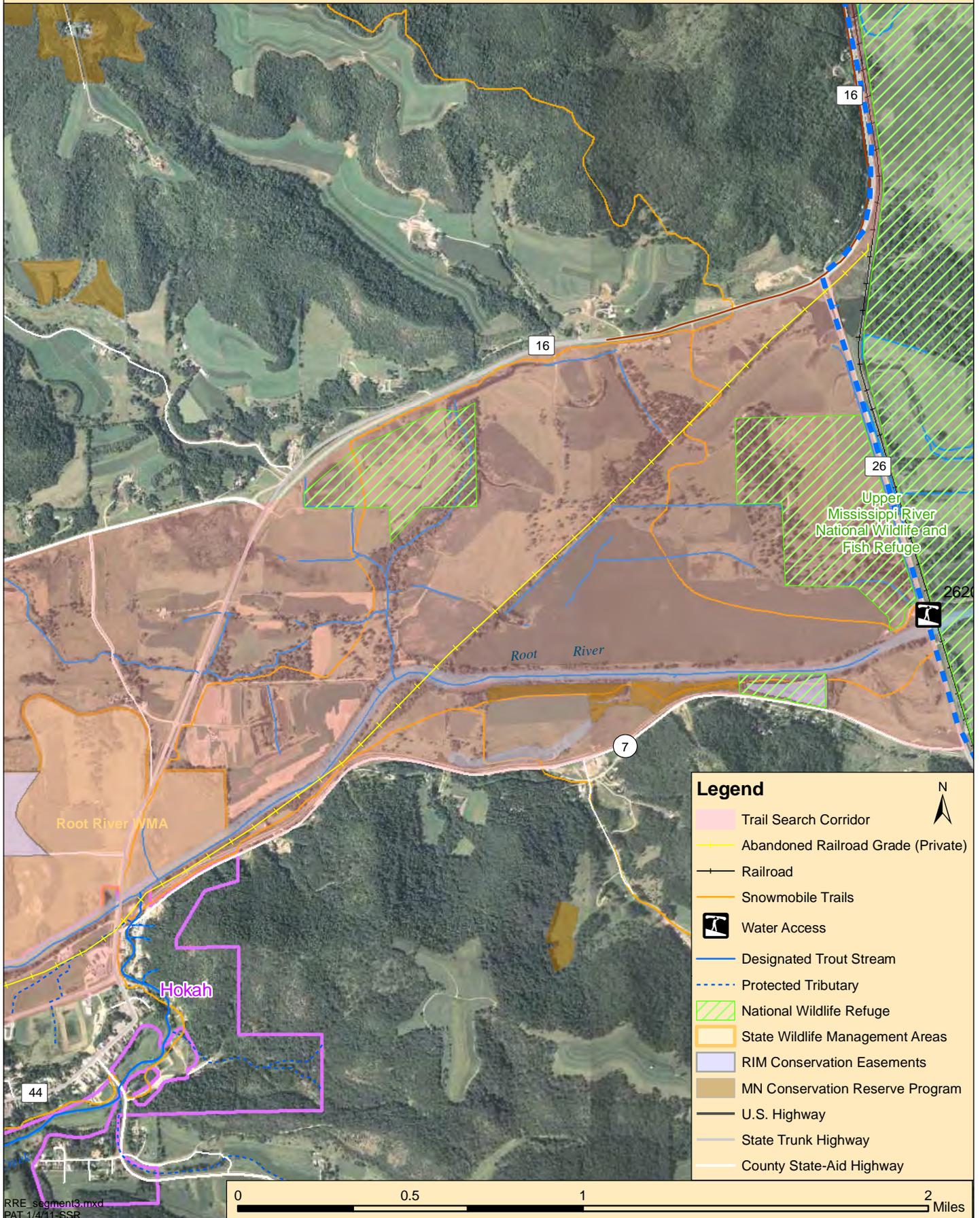
ROOT RIVER STATE TRAIL EXTENSION - HOUSTON TO LA CRESCENT

Figure 6. Planning Segment 2 - La Crescent to Miller's Corner



ROOT RIVER STATE TRAIL EXTENSION - HOUSTON TO LA CRESCENT

Figure 7. Planning Segment 3 - Miller's Corner to Hokah



## Segment 3 Trail Communities and Connections

### *City of Hokah*

The name “Hokah” is of Indian origin, thought to be the name of a chief, Wecheschatope Hokah, whose village once stood on the town’s site.<sup>2</sup> The first permanent settler in the township was Edward Thompson, who arrived in the spring of 1851. Thompson recognized the attributes that made Hokah a desirable place to settle; water power, timber, fertile soil, and the Root River, a navigable tributary to the Mississippi River. Attracted by the fine water power, he staked out a claim and brought his wife and family here. In the early days, the bottom land was heavily timbered with black walnut, maple, oak and other hardwoods, large quantities of which were cut and rafted down the river and some of which were sawed in local mills.

Thompson erected a sawmill in 1852, a flour mill in 1853, and in 1866 a dam across the Root River which furnished power for three flour mills and several cooper shops, producing wooden barrels for shipment of flour. As early as 1854, Thompson began working on a project to build a railroad through the Root River Valley. The Southern Minnesota Railroad began operations at Hokah in 1866. As a result, Hokah’s population grew from 100 to over 1,000 in 1875. In June of 1880, when the Chicago, Milwaukee and St. Paul secured possession of the Southern Minnesota, the shops were razed, leaving several hundred without employment. Most of them moved away and the loss of this business had its effect on the flour mills and cooper shops, which closed one by one.



View of Root River Valley and Village of Hokah, ca. 1915. Photographer: Mathias O. Bue. Minnesota Historical Society.

Hokah’s population was 580 in 2010. Although the rail and mill industries are no longer as prominent, Hokah is home to about 30 businesses. Many of the residents commute to work in nearby La Crosse. Trail users will find several restaurants in town.

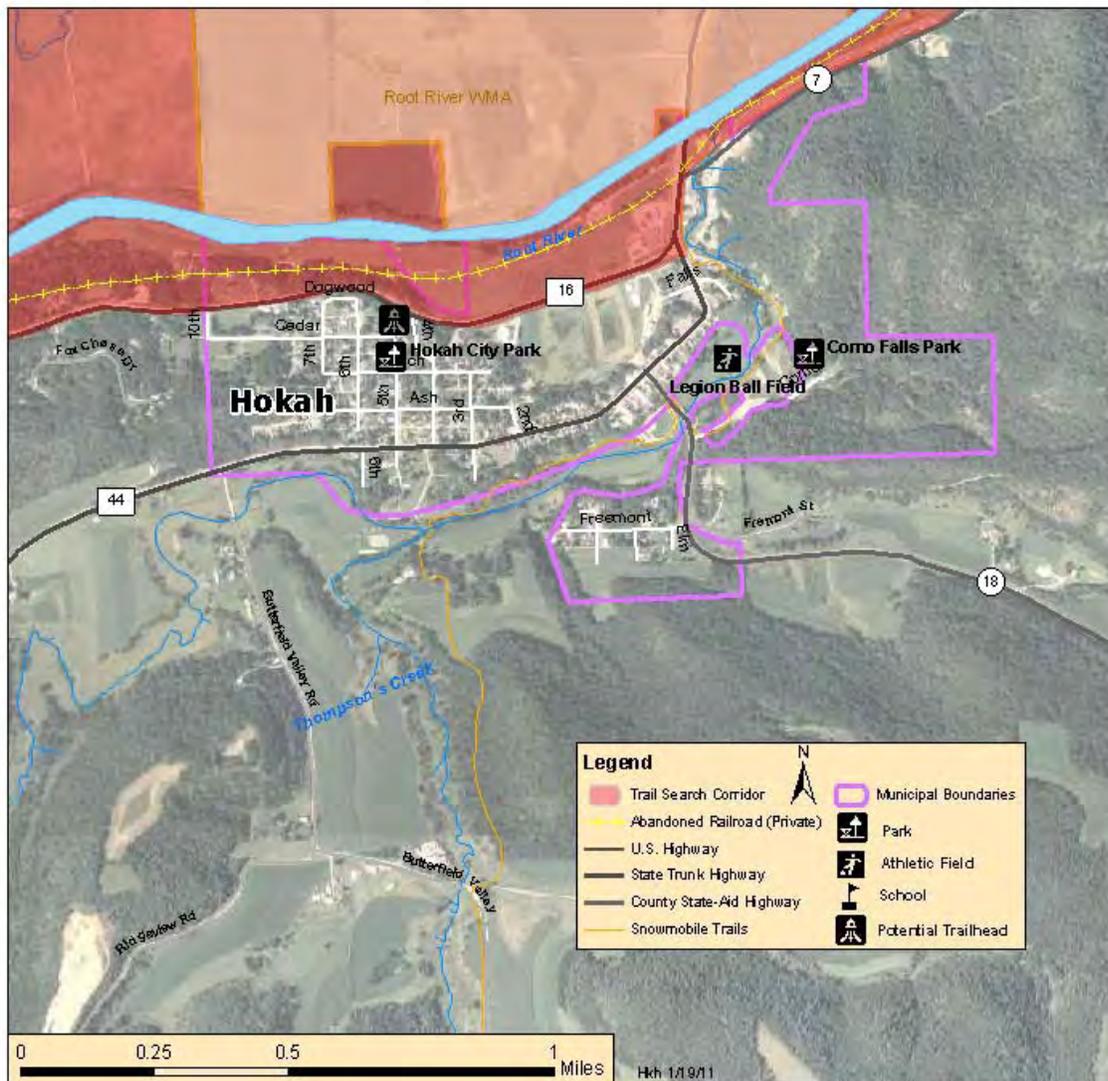
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<sup>2</sup> Information drawn from historical essay on City’s website, [www.cityofhokah.com](http://www.cityofhokah.com)

In 2010, Hokah finalized the "Hokah Recreation and Ecosystem Protection Plan" (found at [hokah.info](http://hokah.info)), project sponsored by the University of Minnesota Southeast Regional Sustainable Development Partnership (The Experiment in Rural Cooperation). The plan provides a detailed assessment of the city's ecological resources, landscape setting, recreational opportunities, and general land use planning. The city is currently working to implement the plan through local trail planning, historic landmark interpretive signage, and public recreational space mapping.

The most lasting attractions in Hokah are the natural features. The city offers several parks, including a municipal sand-bottomed swimming pool and a canoe landing on the Root River Water Trail at the Thompson Creek confluence. Mt. Tom lies east of the town, and at its base lies Thompson's Creek, which creates Como Falls. This scenic waterfall and creek segment was heavily damaged in the 2007 floods but is now restored. Como Falls Park offers hiking trails and excellent photographic opportunities. Hokah also has a privately owned mini-golf/disc golf/driving range facility, Twin Creeks, off Hwy 44.

**Figure 8: City of Hokah**



### ***Root River Wildlife Management Area***

The main unit of this WMA is located just north of the Root River and the city of Hokah. Its 443 acres include mixed hardwoods of oak, basswood, ash, cottonwood, elm and willow, upland fields, and scattered wetlands. Recreation is dominated by hunting, trapping, fishing and wildlife viewing. Hunting options include deer, small game, forest game birds, pheasant, waterfowl, doves, and turkeys.

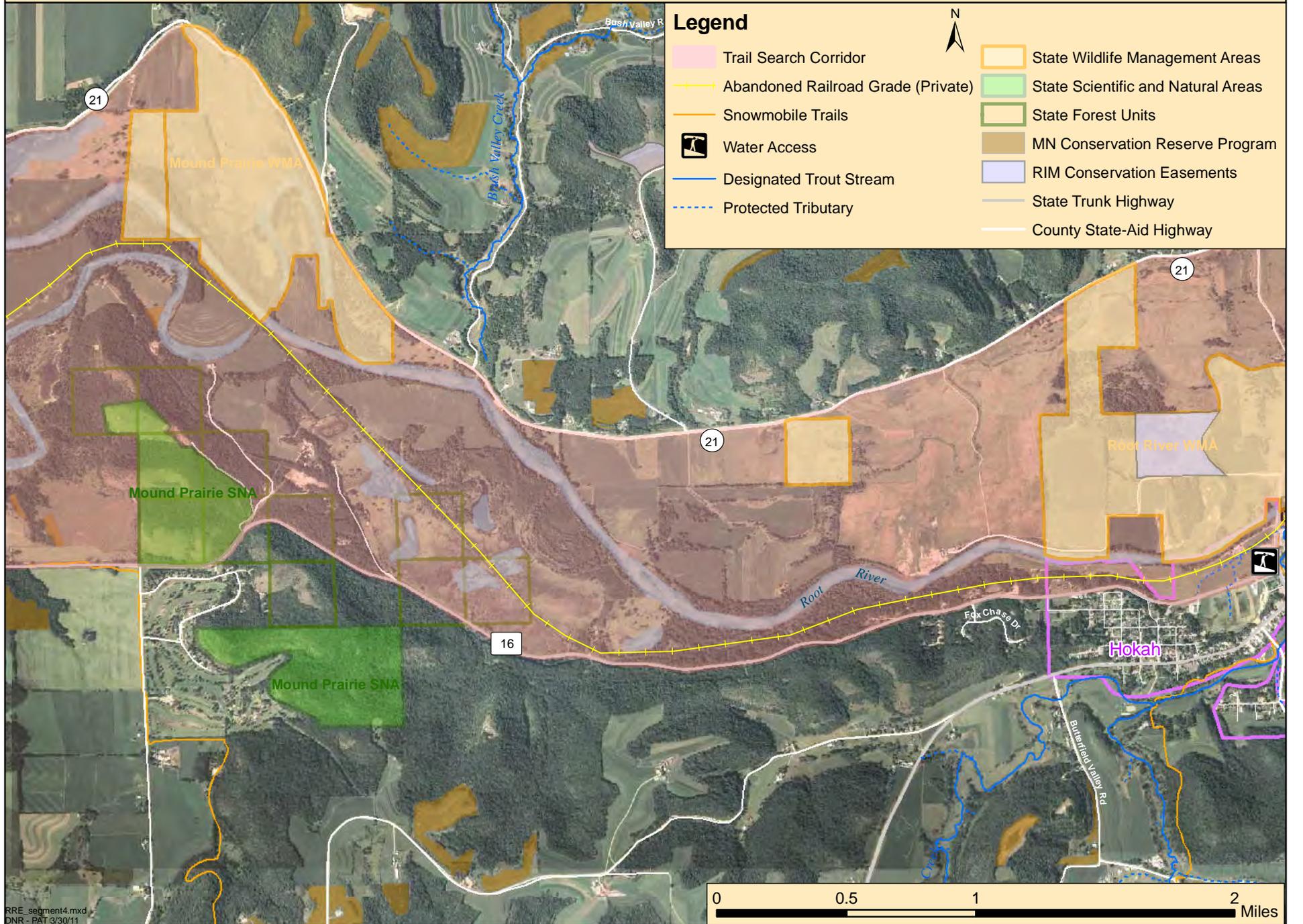
## **Segment 4: Hokah to Mound Prairie**

TH 16 continues west from Hokah on the southern side of the Root River. The abandoned railroad grade parallels TH 16 for several miles, then turns to the northwest to follow the river more closely. The railroad grade crosses a substantial area of wetlands as it follows the curve of the Root River around the base of the Mound Prairie bluff. TH 16 climbs steeply into the bluffs, passing between two units of the Mound Prairie Scientific and Natural Area (SNA). State forest lands, part of the large Richard J. Dorer Memorial Hardwood Forest, are located around the two units of the SNA.

On the north side of the river, County Highway 21 follows the edge of the bluffs, coming very close to the river at Bush Valley Road. West of this point, Highway 21 curves to the north and the Mound Prairie Wildlife Management Area is located along the bluff between the highway and the river.

The Mound Prairie SNA is off-limits to trail development, and the steep grades in that area would not be appropriate for a trail in any case. The Mound Prairie Wildlife Management Area, on the north side of the river, also presents a potential barrier to trail use, although trail options within the road right-of-way should be explored.

Given the constraints to trail development in this area, the trail search corridor is identified in Figure 8 as falling primarily within the Root River floodplain between TH 16 and County Highway 21, avoiding lands within the SNA but potentially crossing some of the state forest lands. As in Segment 3, the abandoned railroad grade offers the most desirable route in terms of scenic views and minimizing exposure to vehicular traffic.



**Legend**

- Trail Search Corridor
- Abandoned Railroad Grade (Private)
- Snowmobile Trails
- Water Access
- Designated Trout Stream
- Protected Tributary
- State Wildlife Management Areas
- State Scientific and Natural Areas
- State Forest Units
- MN Conservation Reserve Program
- RIM Conservation Easements
- State Trunk Highway
- County State-Aid Highway



## Segment 4 Trail Communities and Connections

### ***Mound Prairie Scientific and Natural Area***

Mound Prairie SNA includes 257 acres located in two units bisected by TH 16. It contains three southwest-facing goat prairies separated by oak forests and the steep, rocky ravines of ancient stream beds on the north side of Highway 16. An additional three goat prairies are found on the south side. Stream terraces contain remnants of fine, glacial silt deposited when the valley floors were higher. The superb goat prairies support a highly diverse plant community that includes such rare species as white wild indigo, goat's rue, jewelled shooting star, Ohio spiderwort, and the narrow-leaved milkweed with its greenish flowers. The prairie vole, a rare mammal typically found in northwestern Minnesota, is found at this site. Removal of encroaching trees and brush by cutting and prescribed burning is enhancing the prairie and rare species habitat. Visitors can hike the goat prairies in early to late summer to find the rare species in bloom. Spectacular views from this outstanding prairie SNA make the upward climb well worthwhile.

### ***Mound Prairie Wildlife Management Area***

This WMA includes 329 acres in its main unit and an additional 49 acres in its west unit. Forested areas consist of mixed lowland hardwoods of oak, maple, basswood, ash, cottonwood, elm and willow. Upland fields consist of native warm season grasses. A large wetland complex exists on the unit. Recreation is dominated by hunting, trapping, fishing and general wildlife observations.

### ***Richard J. Dorer Memorial Hardwood Forest***

The Richard J. Dorer (RJD) Memorial Hardwood Forest is located within seven counties including: Dakota, Fillmore, Goodhue, Olmsted, Houston, Wabasha, and Winona. The state forest boundary is a statutory boundary and private landowners rather than the state hold most of the land within the forest. There are sections of the forest that are owned by the state, however.

State forests were created in order to produce timber, provide outdoor recreation, protect watersheds, and perpetuate rare and distinctive species of native flora and fauna. These forests are managed in a sustainable manner by the state in order to ensure a high quality forest. Various types of recreation are permitted on state forest lands.

Trails are permitted on state-owned state forest land. However, the trail location must be approved through a public participatory process, such as a public hearing. Several sections of the RJD Memorial Hardwood Forest are located near Mound Prairie.

### **Goat Prairie:**

A goat prairie (also known as dry bedrock bluff prairie) is a type of dry prairie found on the steep Mississippi River bluffs of Southeast Minnesota. It is dominated by short- to mid-height (up to 2 feet tall) grasses and forbs (flowering plants) adapted to dry conditions. Little bluestem, side-oats grama, and porcupine grasses typically dominate; dotted blazing star, pasque flower, and puccoons are characteristic forbs.



## **Segment 5: Mound Prairie to Houston**

West of the Mound Prairie SNA, County Highway 25 crosses the Root River, linking Highways 16 and 21. West of this point, the abandoned railroad grade runs very close to TH 16, with gaps in some locations. It may therefore be preferable to seek a trail alignment closer to the Root River.

As the trail continues west out of Mound Prairie, it could follow the abandoned railroad bed and then more closely follow the southern edge of the Root River. In this area, much of the railroad bed is no longer present, or is very close to the present Highway 16. Therefore, a more favorable trail experience could be had nearer the Root River.

If portions of the trail are located on the north side of the river, a new river crossing will be necessary. A former railroad bridge located about one-half mile east of Houston and currently used as part of the snowmobile trail system could be evaluated for potential reconstruction.

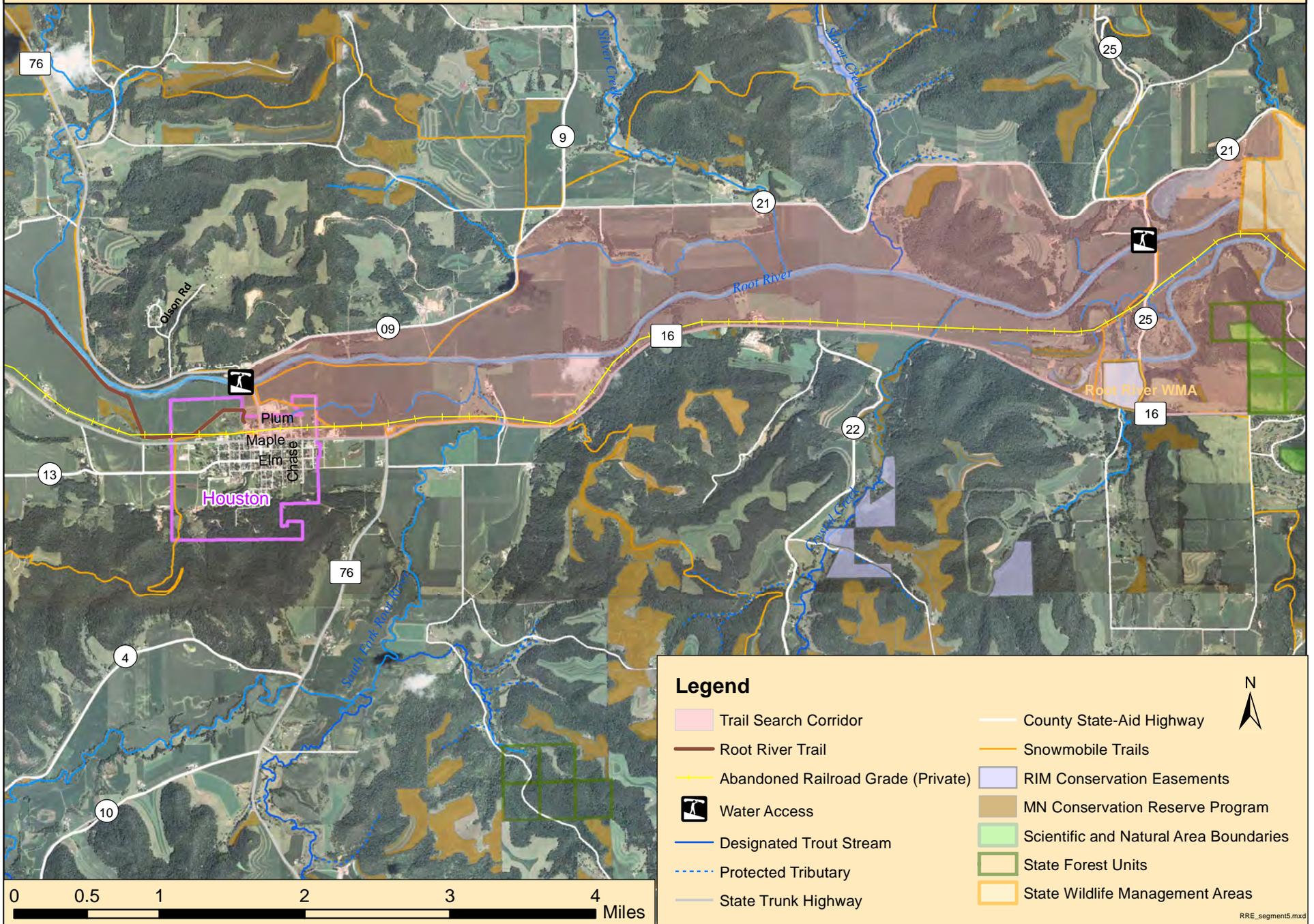
The trail would either enter Houston from the north, following the Trunk Highway 76 right-of-way, or from the west parallel to TH 16. It would join the existing Root River State Trail at Trailhead Park, which as the name implies, offers a broad range of services, including camping.

## **Segment 5 Trail Communities and Connections**

### ***City of Houston***

Founded in 1852 by William McSpadden, the city of Houston was named after the famous general under whom McSpadden served during the Mexican War. McSpadden platted the town at the confluence of the main stem and the South Fork of the Root River, east of the present location. By 1854, settlers from Sweden, Norway, Germany, Ireland and New England arrived; steamboats serviced the town from the Root River until the early 1870's.

In 1866, Mons Anderson, a La Crosse native, platted an addition just west of McSpadden's settlement and donated his property to the Southern Minnesota Railroad under the condition that the railroad locate its depot in his new addition. As a result, the town moved west to its current location. By 1874, the town incorporated as a city and grew with the establishment of flour mills, lumberyards, restaurants, saloons, and hotels.



**Legend**

- Trail Search Corridor
- Root River Trail
- Abandoned Railroad Grade (Private)
- Water Access
- Designated Trout Stream
- Protected Tributary
- State Trunk Highway
- County State-Aid Highway
- Snowmobile Trails
- RIM Conservation Easements
- MN Conservation Reserve Program
- Scientific and Natural Area Boundaries
- State Forest Units
- State Wildlife Management Areas



Known as a progressive community, Houston continued to grow into the twentieth century and by 1920 became the center of the county's agriculture industry. The city operated one of the largest cooperative livestock shipping associations in the state, and was a dairy center with three cooperative creameries.

With the switch from rail to automobile traffic, the addition of Interstate Highway 90 fourteen miles north of the City in the 1970's, and the agricultural crisis of the 1980's, Houston began to see a decline in its economic prosperity. In response, the City created a Planning and Zoning Commission, Economic Development Authority, and Tree Board, which oversee and promote the assets of the City.

Houston's population was 979 in 2010. The city offers a number of park and recreation opportunities. Trailhead Park marks the current terminus of the 60-mile Root River State Trail. The park features an 18-acre prairie, a picnic area with outdoor shelters, a campground, bandshell, recycled bicycle art, and the Houston Nature Center, which provides educational exhibits and programs as well as space for community meetings. Nature Center volunteers offer shuttle services for trail users and canoeists.

Houston is also a Tree City USA and Central Park is a living tribute to this status with many prominent shade trees. In addition to Central Park, the 80-acre South Park located at the southern edge of the city affords numerous hiking and picnicking opportunities. A variety of restaurants, coffee houses and shops provide amenities for trail users.

Houston is home to a number of annual events and festivals, most notably the Houston Triathlon, a canoe, bike and run race which takes place the third weekend in May, and the Houston Hoedown, which occurs the last full weekend in July.

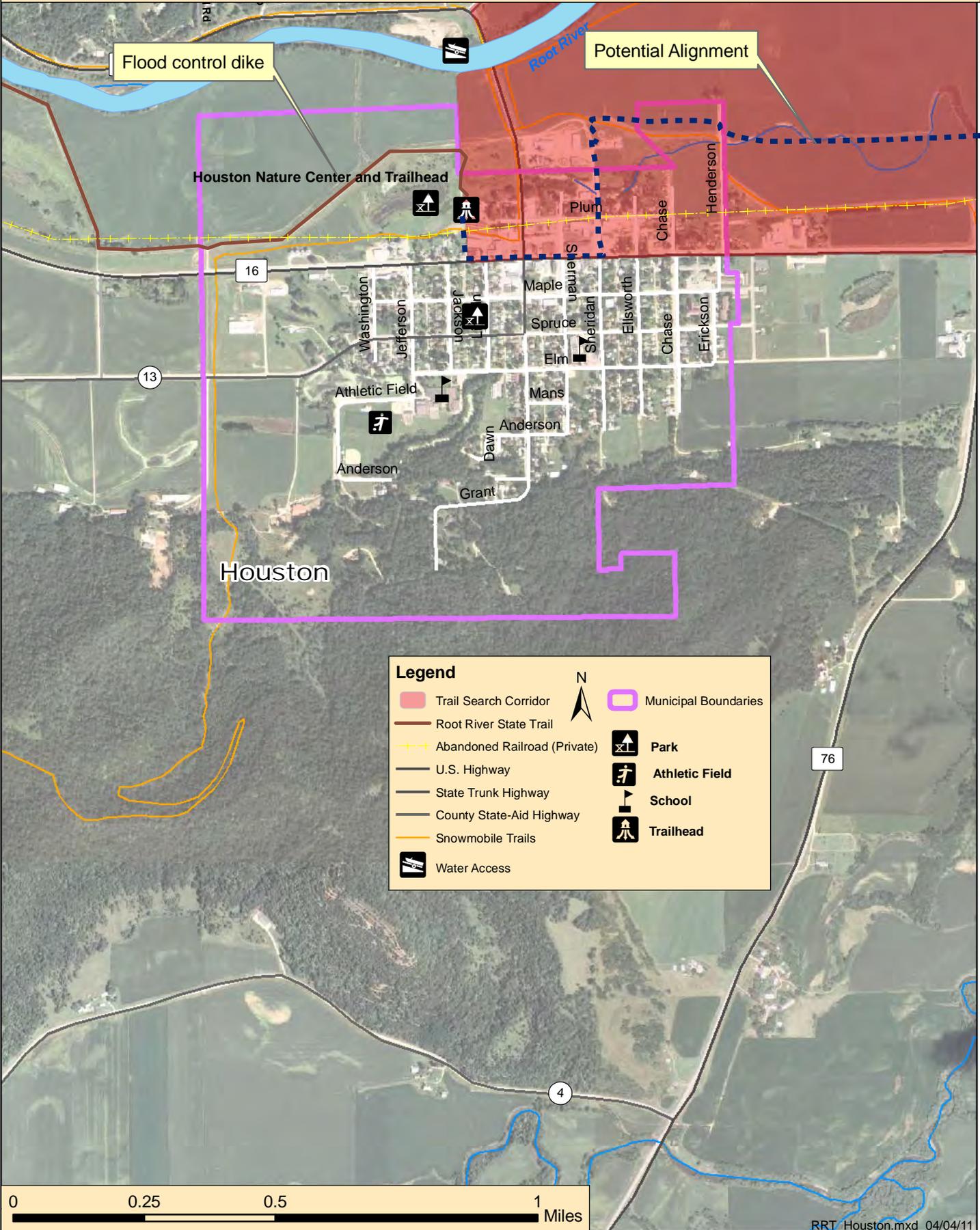


Trailhead Park and Nature Center



Houston City Park, ca. 1940.  
Minnesota Historical Society

ROOT RIVER STATE TRAIL EXTENSION - HOUSTON TO LA CRESCENT  
 Figure 11: City of Houston



**Legend**

	Trail Search Corridor		Municipal Boundaries
	Root River State Trail		Park
	Abandoned Railroad (Private)		Athletic Field
	U.S. Highway		School
	State Trunk Highway		Trailhead
	County State-Aid Highway		Water Access
	Snowmobile Trails		

N



## 4. Trail Management

### Projected Trail Use

The Houston-La Crescent Extension of the Root River State Trail will be an important link between the existing Root River State Trail, the larger Blufflands State Trail System of Southeastern Minnesota, and the Wisconsin State Trail system, with access to and through La Crosse.

It is anticipated that the number of trail users and pattern of use will be similar to what is occurring on other state trails, and specifically on the existing Root River and Harmony-Preston Valley State Trails (Fountain to Preston and Isinours to Money Creek Woods).

While trail use has declined statewide since the late 1990s, those trail segments received fairly high levels of use when last surveyed in 2008-09, with 111,580 user hours in the summer season (a trail user spending one hour on the trail is a “user hour”).

Surveys showed that the Root River Trail receives high levels of tourist use. The majority of use (57%) comes from tourists, who have traveled at least 100 miles from home. Local users (within 10 miles of home) comprise about one-tenth of trail use. However, the number of local trail users has remained fairly steady since the late 1990s, while the number of tourists has declined.

Bicycling is by far the most popular summer activity, with 87% of trail users, followed by walking/hiking, with 11%. Other activities such as running, in-line skating and horseback riding make up the remaining 2%.

### Trail Maintenance

Adequate maintenance of the Houston-La Crescent trail extension is critical to provide and sustain the experience trail users appreciate. Maintenance activities are numerous and diverse, as the following list illustrates. Specifically, trail maintenance includes:

- Monitoring trail conditions, which includes scheduling and documentation of inspections; monitoring the condition of railings, bridges, trail surfaces, and signage; hazard tree inspection; and removal of debris such as downed trees
- Scheduling of maintenance tasks
- Mowing of vegetation: shoulders, rest areas, and parking lots
- Winter grooming and plowing
- Tree and shrub pruning
- Trash removal

- Trail repair – fixing washouts and controlling erosion are examples
- Maintaining bridge decking and railings
- Trail drainage control
- Trail surface maintenance
- Repair of animal damage to trail or facilities
- Checking and repairing fence lines and gates
- Mowing and brushing farm crossings
- Cleaning out ditches and culverts, replacing failing culverts
- Controlling invasive species
- Maintaining equipment
- Painting posts and picnic tables
- Graffiti control and vandalism repair, especially to signs
- Maintaining boundary signs, and working to resolve encroachment issues
- Coordination of volunteer efforts
- Training and supervision of employees, Conservation Corps, or Sentence to Service crews
- Sweeping asphalt surfaces

### ***Maintenance Recommendations***

***Recommendation 1:*** *Additional maintenance funds will be required to maintain the trail after it is developed.*

***Recommendation 2:*** *The trail should be seal coated approximately six years after initial development. Research shows that this will prolong the life of the trail.*

### **Information and Education**

Trail users must have good information about the trail system so they can make choices about destinations appropriate for their time frame, skill level, need for services such as food and lodging, links to regional or local trails, and the type of scenery and other recreational opportunities available along the route. This type of information should be displayed on information boards at parking areas, in communities and at trail junctions. It should be available on maps, and on the DNR Website. It should include distances between communities, options for other trail connections and locations of services. If any significant deviation from the typical trail design occurs – e.g., when a trail enters a community – it

should be noted on signs or informational kiosks to assist trail users in understanding what the trail experience will be.

### ***Identification of Services***

Trail users benefit from knowing where they can obtain services (medical assistance, telephones, gasoline, food, lodging, restrooms, campgrounds, repair facilities, or other retail) and local businesses benefit from an increase in customers. A listing of the services available in each community developed, maintained and updated by the community could be displayed on information boards at parking areas in each community.

### ***Trail Rules and Regulations and Trail Courtesies***

Trail courtesy and safety display boards aimed at educating trail users about appropriate behavior, promoting safe trail use, and protecting the quality of the trail environment should be developed and posted at trailheads and information kiosks.

Volunteer patrols could be used to distribute information on appropriate trail behavior and etiquette relative to specific problems such as unleashed dogs, or all trail users keeping to the right and warning others when passing.

### ***Interpretation of Natural and Cultural Resources***

The Root River Trail is already well-known for its dramatic scenery, picturesque small towns, and diverse historic and cultural resources. Providing information about these resources can add enjoyment to the trail experience.

One or more interpretive themes are identified for state trails during the planning process. The interpretive theme helps tie together spatially separated interpretive sites and provides continuity in the messages presented.

The original Root River State Trail Master Plan (1983) focused on the scenic qualities and diversity of the landscape as a basis for both trail design and interpretation.

An interpretive and orientation plan is currently being developed for the Blufflands Trail System, encompassing the Root River and Harmony-Preston State Trails. Many of the resources identified for interpretation during the planning process are also potentially applicable to the Houston-La Crescent Extension of the Root River State Trail. These include:

#### **Cultural Affiliations:**

- Prehistoric artifacts
- Important cultural features associated with Native American presence
- Steamboat history
- Ghost towns
- Historic farmsteads and mills



Example of trail informational sign

- Cemeteries and burial grounds
- Historic bridges
- Railroad history
- Agriculture past and present, heritage farms
- Ethnic heritage – Norwegian, German and Irish
- Amish community

**Natural Resources:**

- River flooding, hydrology and land use change
- Geology – karst topography, sinkholes
- Unique wildlife (rattlesnakes, Houston Owl Learning Center)
- Scenic bluff and river views

A variety of interpretive themes and messages are being considered as part of the plan. A theme is essentially the “take-home message” for the visitor about the trail system and the landscape. Suggested themes focus on the region’s natural beauty, its outdoor attractions, its unique geology, and its welcoming communities.

**Information and Education Recommendations**

**Recommendation 1:** *Develop a kiosk and trail logo design that reflects the interpretive theme for the trail that can be used in communities and at rest areas along the trail.*

**Recommendation 2:** *Community services information, trail orientation, trail rules and trail courtesy information should be developed and installed on a kiosk at the same time the trail is developed.*

**Recommendation 3:** *Parks and Trails staff should cooperate with schools to use the trail for environmental education purposes.*

**Recommendation 4:** *Interpret the natural and cultural features along the trail. Coordinate development with the Scenic Byways Program. Include information on the fishing opportunities of the trail. The Division of Fisheries local offices and MinnAqua staff should be consulted as resources.*

**Enforcement**

Adequate enforcement was cited by participants in the planning process as a way of resolving potential problems and addressing concerns. Minnesota State Trails are very safe and generate very few complaints. However, adequate enforcement is a vital aspect of maintaining a safe and secure trail environment. User conflicts, unauthorized use of the trail, and trail users leaving the treadway designated for their use were among the concerns identified during the planning process, and are all likely areas for enforcement.

Enforcement of state trails rules and regulations, information and education, trail design, trail maintenance, and the mix of trail uses are all factors that contribute to the maintenance of a safe, secure trail environment. The DNR has the primary responsibility for law enforcement on DNR-owned and operated recreation areas. Enforcement assistance is also sought from local police departments and county sheriffs as necessary.

Funding for law enforcement on state trails has not kept pace with the need created by new trail development. Sufficient law enforcement promotes public safety and natural resource enhancement.

The DNR's goal is to deal with issues as they arise and provide an adequate level of enforcement to maintain a safe and secure trail environment, to encourage trail users to understand and obey trail rules and respect other trail users and adjoining properties.

### ***Recommendations for Enforcement***

***Recommendation 1:*** Provide an adequate level of enforcement via a multifaceted approach, to help maintain a safe and secure trail environment, and to encourage trail users to understand and obey trail rules, and respect other trail users and adjoining properties.

***Recommendation 2:*** Develop on-site information that targets important trail courtesies and rules necessary for a safe and enjoyable experience, specific to uses of a particular segment and problems and conflicts occurring there.

***Recommendation 3:*** Increase visibility of Parks and Trails staff during peak use times for an enforcement effect.

***Recommendation 4:*** Additional enforcement officers are required to address the enforcement need of the expanding trail system.

***Recommendation 5:*** Parks and Trails will include the cost of enforcement when providing information about the cost of the trail when communicating with legislators, trail advocates, and local government officials.

## **5. Natural Resources**

### **Ecological Classification System**

Minnesota lies at the center of North America where the prairie, boreal forest, and eastern deciduous forest meet. There are four major ecological provinces in Minnesota: the Eastern Broadleaf Forest, the Laurentian Mixed Forest, the Prairie Parkland, and the Tallgrass Aspen Parklands. All four are parts of much larger systems that cover major areas of central North America. The Eastern Broadleaf Forest Province, primarily made up of deciduous forest, extends

eastward from Minnesota all the way to the Atlantic Ocean. The Laurentian Mixed Forest Province, largely consisting of coniferous forest, extends northward into Canada. The Prairie Parkland Province extends westward into the Dakotas and across the Central Plains of the United States. The Tallgrass Aspen Parklands Province represents the southern tip of a large province that extends north and west into the Canadian Prairie Provinces.

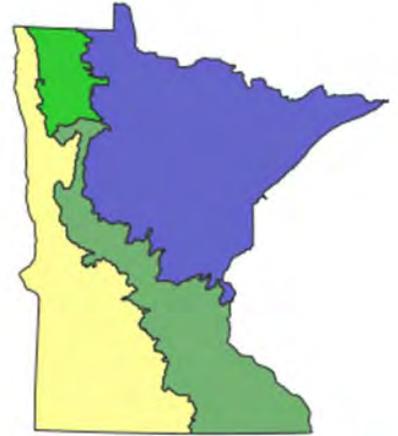
These ecological provinces are divided into subsections – distinct landscapes of Minnesota, defined by vegetation, geology and other resource criteria. The Root River Trail Extension corridor from La Crescent to Houston lies within the Blufflands subsection of southeastern Minnesota.

The Blufflands Subsection, dominated by the Mississippi River, is characterized by bluff prairies, steep bluffs, and stream valleys, often 500 to 600 feet deep. Numerous cold-water trout streams feed major rivers such as the Root, Whitewater, Zumbro, and Cannon. Rich hardwood forests grow along the river valleys, and river-bottom forests grow along major streams and backwaters. There are few lakes.

In the southeast portion of this subsection, where the proposed trail lies, loess (soil formed from windblown silt) overlies a red clayey residuum that was formed directly from limestone or sandstone. The thickness of the loess varies considerably from less than a foot on valley walls to as thick as 30 feet on the broad ridge tops.

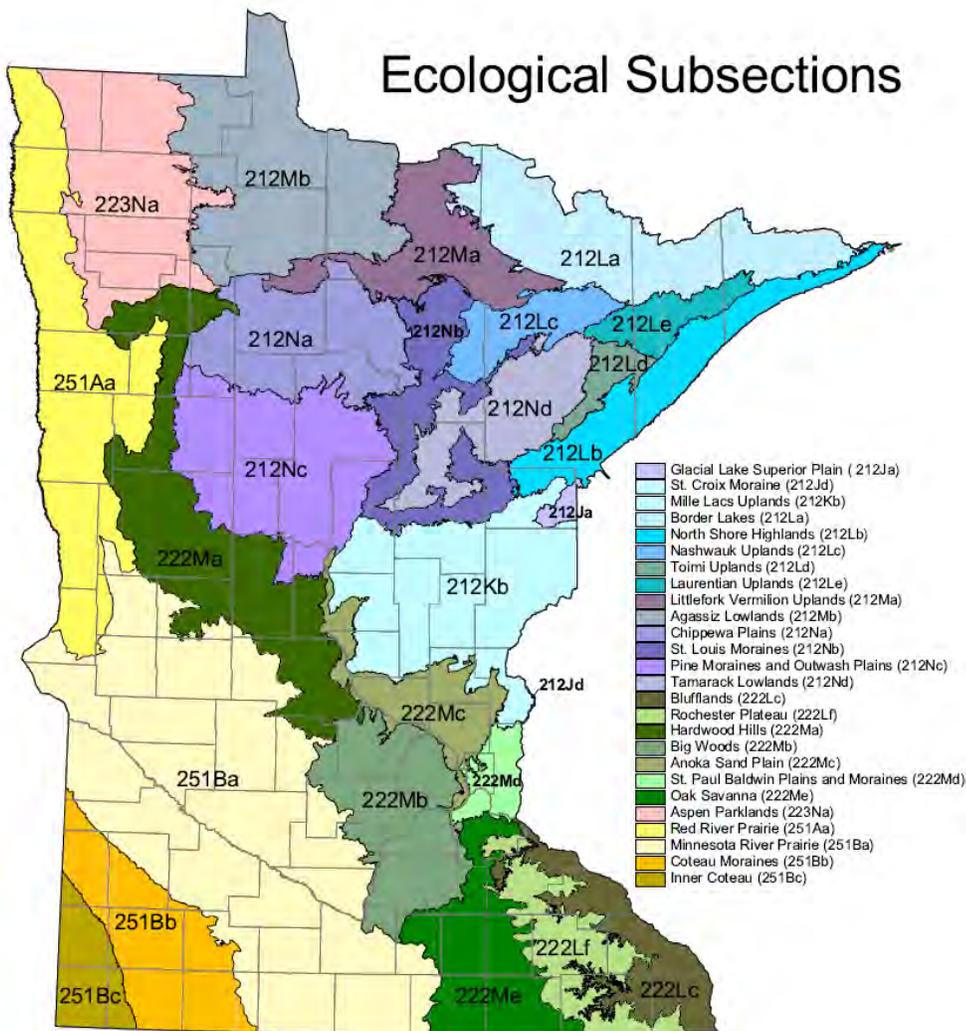
Agriculture, both row crops and pastures, takes place in former savanna and prairie areas and is the most prominent land use in this subsection. Forestry is also an important land use, and outdoor recreational opportunities abound, with significant amounts of public lands along the river corridor.

Retaining or restoring the health of stream systems is an important conservation objective in this subsection. Steep topography and erodible soils contribute to destructive flood events. Another major conservation concern in this area is groundwater quality. About half of this subsection is used for agricultural purposes, either for cropland or pasture, and the resulting pollutants from these uses cause high amounts of nitrates and phosphates in the groundwater. Soil erosion and water run-off are concerns, as they in turn affect groundwater quality.



The four major ecological provinces in Minnesota: Eastern Broadleaf Forest (green), Laurentian Mixed Forest (violet), Prairie Parkland (yellow) and Tallgrass Aspen Parklands (bright green)

# Ecological Subsections



## Climate

Houston County, like the rest of Minnesota, experiences a continental climate where cold air from the Arctic pushes through, resulting in colder temperatures during the winter months. In the summer months, the climate is influenced by the warm air pushing northward from the Gulf of Mexico and southwestern United States. The Pacific Ocean air masses that push through the state produce relatively mild and dry weather throughout the year.

The mean annual temperature of southeastern Minnesota, where Houston County is located, is approximately 49 degrees Fahrenheit. Mean annual precipitation for this area of the state is 34 inches. The area receives roughly 40 inches of snowfall annually.

## Geology

Unlike the other regions of the state, southeastern Minnesota is characterized by the presence of dramatic bluffs and deep valleys. As identified by the Ecological Classification System, this area is referred to as the Paleozoic Plateau, also known as the Driftless Area, due to its lack of glacial drift, the material left

behind by retreating continental glaciers. Because the area escaped glaciation during the last glacial period, its landforms are not characterized by a layer of glacial drift like many other parts of the state but instead are characterized by a surface deposit of loess underneath which is a layer of limestone underlain by bedrock.

The bedrock, which is exposed along some valley walls, is comprised primarily of Ordovician dolomite, limestone, and sandstone. This bedrock was formed millions of years ago after an ancient warm inland sea retreated and left behind a thick layer of sediment. Over time, this sediment was compressed and became dolomite. Due to the absence of glacial drifts, the ancient bedrock geology of the area can still be seen today. Each section of the bedrock has a different hardness and resistance to erosion. Some locations in the Blufflands are marked by karst topography, a landscape shaped by water flowing over and through porous bedrock creating features such as sinkholes, valley streams, springs, and caverns.<sup>3</sup>

## **Water Resources**

The trail corridor includes a variety of wetland and river water resources. The La Crescent – Houston trail corridor lies within the Lower Mississippi River Basin, which includes the Root River, Mississippi River and La Crescent watersheds.

### ***The Root River***

The trail corridor lies largely within the 1,670 square miles of the Root River watershed. Largest of the watersheds draining southeastern Minnesota into the Mississippi, the river's headwaters originate in the spring-fed sloughs of Olmsted and eastern Mower counties. Headwater streams in wide shallow valleys gradually deepen as these streams flow toward the east into the driftless area. In Houston County, the valleys deepen and widen toward the east. The gorges of the Root River at Lanesboro, Rushford and Hokah are 400 to 500 feet deep and from a quarter-mile to a mile wide. The eastern boundary of the watershed is the wide Mississippi River Valley, with a depth of about 600 feet.

Runoff is rapid in the deeply incised stream beds and steep valley slopes of the Root River watershed. Consequently, many disastrous flash floods have been recorded since the time of European settlement. Although still an environmental problem, conservation practices and better land use planning have eliminated some of the adverse impacts of flooding.

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<sup>3</sup> Berendzen, P. (2008) "Establishing Conservation Units and Population Genetic Parameters of Fishes of Greatest Conservation Need Distributed in Southeast Minnesota." Division of Ecological Services, MN DNR.

Since the Root River watershed is devoid of lakes, streams are sustained by springs from groundwater sources. Huge quantities of groundwater are stored in the layers of dolomite, limestone, and sandstone that underlie the watershed. After the peak flows in spring and early summer, these aquifers continue to supply accessible water throughout the growing season.

Historically, the Root River meandered throughout its entire length, but in 1917, the river was straightened, starting about four miles west of Houston at Cushion's Peak and stopping just west of the Mississippi River. Levees were built to minimize flooding in the surrounding towns and agricultural fields. Although some levees have failed, many still exist, and the Root River runs more or less straight from Houston to the Mississippi River.

Flooding in 2005 and 2007 has led to reassessment of the future of the river and valley, notably the area east of Hokah. The US Army Corps of Engineers is in the process of remodeling the flood frequencies of the river. The Department of Natural Resources, Houston County Soil and Water Conservation District, the US Fish and Wildlife Service (USFWS) and local landowners are exploring ideas to best handle the flooding situation.

As of 2010, the DNR, working with 20 other partners, has obtained funding from the Lessard-Sams Outdoor Heritage Council for habitat restoration projects along the Mississippi River from the Twin Cities to Iowa border. A portion of these funds are being used to acquire land in the Lower Root River floodplain for restoration of wetland, forest, and prairie. These lands would become part of the Mound Prairie and Root River Wildlife Management Areas.

### ***Tributary Streams***

A number of permanent and intermittent streams and drainage ditches feed into the Root River. Designated trout streams include Thompson's, Storer, Brush Valley, Crystal and Badger creeks, as well as the tributaries of those streams.

Many unnamed intermittent and perennial streams also flow through the proposed trail corridor. Additionally, a number of drainage ditches are located north of the Root River. These ditches were built by local farmers to aid in agricultural irrigation and to help control flooding in the area.

### ***Lakes***

There are no major lakes in this section of Houston County. Most bodies of water are shallow lakes, typically averaging less than twenty feet in depth. Many of these are former meanders or back channels of the Root River.

The only two large lakes identified in the study area are Blue Lake and Target Lake, located east of Highway 16 and south of La Crescent. Both are part of the Mississippi River complex of lakes and wetlands created by the system of dams and reservoirs, and include both deep and shallow water habitat.

### **The Floods of 2007**

"Rainfall and flooding of historic proportions struck much of the region on August 18-19, 2007. Rainfall in excess of 10-12 inches fell in some areas, with the main swath of heaviest rain centered along a line from Claremont and Rochester, MN to La Crosse, Viroqua, and Muscoda, WI. Unofficial reports were received of 17 inches at Witoka, MN, and 14 inches at Utica, MN. Numerous creeks and rivers rose out of their banks, with significant flooding problems. Water from Rush Creek surged up and out of its protective levees in Rushford, MN, flooding most of the town. Water was 8 feet deep in places. Several roads and bridges were washed away, many in Winona and Houston Counties. A few homes were even lost into the river as banks eroded around the Minnesota City area. A total of 7 people lost their lives during this flooding, most of which in vehicles that were caught in rising water. Record flooding was seen at Whitewater State Park (crest of 19.24 ft), and the Root River at Houston (crest of 18.75 ft)."

Source: National Weather Service, La Crosse, WI Weather Forecast Office (2010). "Major Historical Floods and Flash Floods in the La Crosse Hydrologic Service Area." <http://www.crh.noaa.gov/arx/?n=historicalfloods>

## ***Floodplains***

Both the Mississippi River and the Root River valleys include substantial areas of floodplain. The floor of the Root River valley between the bluffs lies almost entirely within the 100-year floodplain. It is therefore unlikely that any trail alignment could avoid the floodplain. Trail development within floodplains must be undertaken with care, so that flood elevation levels are not increased and so that the trail itself is designed to withstand periodic flooding. Additionally, where feasible, new development should take advantage of any existing or abandoned rights-of-way that are above flood elevation, such as the abandoned railroad bed that runs south of the Root River.

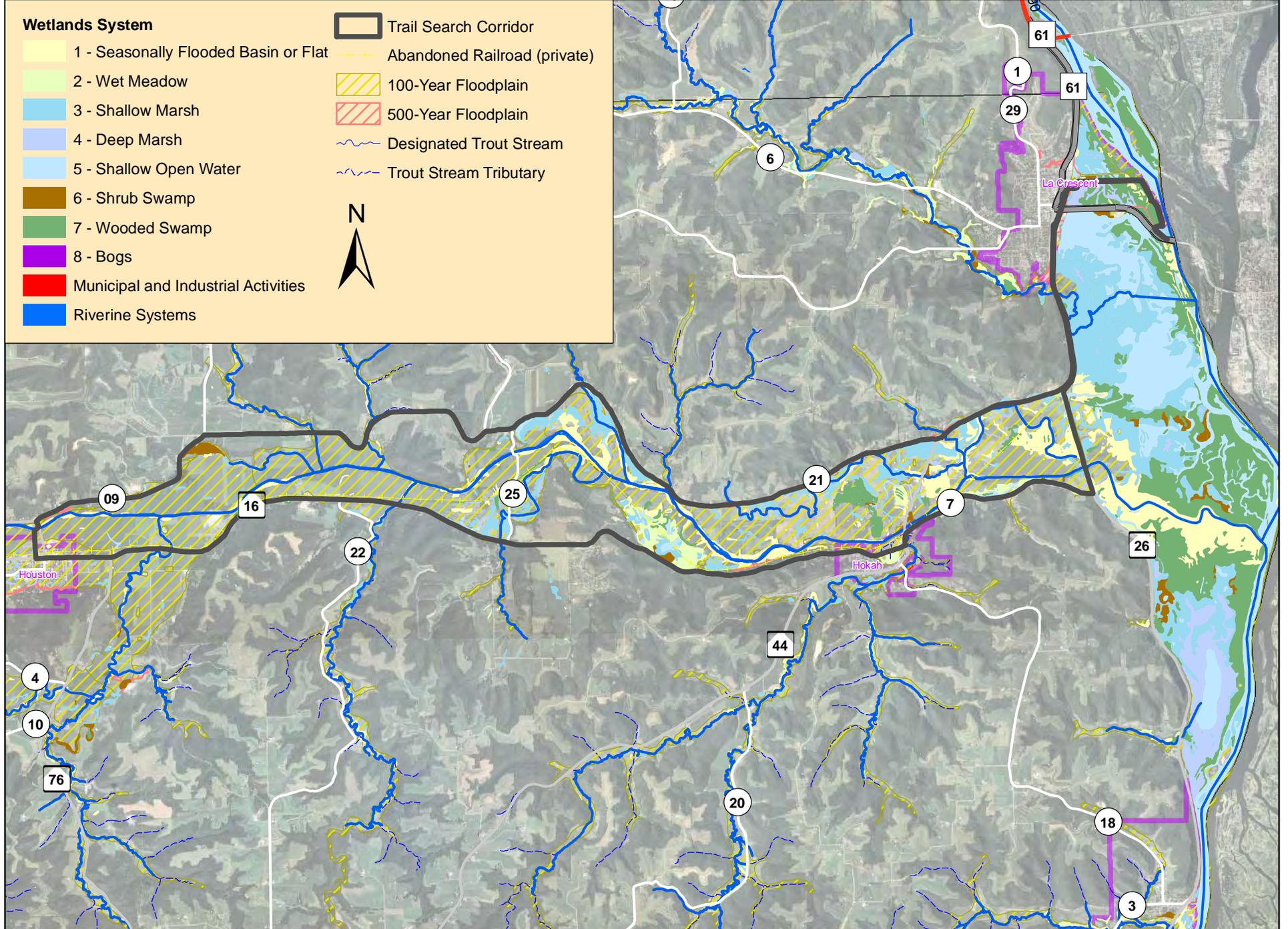
Another concurrent effort is the Mississippi River Basin Initiative. This effort is coordinated through the Natural Resource Conservation Service and provides over \$300 million to upper Mississippi River states for conservation efforts in priority watersheds. The Root River was selected as one of four priority watersheds in MN. Sub-watersheds are being considered for implementation of the program, and the Lower Root River area has been identified as one of the sub-watersheds. This project could result in acquisition of conservation easements from willing landowners in the Root River floodplain.

It will be important to ensure that alignments for the Root River Trail Extension are identified and adequately explored during these efforts. Trail development can be compatible with flood protection and resource conservation. However, easements and land acquisitions could result in restrictions or prohibitions on trail development in certain areas.

## ***Wetlands***

A variety of wetland types are found within or adjacent to the trail corridor. These include both Public Waters Inventory (PWI) wetlands, regulated by the DNR, and non-PWI wetlands, regulated by local governments under the Wetland Conservation Act. The majority of the Mississippi River wetlands east of TH 16 are classified as shallow marshes. Between Miller's Corner and Mound Prairie a broad corridor of wetlands occupies much of the valley floor; most are identified as emergent and forested wetlands. Relatively few wetlands are found between Mound Prairie and Houston. Floodplain and wetlands are shown in Figure 12.

It should be noted that the available wetland inventories are not complete and may contain some inaccuracies. All wetlands must be delineated in the field prior to any development. Generally speaking, development should avoid wetlands if possible, and if this cannot be done, mitigation measures must be provided.



## **Water Quality**

The Root River watershed is threatened by nonpoint source pollution that impairs its waters for swimming and fishing. From 1994-2008, eleven stream reaches in the watershed have been placed on the Minnesota Pollution Control Agency's impaired waters list for turbidity. These include the Root River's main stem from Thompson Creek in Hokah downstream to the Mississippi River, as well as substantial portions of the North Branch above Whalan and the South Branch west of Preston. The PCA is currently working with the Fillmore County Soil and Water Conservation District to complete a TMDL (Total Maximum Daily Load) Plan for the watershed. A TMDL study is a pollution reduction plan – it identifies the maximum amount of a pollutant the water body can receive and still meet water quality standards.

### **Water Resource Recommendations**

**Recommendation 1:** *Where the trail is close to the Root River or tributary streams, provide a permanent vegetative buffer strip and/or other stormwater best management practices (BMPs) between the paved trail and the river. Riparian zones will be planted with grasses, shrubs and trees to help stabilize banks.*

**Recommendation 2:** *Strive to limit water crossings and obtain permits for any crossings.*

**Recommendation 3:** *Efforts will be made to avoid impacting wetlands, however, wetlands will be inventoried and a wetland mitigation plan prepared to address any identified impacted wetlands.*

## **Vegetation**

### **Presettlement Vegetation**

Presettlement vegetation in the vicinity of the proposed trail corridor is shown in Figure 13, based on Marschner's *Original Vegetation of Minnesota* map, which was based on the notes of the Public Land Survey, 1847-1907.

The majority of the proposed trail corridor between La Crescent and Hokah was identified as a wet prairie, which included species such as marsh grasses, flags, rushes, wild rice, and willow. The southern half of the Root River valley was considered a river bottom forest made up of elm, ash, cottonwood, box elder, silver maple, willow, aspen, and hackberry. An upland forest community dominated the surrounding bluffs with bur oak, white oak, red oak, northern pin oak, elm, basswood, ash, maple, hornbeam, aspen, and birch species.

In the segment between Hokah and Houston, much of the area was a river bottom forest made up of elm, ash, cottonwood, box elder, silver maple, willow, aspen, and hackberry. Similar to the La Crescent-Hokah segment, an upland

forest community dominated the surrounding bluffs, along with oak openings and dry and mesic prairies.

### ***Present Day Vegetation***

About 30% of the Blufflands subsection is cropped, 20% is in pasture, and 50% is in woodland. Much of the valley floor is now occupied by field crops, pasture lands, and non-native species dominated grassland, while most of the bluffs remain forested.

The areas with high amounts of native vegetative biodiversity are concentrated within the Upper Mississippi National Wildlife and Fish Refuge east of Highway 16. The primary habitat in this area is the mixed emergent marsh, which is dominated by the river bulrush, common reed grass, sessile-fruited arrowhead, broad-leaved arrowhead and cattails. Closer to the Mississippi River on the seasonally flooded alluvium soils the vegetation is dominated by floodplain forests; silver maple in the frequently flooded broad muddy flats, and swamp white oak in the areas that are less severely flooded. The dominant species in these floodplain forests are silver maple, American elm, green ash, hackberry, river birch, and swamp white oak. Of special interest in those areas dominated by the swamp white oak is Davis' sedge, a rare species associated with that forest type.

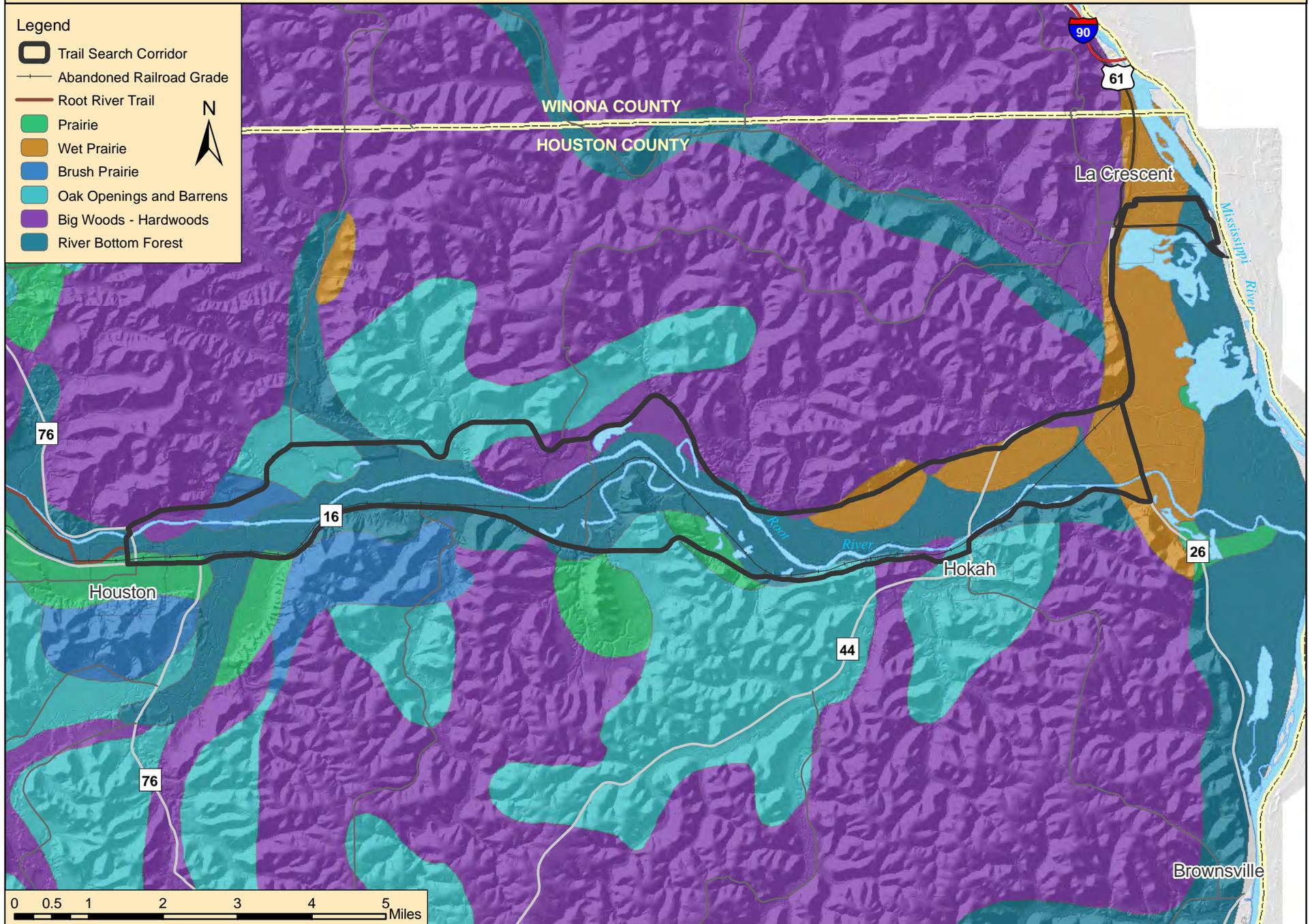
There is a significant amount of high quality native vegetation near the Mound Prairie Wildlife Management Area and the Mound Prairie Scientific and Natural Area. In addition to the mixed emergent swamps and floodplain forests that are common further east, there are also shrub swamps with high quantities of willows, red-osier dogwood, and false indigo. There are also portions of dry prairie, defined by little and big bluestem, Indian grass, side-oats grama, porcupine grass, and prairie dropseed. The oak forest subtype is dominated by various oak species including red oak, white oak, northern pin oak, bur oak, as well as basswood, and sugar maple. White pine hardwood forests are also found in this area and include many of the same species found in the oak forest. Important native plant communities identified through the Minnesota County Biological Survey are shown in Figure 14.

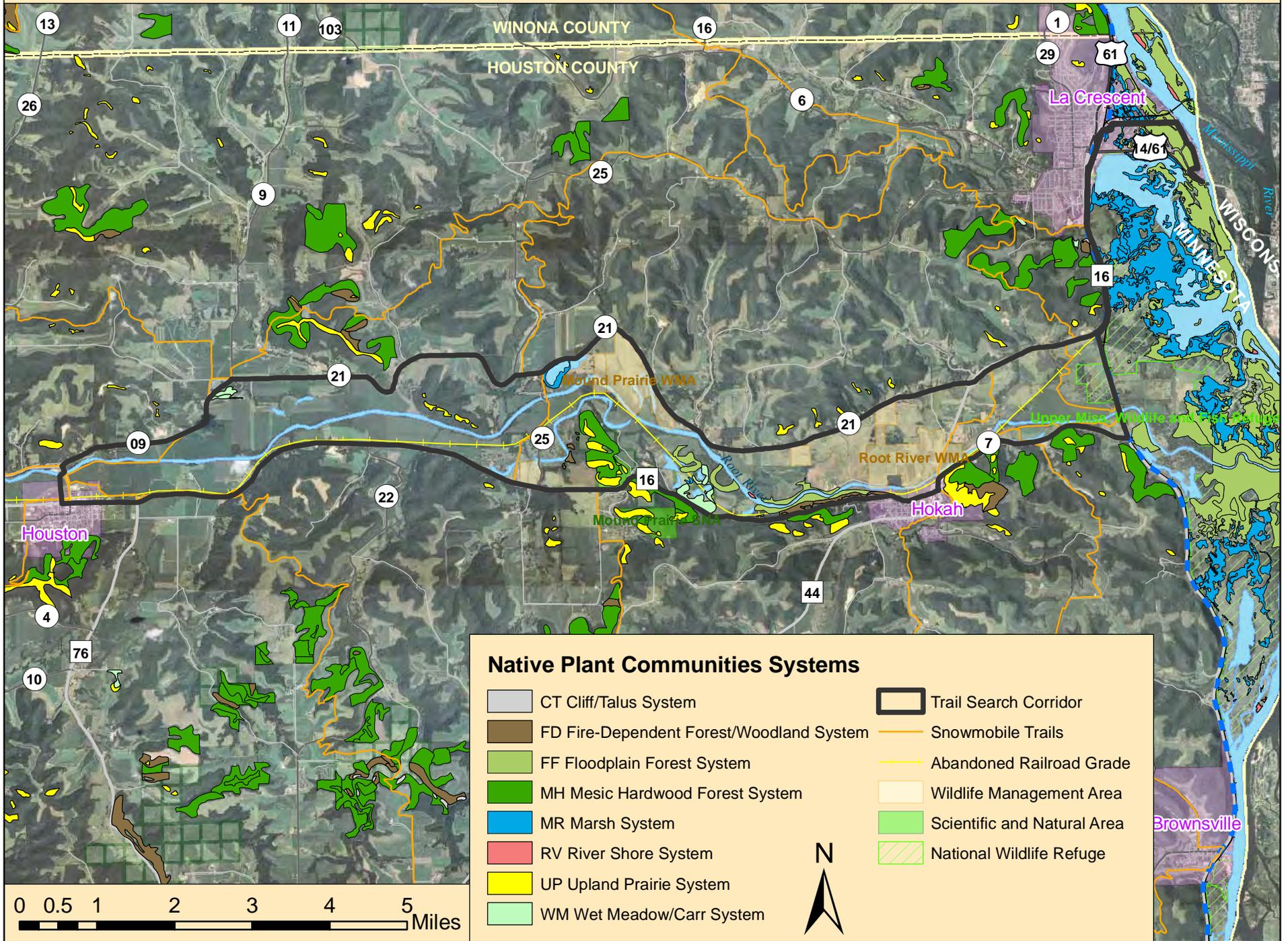
### ***Vegetation Management Recommendations***

***Recommendation 1:*** *Avoid threatened, endangered or special concern species and high quality plant communities, as defined by the Minnesota County Biological Survey (MCBS) maps.*

***Recommendation 2:*** *Develop a vegetation inventory and management plan for the trail.*

***Recommendation 3:*** *Restore, or if necessary, establish native woodland, prairie or wetland plantings along the trail in order to minimize maintenance, minimize*





*the use of pesticides, control invasive species, and enhance natural species abundance and biodiversity for enhanced user experience.*

**Recommendation 4:** *If sections of the trail are developed in wooded pasture, avoid oaks if possible, and minimize impacts of trail development.*

**Recommendation 5:** *Use native plant species, from a locally collected seed source, to revegetate existing natural plant communities as well as areas disturbed by erosion, overuse or construction. Native plants should also be used in windbreak plantings and in the landscaping of parking areas and waysides.*

## **Wildlife**

In addition to the many species that are commonly seen through Minnesota, some uncommon species can be found in this part of the state, including the rare peregrine falcon, wild turkeys and turkey vultures. Timber rattlesnakes, a threatened species, are occasionally seen on rock outcrops. Blanding's turtles, a threatened species, and bullfrogs, a species of special concern, are sometimes seen near calm waters or wetlands. Bald eagles are often spotted near the Root River during seasons of migration, and a large number of eagles winter on the Mississippi near open water in the vicinity of Wabasha.

### **Mammals**

Of the 58 non-game mammal species recognized in Minnesota, more than half have been documented in southeastern Minnesota. Ten species (Virginia opossum, least shrew, eastern mole, eastern pipistrelle, spotted skink, southern flying squirrel, plains pocket gopher, plains pocket mouse, western harvest mouse, and the pine vole) are at their northern limit in southeastern Minnesota. Two of these (the least shrew and the pine vole) have only been found in the state's southeastern counties.

Abundant or common non-game mammals likely to be seen by trail users include woodchucks, thirteen-lined ground squirrels, eastern chipmunks, northern pocket gophers and striped skunks.

Of the 20 species for which the DNR has set hunting or trapping seasons, most are found in southeastern Minnesota. White-tailed deer, red and gray fox, coyote, raccoon, muskrat, river otter, beaver, fox and gray squirrels, mink, and eastern cottontail rabbits are common.

### **Birds**

Several species found within the state reach their highest relative abundance or are only found in southeastern Minnesota. Commonly seen birds include sparrow, grackles, starlings, crows, robins, meadowlarks, red-winged blackbirds, mourning doves, house wrens, bobolinks, cardinals and swallows. Waterfowl

such as mallards, blue-winged teal and wood ducks are common during the summer months and seasons of migration.

The Mississippi flyway is heavily used by migrating waterfowl, including such non-game species as tundra swans, great blue herons, and great egrets. Upland game birds such as ring-necked pheasants and ruffed grouse, are present. Frequently observed raptors include the great horned owl, American kestrel, and the red-tailed hawk. Red-shouldered hawks, ospreys, and northern harriers have been spotted on occasion. As noted earlier, wild turkey are a special feature of this area of the state.

Of 197 breeding species counted statewide, 104 are found in southeastern Minnesota. Many species are not apparent to the casual observer. While not all are abundant or common, turkey vultures, red-tailed hawks, belted kingfishers, red-bellied woodpeckers, rough-winged swallow, white-breasted nuthatches, house wrens, cardinals, indigo buntings, and field sparrows reach their highest relative abundance in this area of the state. The Bell's vireo is only found in southeastern Minnesota. The loggerhead shrike, a threatened species once common and widely distributed across the United States, has recently seen drastic declines in its range. Breeding populations have been noted in the past in Houston County. It inhabits dry upland territory, nesting in shelterbelts, hedgerows or farmstead trees, and is threatened by the loss of this habitat to intensive farming practices or development.

### ***Reptiles and Amphibians***

The diversity of reptiles and amphibians increases in Minnesota's southeastern region. Of 45 species that occur statewide, 37 species are found here. Warmer temperatures and higher annual precipitation contribute to this increase, as do the unique habitat conditions found in this region of the state.

Turtles include the common snapping turtle, western painted turtle, three species of map turtle, and eastern spiny softshell turtle. The Blanding's turtle and the wood turtle are present, but only occasionally seen. Both species are classified as threatened. The smooth softshell turtle, a species of special concern, is found primarily in southeastern Minnesota.

Snakes and lizards are especially compatible with the environment of southeastern Minnesota. One lizard species, the six-lined racerunner, is found only in southeastern Minnesota. The five-lined skink, a species of special concern, lives on exposed limestone or sandstone outcrops on bluff prairies.

The southeastern region boasts the greatest number of snake species in Minnesota. The eastern plains garter snake, eastern garter snake, and eastern hognose snake are commonly seen. Of thirteen other species found in this region, two are not found in any other part of the state: the timber rattlesnake,

(one of only two venomous snakes in Minnesota) and the black rat snake. Timber rattlesnakes are classified as a state threatened species. Their habitat is limited to the woods and river bluffs of southeastern Minnesota. Dens are found in rock fissures of bluffs or in openings under rock formations.

Minnesota's other venomous snake, the eastern massasauga, has been seen in southeastern Minnesota in the past but not in more recent surveys, although suitable habitat exists.

Another snake species of interest that occurs in Houston County is the eastern milk snake.

Amphibians include the Eastern tiger salamander, American toad, and nine species of frogs. The northern leopard frog is the most common near the region's wetlands and water bodies. Other frogs include the northern spring peeper, gray treefrog, western chorus frog, green frog, and wood frog. The spring peeper, treefrog, and the pickerel frog may be found within forested areas. The northern cricket frog, an endangered species, has been found in southeastern Minnesota, although populations are declining due to stresses from flooding and habitat degradation.

### ***Fish***

The main stem of the lower Root River is 52.1 miles long, from the mouth of its South Branch east of Lanesboro to its confluence with the Mississippi east of Hokah, and drains an area of 1,638 miles. The trail extension search corridor falls within the area defined as Sector 1 (Mississippi River to Peterson). The main stem is considered a warm water habitat, with water temperatures averaging about 75 degrees in hot weather. It is not considered to provide quality habitat for warm water game fish. However, most of the tributary streams within this segment are designated trout streams throughout all or part of their length. The DNR Fisheries office in Lanesboro works extensively with angling constituent groups to cooperatively undertake trout stream habitat improvements within the southeast region. Native brook trout have been reintroduced into streams and wild brown trout populations have been enhanced, lessening the need for stocking.

A variety of fish species of special concern are found in the Mississippi and lower Root rivers. Minnows include the Ozark minnow, gravel chub and pallid shiner. The lake sturgeon, North America's largest freshwater fish, is found in the Mississippi, as is the paddlefish, a threatened species. Other fish species of special concern, including the yellow bass and the skipjack herring, reach the northern limits of their ranges in the Mississippi up to Lake Pepin.

## ***Invertebrates***

Mollusks, specifically freshwater mussels, are a particularly vulnerable class of invertebrates. Mussel species such as the ebonyshell and the mucket were once harvested both for freshwater pearls and for their shells, used in the button-making industry in the Upper Mississippi valley from the late 1800s to around 1930. The button industry declined due to overharvesting.

Mussel populations in the Mississippi and Root rivers are still in decline because of hydrologic alteration of streams and their watersheds; the continuing decline in habitat conditions on the Mississippi River associated with its management as a navigation canal; non-point and point source water and sediment pollution; and the zebra mussel (*Dreissena polymorpha*) infestation of the Mississippi and St. Croix rivers. Zebra mussels can attach themselves in large numbers to the shells of native mussels, eventually causing death by suffocation.

## ***Species in Greatest Conservation Need (SGCN)***

Species in Greatest Conservation Need (SGCN) have been identified for each ecological subsection in Minnesota. This category includes the following types of animal species:

- Species whose populations are identified as being rare, declining or vulnerable in Minnesota, including species with legal protection status (federal or state endangered or threatened species);
- Species at risk because they depend upon rare, declining, or vulnerable habitats;
- Species subject to specific threats that make them vulnerable (i.e., invasive species);
- Species with certain characteristics that make them vulnerable (i.e., highly localized distribution);
- Species with stable populations in Minnesota that are declining outside of Minnesota.

One hundred fifty-six Species in Greatest Conservation Need (SGCN) are known or predicted to occur within the Blufflands – the largest number within any of the subsections in Minnesota. The Blufflands provides a critical migratory corridor for forest songbirds, raptors, and waterfowl. It is the most important subsection for reptiles and one of the most important subsections for mollusks.

- It is an important area for birds such as Henslow's sparrows, prothonotary warblers, red-shouldered hawks, Louisiana waterthrushes, and peregrine falcons. It is also an important area for Karner blue butterflies and Blanding's turtles.
- Reptiles, amphibians, snails, mussels, and fish are special features of this landscape, including timber rattlesnakes, milk snakes, paddlefish,

shovelnose sturgeon, pallid shiners, American eels, pirate perch, skipjack herrings, and several Pleistocene snails.

- Oak savanna, prairie, shorelines and cliffs are considered critical habitat for terrestrial SGCN in the Blufflands.
- Areas important for SGCN near the trail search corridor are the Upper Mississippi River National Wildlife and Fish Refuge and the Mound Prairie SNA.

## **Threatened, Endangered or Special Concern Species**

The Minnesota Natural Heritage Information database was used to identify animal and plant species that are threatened, endangered or of special concern within the vicinity of the proposed trail corridor options. These species are listed in Appendix A. These species are protected by state law, and protecting their habitat must be considered during trail planning, development and maintenance. Terrestrial plant communities and animal assemblages of concern are also listed in Appendix A.

***Recommendation:** Avoid threatened, endangered and special concern species. Data from the Natural Heritage database was used to assess the location of threatened, endangered and special concern species. Parks and Trails Division staff will keep current with this data and perform on-the-ground surveys when an exact alignment is proposed.*

## **6. Historical and Cultural Resources**

### **Archaeological and Historical Context**

The area through which the trail will pass is rich in archaeological and historical resources. A framework developed by the State Historic Preservation Office, Minnesota Historical Society, will be used to provide an overview of the history of the area and to provide a context for archaeological and historic resources that are present along the trail. Artifacts from all context of the Pre-Contact and Contact periods have been found in the area. The most significant context for the trail in the Post Contact Period is the Early Agriculture and River Settlement (1840-1870).

Human occupation of the Blufflands in Minnesota is thought to have begun approximately 8,000 years ago, after the last glaciers retreated from the area. The **Paleoindian Tradition** (9,500 B.C. – 6,000 B.C.) includes the earliest human activity in Minnesota. Evidence of human activity includes scattered surface finds of stone tools and some projectile points.

The **Archaic Tradition** (6,000 B.C. – ca. 500 B.C.) is marked by greater diversity of plant and animal communities resulting from climatic changes and producing distinctive settlement patterns. Evidence of this tradition include chipped stone tools, pecked and ground stone tools, axes and gouges for woodworking. Native copper tools and decorative items made from copper have also been found from this tradition.

By 500 B.C. to 1,650 A.D. the **Woodland Tradition** cultures established more permanent settlements, characterized by the use of pottery and the burial of the dead in earth mounds. Large village sites existed during this time, and the number of sites is more numerous than from earlier traditions.

The **Mississippian Tradition** (1,000 – 1,650), which was dominated by agriculture, spread northward around 1,000 AD from its cultural center in the lower Illinois Valley east of present day St. Louis. These early farmers worked the sandy soils of the river bottoms and terraces with bone hoes and other hand tools. Their settlements were typically large villages of 600 to 800 inhabitants surrounded by fields of corn, beans, squash, sunflowers, and tobacco. Refined pottery and the continued use of burial mounds also characterized this culture.

The **Oneota Tradition** (1,000 – 1,650), common in southeastern and south-central Minnesota, represents a blending of Mississippian and Woodland elements.

An archaeological survey of the trail corridor will be conducted prior to any development. It is likely that pre-contact artifacts will be found based on surveys that have been conducted elsewhere in the Root River Valley.

During the **Contact Period** (1650-1837) European trade goods enter the archaeological record, including beads, bells, knives and ceramics. Evidence of French trade goods appear in the 1670s. The fur trade brought both French and British traders to the area. During the 1690s and early 1700s, the French established trading posts in the Mississippi River Valley. Between 1763 and 1805, British traders and explorers came to Minnesota.

By about 1800, the Mdewakanton and Wahpekute branch ancestors of the present-day Dakota people were living in the area, with summer camps along the Mississippi River near the present site of Winona. The Dakota were dependent on the natural resources of the area and moved seasonally in order to procure food, shelter and clothing. Seasonal activities included maple syruping; hunting and trapping; planting and harvesting corn; harvesting wild berries, nuts and other edible plants; and wild ricing.

In 1837, the Dakota relinquished their claims to the lands east of the Mississippi. The 1851 treaties of Mendota and Traverse des Sioux took all of southern Minnesota away from them. Two years later, the Dakota reluctantly left their

homes along the Mississippi and other area rivers and moved to a narrow reservation of land along the Minnesota River Valley. Additional pressure and abuse by the government and some of its officials led to the Dakota uprising of 1862.

A few areas of tribal land are located near La Crescent. These lands are listed as belonging to members of the Ho-Chunk Nation, formerly known as the Wisconsin Winnebago. The land is not classified as a reservation.

### ***Root River History***

Although the Root River proved to be advantageous to early settlers because of the access it provided to the Mississippi River, the river did not come without disadvantages. With a valley that stretches nearly two miles wide, the Root River has a long history of flooding, and this history is integral to both local city residents and farmers.

In 1917, Hokah residents and area farmers endured one of the worst floods on record, with three feet of water standing in some areas. The flood prompted local citizens to implement a plan to straighten the Root River, a plan that had been in discussion for nearly thirty years. For two years, the river was dredged and new channels were created, and, as the *Houston Signal* reports, a 'judicial ditch' was created. The judicial ditch process allowed for land to be condemned and then used for the dike and river channel.

The dredging and straightening of the river alleviated the flooding problems effectively until 1980. A flood during this year caused residents to take action because portions of the agricultural dike failed. It was at this time that the federal government questioned the authenticity of the judicial ditch status of the dike.

A flood in February, 2005 caused more damage to the dike, causing a severe flood in the city of Hokah and area farm fields. Record flooding in 2007 resulted in widespread damage in the cities of Houston and Rushford, in Whitewater State Park, and elsewhere in Houston and Winona counties. Discussions continue on how to better control flooding and minimize damage in the Root River floodplain (see discussion above under Water Resources: Floodplains).

### ***Railroad History***

The Southern Minnesota Railroad, the first railroad in the region, was extended to Houston County in 1866. The railroad was vital to the economic prosperity of the towns, as is evident in both Hokah and Houston's history. Freight service continued until 1980, when the Chicago, Milwaukee and St. Paul railroad (the Milwaukee Road) abandoned the rail infrastructure. The DNR ultimately acquired 49 miles of the grade for trail purposes, while the remainder reverted to private ownership by adjacent landowners.

### ***Settlement and Agriculture***

By the 1850s, active European settlement began in the Mississippi River valley. Settlers initially arrived by steamboat, later by railroad. Wheat was the first major crop harvested throughout Minnesota, and was harvest intensively until the productivity of the soils was reduced. In the 1880s, farmers shifted from wheat to corn and to raising dairy cows and hogs. In addition, timber was harvested in large quantities and shipped downriver to other growing Midwestern communities. Many hillsides were cultivated or grazed, leading to erosion and flooding. By the later 1900s, new farming practices such as crop rotation, contour tillage, strip cropping and terracing became more commonplace on many farms to reduce soil erosion and protect water quality.

### **Socioeconomic Context**

Houston County anchors the southeastern corner of Minnesota, with a county seat in Caledonia, about 12 miles south of Houston. The county's population was 19,027 in 2010, a slight decline from the 2000 population of 19,718. La Crescent is the largest city in the county. Primary occupations are education and health services, transportation and utilities, manufacturing, public administration, leisure and hospitality, and agriculture.

Houston County's unemployment rate as of February 2011 was 9.7%, above the statewide rate of 7.4% (these rates are not seasonally adjusted). Houston County is considered part of the La Crosse Metropolitan Statistical Area (MSA), along with La Crosse County in Wisconsin. The unemployment rate in the MSA was 6.7% in January 2011, indicating the MSA's relative strength as an employment center.

Houston County's zoning ordinance includes a Scenic Trail Overlay District that includes lands within five feet outside the right-of-way lines of any publicly owned recreational trail. No new commercial uses are allowed within the overlay district except for those already permitted and established prior to the effective date of the ordinance. No new buildings or additions are allowed. Advertising signs are limited to those that conform to the natural appearance of the surroundings, with limits on sign size, colors, and spacing.

### **Regional Recreation and Tourism Opportunities**

#### ***Scenic Byways***

**The Historic Bluff Country Scenic Byway** is an important tourist attraction. The 88 miles of Highway 16 between Dexter and La Crescent showcase the scenic Root River Valley, including bluffs, caves, sinkholes, hardwood forest, pastoral rural landscapes, and quaint and hospitable towns. This scenic byway is also designated as an All-American Road – one of only 31 in the United States. The

designation recognizes this scenic drive as a nationally significant “destination unto itself.” The presence of the Root River State Trail adds an important recreational amenity to the byway, while the byway offers trail visitors a variety of other recreational experiences.

The **Apple Blossom Scenic Drive Byway** extends for 19 miles along Highway 29 from La Crescent to the town of Nodine in Winona County, and is known for its rolling hills of apple orchards. Close to the byway is Great River Bluffs State Park, which provides lovers of the outdoors camping and fishing opportunities.

The **Great River Road Scenic Byway**, a national scenic byway, stretches the full length of the Mississippi River from Itasca State Park to the Gulf Coast. The Minnesota segment of the Great River Road through southeastern Minnesota follows Highway 16 south to La Crescent and then follows Highways 16 and 26 to the Iowa border.

### ***Recreational Opportunities***

#### **Camping and Lodging**

There are a variety of public and private campgrounds in Houston County. The City of Houston offers a public campground adjacent to the Root River trailhead. Camping and horseback trails are available in the Oak Ridge/Wet Bark Recreation Area of the R.J. Dorer State Forest. Beaver Creek Valley State Park, about ten miles south of Houston, offers semi-modern, rustic and cart-in campsites. Several private campgrounds are located near or within the trail search corridor.

Other lodging options include motels, bed and breakfast facilities, and a bunkhouse and stable facility for visitors with horses.

#### **Watercraft Access Facilities**

As a State Water Trail, the Root River offers numerous carry-in accesses for canoes and kayaks, including accesses in Houston, at Mound Prairie and at Miller’s Corner (Highway 26). Sportsmen’s Landing, a water access managed by the DNR at the Highway 14/61 Bridge in La Crescent, offers parking, boat ramps, toilets and a fishing dock.

#### **Angling**

Many of the designated trout streams within or near the trail corridor provide excellent fishing opportunities. The DNR Division of Fisheries has acquired streamside easements on many of these trout streams to provide angler access. Easements are found on portions of Thompson’s Creek south of Hokah and Badger and Swede Bottom creeks south of Houston. Habitat development projects have been completed on many streams.



Water access at Mound Prairie



Dock on Mississippi River at Sportsmen's Landing

## **Trail Opportunities**

In addition to the Root River Trail itself, a variety of other trail opportunities exist close to the trail corridor. Some units of the Richard J. Dorer Memorial Hardwood State Forest provide trail opportunities. The Vinegar Ridge Unit, located between Houston and Rushford, provides approximately six miles of hiking and snowmobile trails. The Oak Ridge/Wet Bark Recreation Area, located southwest of Houston, offers 11 miles of horseback riding trails, hiking trails, six miles of designated mountain biking trails in the summer and 11 miles of ski touring and six miles of snowmobile trails in the winter.

The Mound Prairie Scientific and Natural Area is open to low-impact hiking.

Beaver Creek Valley State Park, located about ten miles south of Houston, offers eight miles of hiking trail traversing rugged limestone bluffs along the valley of this pristine trout stream.

There are over 375 miles of snowmobile trails in Houston County. These trails are part of the statewide grant-in-aid snowmobile trail system totaling over 20,000 miles. Local snowmobile clubs develop and maintain these trails with funds distributed by a local government sponsor.

## **Community Benefits of Trail Development**

Communities that support trails and respond to the needs of trail users have seen positive effects on their local economies. Both DNR and national trail studies indicate that tourists attracted to the trails use local facilities for eating, shopping, and lodging. The newly revitalized economy can create jobs for residents and increase public revenue. The existing Root River State Trail provides clear evidence of this relationship, with measurable economic benefits to cities such as Lanesboro, Rushford and Preston.

The DNR estimates that for five trails surveyed between 2007 and 2009, summer spending totaled nearly \$5 million.<sup>4</sup> Most of that spending (95% in total) comes from trail users who reside outside the local economy of the trail, and the spending represents “new” dollars to the local economy. Trail users who have traveled a long distance to the trail, not surprisingly, outspend local users by a factor of about 20 on a daily basis, primarily on food, travel, and overnight accommodations.

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<sup>4</sup> Kelly, Tim. “Status of Summer Trail Use (2007-09) on Five Paved State Bicycle Trails and Trends Since the 1990s.” Trails surveyed in the 2007-2009 period were the Paul Bunyan, Heartland, Root River, Douglas, and Paul Bunyan-Bemidji State Park segment.

The Root River – Harmony Preston Valley Trail generated the highest amount of summer spending in this study, about \$2.27 million, and the highest proportion of use by tourists (70% traveled 50 miles or more to use the trail).

Trails also appear to increase property values and enhance the quality of life in the communities through which they run. Homes close to trails have become increasingly desirable. A number of studies of existing bike trails have shown that the average value of property near the trails is similar to or slightly above the value of other properties in the area.<sup>5</sup>

- A Minnesota study of two trails found that 87% of the homeowners along the trail felt the trail either had no effect or increased their property value.
- A National Park Service funded study of three trails found that 87% to 97% of those surveyed felt a trail either increased the value of their home or had no effect on its value. The study found that 89% of real estate professionals concurred.

Trails also yield benefits that are significant but difficult to quantify. To the extent that trail use replaces motor vehicle use, benefits result from lower air pollution and congestion. Multiple benefits to public health result from the use of trails for outdoor recreation. Regular, moderate exercise has been proven to reduce the risk of coronary heart disease, stroke, colon cancer, hypertension, diabetes, osteoporosis, obesity and depression. It increases muscular strength and flexibility, which leads to a greater range of movement in the later years of life.

Trail use has been shown to be valuable not only in combating obesity and related public health problems but also in reducing stress, improving mental health, and encouraging healthy lifestyles. Trail recreation incorporates fitness into everyday routines – commuting to work, exercising the dog, running errands, and socializing. In addition, relationships within and between communities can become stronger as people work together to plan, seek funding for, and help monitor and maintain trails. Communities can be physically tied together with trail systems, linking residential areas to schools, parks and other amenities and services. Trails can also create civic pride and enhance a city or region's identity.

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<sup>5</sup> For example, see "Home Sales Near Two Massachusetts Rail-Trails," 2005. <http://www.americantrails.org/resources/adjacent/dellapennasales.html>

## 7. Implementation

### What Happens After the Master Plan is Finished?

Chapter 86A.09 of Minnesota Statutes requires that a master plan be prepared for state trails before trail development can begin – although planning, design, and land acquisition can take place before the plan is complete. Trail users and trail advocates need to recognize that the completion of a master plan is only one step in what typically is a long process of implementation.

Throughout the planning process for this trail extension, local trail advocates have worked to establish feasible alignments, contact landowners, seek funding from a variety of sources, and work with DNR regional staff on land acquisition. The process has been, and will continue to be, lengthy and complex.

The first generation of state trails in Minnesota, including the existing Root River State Trail, were developed primarily on abandoned rail rights-of-way that state or local governments were able to acquire. Since that time, most of the remaining abandoned rail rights-of-way in the state have reverted to private ownership. The next generation of trails must cross a variety of public and private lands, making them much more challenging to develop than the rail-trails of the past.

DNR Parks and Trails staff work with individual landowners to acquire land or easements on a willing seller basis, keeping in mind that a series of acquisitions on adjoining properties will be needed in order to create a trail segment with a logical beginning and end. In other words, a trail segment should begin at an existing park or town center that can serve as a trailhead, preferably with parking and restroom facilities. It is also desirable for a segment to end at some type of destination – a city, a park, a wildlife preserve, or a historic site.

In this process, DNR acquisition and development staff frequently work with city and county governments, conservation organizations, and local trail interest groups to assess the feasibility of a particular trail alignment. Acquisition is done on a willing seller basis.

Land can be acquired or otherwise set aside for trail development through a variety of methods:

- A trail may be located on non-DNR public land, such as county or city-owned land, through a cooperative agreement.
- A local government or not-for-profit organization can acquire land from a willing seller and then sell or donate it to the DNR.
- Local interest groups and/or DNR staff may make the initial contact with landowners, after which DNR staff will assess the feasibility of a particular trail alignment and complete the land acquisition.

No matter which method is used, advance coordination with DNR staff is essential in order to ensure that the selected trail alignment is feasible to develop.

The following is a typical sequence of events in trail planning and development. However, the steps will likely overlap and the process will often require several rounds of feasibility assessment and landowner contacts.

1. **Complete the master plan.** The plan identifies a broad search corridor for the trail, within which one or more alternative alignments are identified. The intent of the plan is to provide flexibility while identifying the most feasible alignments, rather than “locking in” a specific route.
2. **Explore feasibility of each alignment.** Assess land ownership, road right-of-way width (is there enough room for a trail within the right-of-way?), connectivity, physical conditions such as slope, wetlands and natural resources, scenic qualities and historical significance. The alignment must allow state and federal design guidelines and rules to be met, including trail width, shoulders, curvature, accessibility, etc. Therefore, it is important for local governments and trail groups to coordinate their efforts with DNR staff.
3. **Initial informal landowner contact.** It is often preferable for landowners to be contacted by local trail supporters (rather than DNR staff). Landowner concerns frequently relate to privacy, safety and liability, and there are many information resources available to address these concerns.
4. **Formal landowner contact; complete acquisition process.** As mentioned above and with proper coordination, DNR or other entities may take the lead on land acquisition.
5. **Seek funding.** State trails are typically funded through a variety of sources that include state bonding appropriations, federal Transportation Enhancement (TE) funds and federal trail grants.
6. **Trail engineering and design.** The design process offers a final opportunity to assess feasibility, including the need to avoid sensitive natural or cultural resources and address constraints such as wetlands or steep slopes. Trail alignments may shift during the design process.
7. **Construction** on one or more segments, while the processes of negotiation and design continue on others.

## BASIC DESIGN STANDARDS FOR HARD-SURFACE SHARED-USE STATE TRAILS

The following standards briefly highlight key points from the DNR publication *Trail Planning, Design and Development Guidelines*. See the full document for more details on the design of many types of trails.

- Pavement width: 10 feet is typical; 12 feet an option in high-use areas, 8 feet is an option where limitations exist or lower use is expected.
- Shoulders: 2 to 5 feet, depending on conditions such as side-slopes and hazards
- Maximum grade: 5% preferred, with certain exceptions
- 2% maximum cross-slope (the slope from one side of a trail to the other)
- Corners gently curved to meet standards rather than right angles
- 50' to 100' wide corridor width where possible to allow for buffers, storm water control and grading, separate treadways.

*Trail Planning, Design and Development Guidelines* is available through the DNR or Minnesota's Bookstore, [http://www.dnr.state.mn.us/publications/trails\\_waterways/index.html](http://www.dnr.state.mn.us/publications/trails_waterways/index.html)

8. **Ongoing maintenance and stewardship.** Trail associations often act as “eyes on the trail” to monitor conditions, notify DNR of concerns and volunteer on certain efforts. Local units of government may provide trail maintenance via a cooperative agreement.
9. **Orientation and Interpretation.** All trails are developed with traffic safety and directional signs. Some trails provide interpretive signs that highlight notable natural and cultural resources and landscape features. An interpretive plan may be developed to identify themes and features that will be interpreted. An interpretive plan is currently being developed for the existing Root River State Trail. The themes and topics covered by that plan could be applied to the Houston – La Crescent segment.

***Actions Local Governments Can Take to Support Trail Development:***

City and county governments can play an important role in trail development through their planning and development review processes, including the following:

- **Integrate the trail concept into community plans**, including comprehensive and land use plans, park and open space plans, and transportation plans.
  - Through the local park and trail plan, link the state trail corridor to local and regional trails; integrate it with local parks
  - Seek opportunities to meet multiple goals through trail development – i.e., to improve water quality, protect natural areas, provide educational opportunities, or provide additional transportation options.
- **Require park and trail set-asides.** Through their subdivision ordinances, cities and counties may require that developers dedicate a reasonable portion of land within a development to public use for such things as streets, utilities, drainage, and parks, trails and recreational facilities.<sup>6</sup> (If the set-aside is for a state trail, coordinate with DNR staff in advance.)
- **Work with DNR staff to seek funding for state trail acquisition and development.** State trails are typically funded by the State Legislature via bonding money or special appropriations, or through the Legislative-Citizen Commission on Minnesota Resources (LCCMR). Some federal grants are also eligible to be used in conjunction with state funding for

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<sup>6</sup> Minn. Stat. §462.358 subd 2b (a) applies to cities; §394.25 subd. 7(c) to counties

development. Transportation enhancement (TE) project grants and other transportation funding sources may also be used for state trails. It is important for local government representatives to work closely with DNR regional staff in any pursuit of state trail funding.

## References

The following sources were used in the development of this master plan. Additional information was also drawn from DNR reports and databases, park and trail brochures, and other Department documents.

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## APPENDIX A

### Summary of Meeting Results and Public Comments

During the first phase of trail planning, an open house was held in August 2005 at the Hokah Fire Hall. Large color maps depicting the natural resources inventory, proposed trail alignments for the La Crescent-Hokah segment, and images of the abandoned railroad bed were on display, with Trails Committee members stationed near the images to answer questions. A short presentation outlined the goals of the trail, trail benefits, natural and cultural resources inventory, proposed trail alignments and future work.

Concerns were addressed regarding many issues with trails on private property: liability, trail maintenance, wildlife management, hunting, and safety issues. Other topics included avoiding displacement of rare species and whether a trail would bring economic benefits to the area.

Two open houses were held in January and February 2011 to review the draft master plan and discuss conditions and issues in the entire trail corridor. The first meeting was held in La Crescent on January 20 in conjunction with a citywide trail visioning process. About 40 people attended; the majority expressed interest in the trail and support for better connections between La Crescent and state trails in Minnesota and Wisconsin. About 13 people (based on sign-in sheets) remained after the meeting to review maps and talk with DNR staff and Committee members.

The second meeting was held on February 15 at the Valley High Golf Club in Houston and was focused on outreach to area landowners. Over 60 landowners and other area residents attended. Discussion focused primarily on landowner concerns regarding land acquisition, trail management, and potential trail uses. Some landowners were concerned about or opposed to the idea of a trail crossing their property. Others commented that they would like to be contacted in person prior to any public meetings.

Given the format of the meetings, most comments were verbal, not written. However, a number of written responses to a questionnaire were received and are summarized below:

#### Changes or additions to vision statement:

- Multi-use trails should include horse trails
- Are well-written to include health, safety and enjoyment of nature

#### What would be unique about this trail? Why would people come to ride this trail?

- To see the bluffs of Southeast Minnesota, to be close to nature, to be green-friendly, to get away from everyday demands

- Good use of hills and scenery, water access
- To enjoy the unique bluffland area
- To go from one community to another
- For exercise

Do you have any recommendations for location of the trail alignment?

- Preferably on the old railbed or meandering along / between Hwy 16 and Root River, or between Hwy 21 and Root River

What are the significant points of interest should be connected by the trail, and why? (i.e. other trails, parks, town centers, schools, campgrounds, public lands,)?

- Campgrounds, public lands, park, quiet eateries. Valley High Golf Club would be a great stop over
- Drive-in locations for horse trailers

Do you have any ideas for locations of parking lots, picnic areas, benches, overlooks, rest areas, and signs about the history or resources of the area?

- Parking lot/rest area south of new bridge in La Crescent
- Overlooks in the wetlands

Bicycling, hiking/walking, dog walking, running/jogging, snowmobiling, horseback riding, in-line skating/skate skiing, education and interpretation are envisioned as uses of this trail. Would you delete any of these uses from the list? Which one(s)?

- In-line skating/ skate skiing
- Make sure horseback riding, skiing, etc. are separate from biking
- Support all these uses if needed to create trail connection

Should other uses be accommodated?

- Snowmobile use along the entire trail
- Carriage driving
- Campsites
- Motorized uses to allow disabled people to use
- ATV access

How do you plan to use the trail?

- horseback riding, snowmobiling, dog walking
- horseback riding
- snowmobile
- bicycling, walking, canoe launch, nature observation

Do you have preferences regarding trail surface? Why?

- Crushed limestone—great base with some “give” for horse comfort – or asphalt as a last resort. Limestone also green-friendly if trail needs to be abandoned
- Natural surface

- Limestone
- Prefer asphalt for bicycles, but limestone is acceptable

Do you have questions, issues, or concerns about being a neighbor to the trail?  
How can we work with you to address any concerns?

- Some landowners are concerned with privacy and losing their land

Do you have any questions, comments, or concerns about trail maintenance?

- Trail maintenance can be divided between local snowmobile, saddle and 4-H clubs along with the DNR. Elgin and Forestville have done great at co-existing [multiple uses]
- There are bumps on the existing Root River Trail between Rushford and Lanesboro. Is there funding for maintenance?

Other comments

- Contact landowners first
- Hope to be able to benefit from this before we're too old!

## Response to Public Input

Many comments received support or confirm goals of the plan. Others are clearly in conflict with other comments or departmental policies. Others raise issues that DNR is aware of but needs to continue to work on, such as maintenance.

Comments in favor of horse trails, carriage trails.

Horses will be accommodated where the trail corridor is wide enough for a natural surface treadway or shoulder. Carriage trails require stable trail beds with adequate width, a condition that may not be feasible in many locations.

Comments regarding trail surface.

DNR is open to developing a trail with a crushed limestone surface in areas where adequate drainage can be provided. Other surface types may be needed in areas that are constrained or where drainage is poor.

Comments on lack of landowner contacts.

The Houston County Trails Committee has been contacting landowners within the search corridor, but this effort is volunteer-driven and is inevitably a lengthy one. Landowners are invited to contact the Trails Committee or DNR staff with any concerns.

**Comments in favor of snowmobile use between La Crescent and Miller's Corner.**

The Houston County Trails Committee, which includes snowmobile club representatives, discussed this question and concluded that the existing snowmobile trail that goes "over the hill" south of La Crescent is a preferable route, and that this trail segment would be ideal for cross-country skiing and snowshoeing.

**Suggestions for ATV use, motorized use for people with disabilities.**

ATV access has not been identified as a desired use during the planning process, and would, if allowed, create conflicts with other types of users, such as horseback riders. Off-highway vehicles have been allowed on only a few state trails in northern Minnesota; most OHV trails are located in state forests.

Motorized trail uses for people with disabilities have been assessed by the DNR. Effective March 15, 2011, rules issued by the U.S. Department of Justice allow "other power-driven mobility devices" (OPDMDs) to be used by individuals with mobility disabilities on all State or local government lands and facilities. The definition of an OPDMD is broad and covers all devices used for locomotion by persons with mobility disabilities, except for wheelchairs, including Segway®PTs, electric assisted bicycles and off-highway vehicles. Under the rule, these devices are allowed to be used on all DNR parks, trails, lands and buildings unless an assessment is done which supports restrictions.

The rules allow certain restrictions on the use of OPDMDs provided an assessment is completed showing, among other things, that there are legitimate safety concerns or a risk of serious harm to natural or cultural resources. The DNR has completed a preliminary assessment and posted an Interim Policy on the DNR website addressing restrictions on the use of OPDMDs on trails, lands, scientific and natural areas, wildlife and aquatic management areas and DNR buildings.

On paved and aggregate trails on DNR lands, the following OPDMDs are allowed: Electric personal assistive mobility devices, electric-assisted bicycles, and the following electric-powered devices: foot scooters, tracked mobility chairs or tricycles.

## APPENDIX B

### Natural Communities and Special Concern, Threatened, or Endangered Species

The following list of species is drawn from the database of the Natural Heritage and Nongame Research Program Unit of the DNR, within or near the proposed trail corridor, based on a GIS search and additional information from DNR resource specialists. Species are classified as follows:

- SPC** Special Concern
- THR** Threatened
- END** Endangered
- NON** A species with no legal status, but about which the Natural Heritage and Nongame Research Program is gathering data for possible future listing

Common Name	Latin Name	MN Status
<b>Animals (Vertebrate)</b>		
American Brook Lamprey	<i>Lampetra appendix</i>	NON
Bald Eagle	<i>Haliaeetus leucocephalus</i>	SPC
Black Buffalo	<i>Ictiobus niger</i>	SPC
Black Redhorse	<i>Moxostoma duquesnei</i>	NON
Blanding's Turtle	<i>Emydoidea blandingii</i>	THR
Blue Sucker	<i>Cycleptus elongatus</i>	SPC
Bluntnose Darter	<i>Etheostoma chlorosoma</i>	NON
Common Moorhen	<i>Gallinula chloropus</i>	SPC
Crystal Darter	<i>Ammocrypta asprella</i>	SPC
Gophersnake	<i>Pituophis catenifer</i>	SPC
Gravel Chub	<i>Erimystax x-punctata</i>	SPC
Henslow's Sparrow	<i>Ammodramus henslowii</i>	END
King Rail	<i>Rallus elegans</i>	END
Lake Sturgeon	<i>Acipenser fulvescens</i>	THR
Milk Snake	<i>Lampropeltis triangulum</i>	NON
North American Racer	<i>Coluber constrictor</i>	SPC
Northern Cricket Frog	<i>Acris crepitans</i>	END
Ozark Minnow	<i>Notropis nubilis</i>	SPC
Paddlefish	<i>Polyodon spathula</i>	THR
Pallid Shiner	<i>Notropis amnis</i>	SPC
Peregrine Falcon	<i>Falco peregrinus</i>	THR
Pirate Perch	<i>Aphredoderus sayanus</i>	SPC
Prairie Vole	<i>Microtus ochrogaster</i>	SPC

<b>Common Name</b>	<b>Latin Name</b>	<b>MN Status</b>
Pugnose Minnow	<i>Opsopoeodus emiliae</i>	NON
Sandhill Crane	<i>Grus canadensis</i>	NON
Shovelnose Sturgeon	<i>Scaphirhynchus platyrhynchus</i>	NON
Skipjack Herring	<i>Alosa chrysochloris</i>	SPC
Timber Rattlesnake	<i>Crotalus horridus</i>	THR
Western Fox Snake	<i>Elaphe vulpina</i>	NON
Yellow Bass	<i>Morone mississippiensis</i>	SPC

### **Animals (Invertebrate) - Mussels**

Black Sandshell	<i>Ligumia recta</i>	SPC
Butterfly	<i>Ellipsaria lineolata</i>	THR
Ebonyshell	<i>Fusconaia ebena</i>	END
Elephant-ear	<i>Elliptio crassidens</i>	END
Elktoe	<i>Alasmidonta marginata</i>	THR
Fluted-shell	<i>Lasmigona costata</i>	SPC
Hickorynut	<i>Obovaria olivaria</i>	SPC
Higgins Eye	<i>Lampsilis higginsii</i>	END
Monkeyface	<i>Quadrula metanevra</i>	THR
Mucket	<i>Actinonaias ligamentina</i>	THR
Pistolgrip	<i>Tritogonia verrucosa</i>	THR
Rock Pocketbook	<i>Arcidens confragosus</i>	END
Round Pigtoe	<i>Pleurobema coccineum</i>	THR
Sheepnose	<i>Plethobasus cyphus</i>	END
Spike	<i>Elliptio dilatata</i>	SPC
Wartyback	<i>Quadrula nodulata</i>	END
Washboard	<i>Megalonaias nervosa</i>	THR
Yellow Sandshell	<i>Lampsilis teres</i>	END

### **Animal Assemblage**

Colonial Waterbird Nesting Site

### **Plants**

American Ginseng	<i>Panax quinquefolius</i>	SPC
Buttonbush	<i>Cephalanthus occidentalis</i>	NON
Canada Frostweed	<i>Helianthemum canadense</i>	NON
Catchfly Grass	<i>Leersia lenticularis</i>	SPC
Cattail Sedge	<i>Carex typhina</i>	SPC
Clasping Milkweed	<i>Asclepias amplexicaulis</i>	SPC
Cliff Goldenrod	<i>Solidago sciaphila</i>	SPC
Coralberry	<i>Symphoricarpos orbiculatus</i>	SPC
Davis' Sedge	<i>Carex davisii</i>	THR

Common Name	Latin Name	MN Status
Ebony Spleenwort	<i>Asplenium platyneuron</i>	SPC
Goat's-rue	<i>Tephrosia virginiana</i>	SPC
Gray's Sedge	<i>Carex grayi</i>	NON
Green Dragon	<i>Arisaema dracontium</i>	NON
Jewelled Shooting Star	<i>Dodecatheon amethystinum</i>	NON
Lilia-leaved Twayblade	<i>Liparis liliifolia</i>	NON
Long-bearded Hawkweed	<i>Hieracium longipilum</i>	NON
Muskingum Sedge	<i>Carex muskingumensis</i>	NON
Narrow-leaved Milkweed	<i>Asclepias stenophylla</i>	END
Old Field Toadflax	<i>Linaria canadensis</i>	NON
Ovate-leaved Skullcap	<i>Scutellaria ovata</i>	THR
Plains Wild Indigo	<i>Baptisia bracteata</i> var. <i>leucophaea</i>	SPC
Purple Cliff-brake	<i>Pellaea atropurpurea</i>	SPC
Purple Sand-grass	<i>Triplasis purpurea</i>	SPC
Rhombic-petaled Evening Primrose	<i>Oenothera rhombipetala</i>	SPC
Rock Clubmoss	<i>Huperzia porophila</i>	THR
Sweet-smelling Indian-plantain	<i>Cacalia suaveolens</i>	END
Three-flowered Melicgrass	<i>Melica nitens</i>	THR
Upland Boneset	<i>Eupatorium sessilifolium</i>	THR
Virginia Water Horehound	<i>Lycopus virginicus</i>	NON

#### Habitats - Terrestrial Communities

Calcareous Fen (Southeastern)
Dry Barrens Oak Savanna (Southern), Oak Subtype
Dry Bedrock Bluff Prairie (Southern)
Mesic Sandstone Cliff (Southern)
Northern Bulrush-Spikerush Marsh
Oak - Shagbark Hickory Woodland
Red Oak - White Oak - (Sugar Maple) Forest
Red Oak - White Oak Forest
Sand Beach/Sandbar (River)
Sedge Meadow
Seepage Meadow/Carr
Swamp White Oak Terrace Forest
White Pine - Oak Woodland (Sand)