



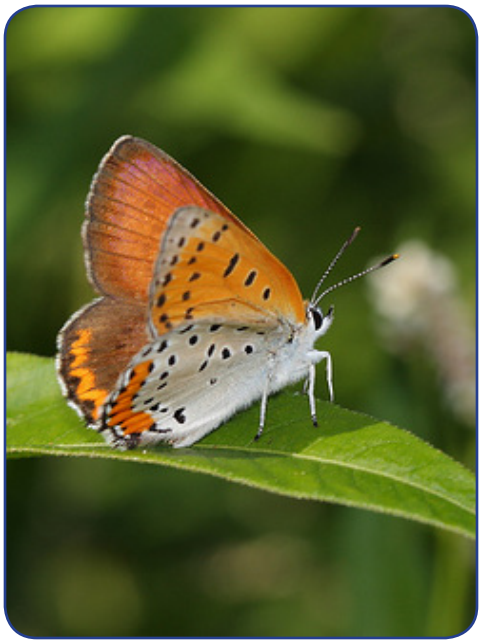


Carlyle Lake Trail Plan

September 30, 2010

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Executive Summary

This document represents the Carlyle Lake Trail Plan. The objective of this plan is to provide a conceptual framework guiding future trail development, reaching the overarching goal of bicycle and pedestrian facilities circumnavigating Carlyle Lake. More than a simple trail project, this network will provide much-needed interactive opportunities with the unique ecosystems of the lake, connecting residents and visitors with this picturesque amenity.

A year-long cooperative venture between the City of Carlyle, the US Army Corps of Engineers Carlyle Lake Project Office, and the Illinois Department of Natural Resources, this document represents the vision these three entities share for the future of Carlyle Lake. Apart from its wonderful hunting, fishing and boating opportunities, officials and staff would like to see residents and tourists have the ability to bike and walk the entire circumference of the lake, to areas of the lake previously difficult to reach, and around loop systems within the overall system. While this is a long-term plan, it provides the blueprint, in the form of phases, for moving forward towards implementation.

As more phases of this plan are implemented, the more positive impacts to the region's health - both economic and physical - will be realized.

Acknowledgements

The content and completion of this plan would not have been possible without the contributions of the following people:

- From the Illinois Department of Natural Resources Greenways & Trails Section: Dick Westfall & Marla Gursh, along with numerous other IDNR staff who provided invaluable insight during the writing and review of this plan
- From the U.S. Army Corps of Engineers Carlyle Lake Project Office: Jackie Taylor, Kimberly Hammel, and Joe Smothers
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- James Pona, James Pona & Associates

Background Overview

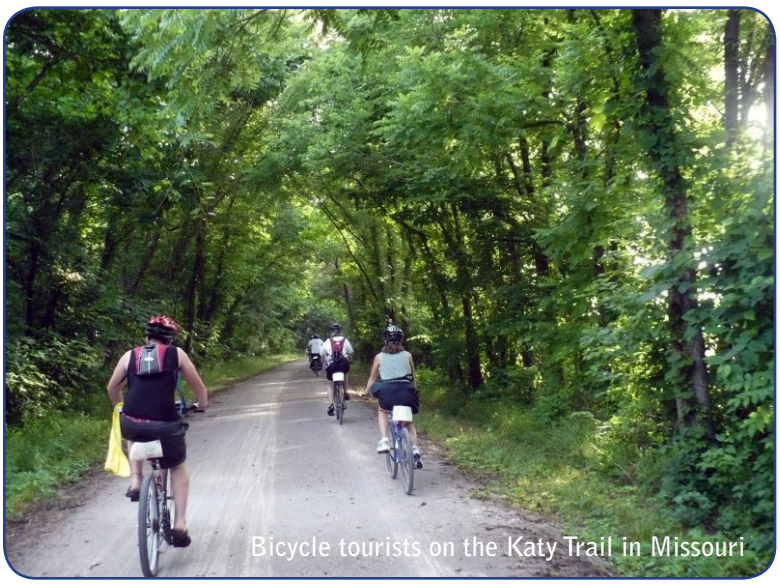
Purpose

The purpose of this study is to investigate and determine the most suitable and appropriate route to circumnavigate Carlyle Lake by bicycle. Where feasible, this route will be taken off-road as much as possible, to facilitate increased safety and ridership. These off-road segments, as well as the increased signage on the on-road portions of this route, will hopefully encourage use of the route by families and other inexperienced riders not comfortable sharing unsigned roads with vehicular traffic. In this relaxed recreational environment, riders will gain an improved education and experience of the ecosystems of Carlyle Lake. Additionally, it is the hope of the planning team that these facilities will be utilized by pedestrian users where feasible.

The route will incorporate multiple trailheads, as well as determinations of appropriate loop or out-and-back routes that can be utilized by riders and walkers not able to complete the entire route. Information detailing points of interest, such as boat access points, rest rooms, lodging and parking areas will also be identified.

The identification and subsequent future implementation of this route will not only provide residents and tourists with an environmentally-friendly way to view and experience the lake and its amenities, but will provide environmentally-friendly and low-energy alternative transportation and recreation infrastructure. This amenity will be an asset to all of the communities surrounding Carlyle Lake, bringing increased value to surrounding landowners and the region as a whole. Additionally, it is projected based upon existing trail data that this trail will attract additional tourism to the area not previously enjoyed.

This plans builds on the "Preliminary Bikeway Study - Carlyle Lake - Clinton County, Illinois" completed in December of 2000 for the Illinois Department of Natural Resources by Oates Associates and Fitch-Fitzgerald. The recommendations made in this study have been reviewed, updated and incorporated when possible and appropriate.



Bicycle tourists on the Katy Trail in Missouri

Location & Existing Conditions

Originally designed as a flood-control project, Carlyle Lake was formed by the US Army Corps of Engineers (USACOE) in 1967, the result of a dam on the Kaskaskia River. It is currently the largest man-made lake in Illinois and consists of 26,000 acres of water surrounded by approximately 11,000 acres of public land. The flood control pool of the lake has a storage volume of approximately 700,000 acre-feet and a water surface area of 57,500

acres. Normal summer pool elevation is 445 and normal winter pool elevation is 443. The flood pool elevation of the lake (and subsequent flood control easement) is 462.5. The USACOE owns Carlyle Lake and leases portions of the land around the lake to the Illinois Department of Natural Resources (IDNR). The USACOE & IDNR work together to manage and maintain the lands and water of Carlyle Lake for the benefit of Illinois residents and visitors. In 2009, there were 2,922,087 visits to all of the USACOE land surrounding Carlyle Lake.

Carlyle Lake is approximately 2 miles north and 0.5 miles east of the City of Carlyle (Clinton County), Illinois. It is approximately 50 miles east of St. Louis (see Illustration 1) and intersects the counties of Clinton, Bond & Fayette, Illinois.

The USACOE Master Management Plan outlines the resource use objectives for Carlyle Lake as flood control, water supply, navigation improvement, recreation and fish & wildlife management. During high-water events, the lake is used as a regulatory mechanism for preventing flooding downstream on the Kaskaskia and Mississippi Rivers. This is conducted through discharge control and is also utilized to maintain the navigation needs on both rivers. The cooperation and coordination with the USACOE on the Carlyle Lake Trail Plan is conducted under the recreation objective, as the implementation of this plan will improve visitor's recreation experience with Carlyle Lake as a whole.

Illustration 1. Locator Map

Public Lands

In addition to the federal lands and flowage easement that surrounds Carlyle Lake, there are three areas managed by IDNR: Eldon Hazlet State Park, Carlyle Lake State Fish & Wildlife Area and South Shore State Park.

Eldon Hazlet State Park

Eldon Hazlet State Park is a 3,000-acre site on the west shore of Carlyle Lake, 3 miles north of Carlyle and 2 miles east of Illinois Route 127 in Clinton County. It is one of the largest campgrounds in the Illinois state park system. It is named for a Carlyle attorney who organized the Kaskaskia Valley Association. Eldon Hazlet was the first president of the organization, which promoted construction of two of Illinois' three largest reservoir/recreational complexes - Carlyle Lake and Lake Shelbyville - plus other improvements on the Kaskaskia River. Annually, more than 800,000 visitors come to the park to camp, boat, fish, hunt, picnic, bird watch, hike over 9 miles of trails in the park, or attend the sailboat regattas held almost every summer weekend.

Carlyle Lake State Fish & Wildlife Area

Carlyle Lake State Fish and Wildlife Area is 60 miles east of St. Louis, near Vandalia, Illinois, at the northern end of Carlyle Lake and at the southwestern tip of Fayette County. IDNR has a 25-year lease on part of the USACOE property to conduct a variety of habitat management measures aimed at increasing food, shelter and nesting areas for numerous wildlife species. The federal lease land and state property provide almost 9,500 acres of wildlife habitat in approximately 2,000 acres of woodland, 5,800 acres of open water and wetlands, 200 acres of grassland, and 1,500 acres of cropland planted for wildlife food and cover. The area is divided by the following management areas: Westside Management Area, Eastside Management Area, Flooded Dead Timber Area and Open Water Area. The pleasures for visitors are simple and revolve mainly around enjoying the beauty and solitude of nature, whether its bird-watching, fishing or hunting.

Cyclists at Eldon Hazlet State Park

South Shore State Park

South Shore State Park is a 3 mile-long park located on Carlyle Lake's southeast side, approximately 3 miles east from the City of Carlyle on Route 50. The park provides recreational opportunities, including a small boat access, day-use areas for picnicking, a 3/4-mile hiking trail, as well as outstanding bank fishing opportunities. Observing wildlife, especially white-tailed deer, is another popular activity.

Points of Interest

There are numerous points of interest

around Carlyle Lake, from parking areas and boat access points to full marinas and campgrounds. Here are some of the highlights:


General Dean Suspension Bridge

General Dean Suspension Bridge
Located south of the dam, and spanning the spillway, this bridge was built in 1859 at a cost of $40,000 and used for nearly seventy years. Previously, travelers at Carlyle crossed the Kaskaskia by ferry or on a mud bridge supported by logs. The Historic American Buildings Survey recognized the architectural significance of this bridge in 1950 and recommended its preservation. In 1951 the State Legislature appropriated $20,000 for restoration work. The bridge was named in honor of Major General William F. Dean, a Korean War hero and Carlyle native, in 1953. As of 1976 this was the only suspension bridge in Illinois. It is closed to vehicle traffic, but is an excellent bicycle and pedestrian bridge and landmark.

Carlyle Lake Visitor Center
Located at the Dam West Recreation Area in Carlyle, Illinois, visitors can pick up literature, shop at the gift shop, or view exhibits; including a 215 gallon aquarium with native fish, and a snake exhibit featuring the massasauga rattlesnake.

Carlyle Sailing Association
Located inside Eldon Hazlet State Park, at 20960 Hazlet Park Rd, the Carlyle Sailing Association is a not-for profit sailing organization with some of the finest sailing facilities in the Midwest. They are a friendly, family oriented, wholly volunteer club dedicated to the sport of sailing and offer an exceptional and inexpensive recreational value for all members.

Boulder Marina & Recreation Area
Boulder Marina is located on the eastern shore of Carlyle Lake, Illinois, adjacent to Boulder Recreation Area, a beautifully maintained Corps of Engineers lake-side campground and park with complete facilities, including boat ramps and parking.

Existing Trails/Bicycle Facilities
There are some existing bicycle facilities present in the Carlyle Lake area, mostly in the City of Carlyle and the USACOE property surrounding the dam. In addition to the information presented below, more information on routes and trails provided and maintained by the City of Carlyle can be found at http://www.playandstaycarlyle.com/download_forms/Carlyle%20Bike%20Trail%20Descriptions.pdf.


Carlyle Lake Sailing Association

On-Street

Within the City of Carlyle, there are 3.1 miles of existing on-road facilities maintained by the City. This network conveys riders to and from the USACOE property around the Dam West Recreation Area and to the City Park and General Dean Suspension Bridge. These facilities are bicycle routes, where bicyclists share the road with vehicular traffic.

South Shore and Saddle Dam 2 Roads, running from the Main Dam and the entrance to South Shore State Park, are signed bicycle routes running 2.6 miles maintained by the USACOE, connecting up the Saddle Dam Trail and the Main Dam trail.

Additionally, there are 0.5 miles of on-street bicycle routes located in the Edgewater Beach subdivision 3 miles north of the City of Carlyle. These streets are maintained by both Carlyle Township and private residents and the routes provide access to boat slips and excellent views of the lake.

Trails

The City of Carlyle has a 1 mile paved trail traveling from Bond Street to the Visitor Center in the Dam West Recreation Area, where it picks up another 1 mile trail in the recreation area maintained by the USACOE that connects the Visitor Center with the Main Dam trail, which runs the span of the Main Dam. The Main Dam trail is gravel and very scenic; looking south, you will see the area grown up in timber and the Kaskaskia River/Spillway, looking north, you will be able to see the expanse of Carlyle Lake. The trail in the recreation area also runs north, ending at the Dam West Campground entrance at Lake Road. The USACOE also maintains an existing 1.2 mile paved trail connecting the West and East Spillway Roads, crossing the General Dean Suspension Bridge and another small bicycle and pedestrian bridge.

Saddle Dam 3 Trail is a 3.6 mile USACOE trail that runs along Saddle Dam 3 from the entrance to South Shore State Park and Boulder Road. This is currently a gravel trail and has marked crossings where the trail crosses Huey, Hughes and Creek Roads. Along Saddle Dam 3 Trail, riders will see a forested area to the north with possible wildlife sightings and farms and barns to the south.

The Keyesport Levee trail is a 1.5 mile gravel USACOE trail running the span of the Keyesport Levee from the railroad crossing at Mulberry Grove Road to 4th Street and passes through the Keyesport Recreation Area and Keyesport Marina, providing excellent views and access to the lake as well as access to the multiple amenities available in the Village of Keyesport.

Surrounding Communities

A brief analysis of the surrounding residents of Carlyle Lake will give a demographic and economic snapshot of potential users/ridership. More information about each community's interconnectivity with this trail plan is available starting on page 50. As families and children are a target audience for this trail, information on households with children is included below. Additionally, while bicycling is not a luxury hobby or recreation activity, households with a higher median income are more likely to participate in this type of recreation (source needed) so census economic information has also been provided. This analysis should be updated when the 2010 census data becomes available.

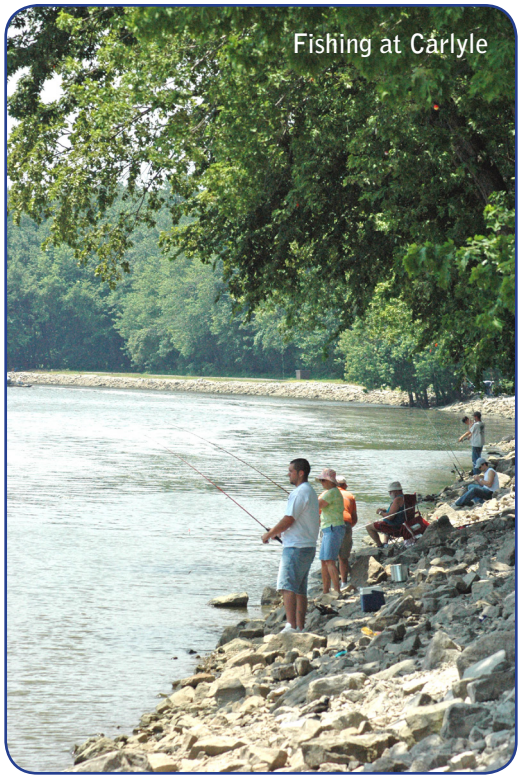
Clinton County

Carlyle

The City of Carlyle is the gateway to Carlyle Lake. The City of Carlyle offers two hotels, sixteen dine-in and fast-food restaurants, shopping and grocery stores, two golf courses, and more. Located just 50 miles east of downtown St. Louis. Founded in 1824, Carlyle is the county seat of Clinton County, Illinois and at the 2000 census, had a population of 3,406. There were 1,370 households out of which 29.4% had children under the age of 18 living with them. In the city the population was spread out with 23.3% under the age of 18, 9.8% from 18 to 24, 24.4% from 25 to 44, 21.3% from 45 to 64, and 21.3% who were 65 years of age or older. The median income for a household in the city was $36,660, and the median income for a family was $48,056. Carlyle has a total area of three square miles.

Breese

Located on US Route 50, just 8 miles west of the city of Carlyle, Breese had a population of 4,048 people, 1,513 households, and 1,078 families as of 2000. Thirty-eight percent of households had children under the age of 18 living with them. The population was spread out with 28.1% under the age of 18, 7.7% from 18 to 24, 29.0% from 25 to 44, 19.6% from 45 to 64, and 15.6% who were 65 years of age or older. The median income for a household in the city was $47,639, and the median income for a family was $54,242. The city has a total area of 2.3 square miles.


Fishing at Carlyle

Centralia

Centralia is a city located in Marion, Washington, Clinton, and Jefferson Counties in Illinois. The town was founded because it was the point where the two original branches of the Illinois Central Railroad, built in 1856, converged. The town is named for the railroad. Located approximately 60 miles east of St. Louis, the city has a total area of 7.6 square miles. As of the census of 2000, there were 14,136 people, 5,784 households, and 3,568 families residing in Centralia. Twenty-eight percent of


County courthouse in Greenville

households had children under the age of 18 living with them. The population was spread out with 24.3% under the age of 18, 8.1% from 18 to 24, 25.9% from 25 to 44, 22.2% from 45 to 64, and 19.6% who were 65 years of age or older. The median income for a household in the city was $31,905, and the median income for a family was $39,123.

Bond County

Greenville

Located about 45 minutes east of St. Louis on Interstate 70, Greenville is the county seat of Bond County. Greenville is home to Greenville College, a private Free Methodist college. The town was a stop on the underground railroad. As of the census of 2000, there were 6,955 people, 2,019 households, and 1,280 families residing in the city. Thirty percent of households had children under the age of 18 living with them. The population was spread out with 15.9% under the age of 18, 18.1% from 18 to 24, 32.7% from 25 to 44, 18.7% from 45 to 64, and 14.6% who were 65 years of age or older. The median income for a household in the city was $35,650, and the median income for a family was $45,557. Greenville has a total area of 5.2 square miles.

Fayette County

Vandalia

With a current population of 6585, Vandalia is a blend of restored historical sites, antique and specialty shops, modern hospital and schools, community parks, and a 660 acre recreational lake. Vandalia's history goes back to the state's inception. It is the oldest existing capitol city which served the state for 20 years, from 1819-1839. Vandalia is the county seat of Fayette County 69 miles northeast of St. Louis, on the Kaskaskia River. It is the home of the Vandalia State House State Historic Site (1836) and was a terminus of the National Road. The city has a total area of 5.7 square miles. In 2000, there were 2,344 households out of which 28.6% had children under the age of 18 living with them. The population was spread out with 18.3% under the age of 18, 12.4% from 18 to 24, 34.3% from 25 to 44, 17.9% from 45 to 64, and 17.1% who were 65 years of age or older. The median income for a household in the city was $30,857 and the median income for a family was $39,762.

Marion County

Salem

Only a ninety minute drive from St. Louis, Missouri, Salem boasts museums, a zoo, major entertainment facilities, sports centers and an international airport. William Jennings Bryan is one of Salem's most famous citizens. Salem is the home of the G.I. Bill of Rights, pioneering recognition for those who have fought and stand ready to defend this country's honor. It is also home to three homes on the National Register of Historic Places. It is the county seat of

Marion County. The city has a total area of 6.3 square miles. As of the census of 2000, there were 7909 people, 4,249 households, and 3,082 families residing in the city. There were 3,249 households out of which 28.6% had children under the age of 18 living with them. The population was spread out with 23.5% under the age of 18, 8.7% from 18 to 24, 26.1% from 25 to 44, 22.1% from 45 to 64, and 19.6% who were 65 years of age or older. The median income for a household in the city was $34,339, and the median income for a family was $42,070.


Highland Silver Lake

Highland

Highland is a dynamic rural town of 9,433 residents, located about 30 miles east of St. Louis. Highland was settled in the early 1800s as a Swiss settlement and derived its name from later German immigrants. Located in Madison County, the city has a total area of 6.4 square miles. As of the census of 2000, there were 8,438 people, 3,442 households, and 2,230 families. Thirty-three percent of households had children under the age of 18 living with them. The population was spread out with 25.5% under the age of 18, 8.1% from 18 to 24, 27.9% from 25 to 44, 20.5% from 45 to 64, and 18.1% who were 65 years of age or older. The median income for a household in the city was $39,524, and the median income for a family was $52,240.

Nashville

Nashville is located in Washington County, 22 miles south of Carlyle Lake. It is the county seat of Washington County and has a total area of 2.8 square miles. Nashville is located on Nashville Creek, at the headwaters of Little Crooked Creek, which flows northwest into the Kaskaskia River. Just to the southeast of Nashville is the headwaters of Beaucoup Creek, which flows south into the Big Muddy River. Nashville is thus situated next to the Kaskaskia/Big Muddy divide. As of the census of 2000, there were 3,147 people living in the city. There were 1,324 households out of which 31.6% had children under the age of 18 living with them. The population was spread out with 24.6% under the age of 18, 7.4% from 18 to 24, 27.5% from 25 to 44, 22.3% from 45 to 64, and 18.3% who were 65 years of age or older. The median income for a household in the city was $42,097, and the median income for a family was $51,875.

Community Health

With an increasingly sedentary and overweight population, especially in children, access to recreational facilities, including trails, is becoming more and more important for many citizens. The University of Wisconsin's Population Health Institute has analyzed a series of factors to produce a ranking for the counties of Illinois in two categories: health outcomes (premature death, overall morbidity, etc.) and health factors (obesity, smoking, etc). The analysis is intended to produce a picture of overall

community healthy based on factors like quality of health care, individual behavior, education, employment and environmental factors. The goal is to capture a picture of both physical and mental health.

The results are published in the County Health Rankings: Mobilizing Action Toward Community Health - Illinois 2010 report (countyhealthyrankings.org). Clinton County ranks in the top 25% with a score of 19 for health outcomes and 14 for health factors. Bond County is next, with a score of 59 for health outcomes and 43 for health factors. Fayette County comes in at 65 for health outcomes, but 90 for health factors. And Marion County is the lowest of the four counties in this plan with 93 (out of Illinois' 101 counties) for health outcomes and 94 for health factors. These results indicate that citizens in this region would benefit greatly from access to a high quality recreational trail system such as the one proposed in this plan.

Economic Impact

Carlyle Lake currently boasts a significant economic impact on the surround community, with $63.64 million spent by visitors within 30 miles of the lake in 2009. The implementation of this plan can increase these positive impacts on the economy of the jurisdictions and property owners surrounding Carlyle Lake. Some other regions of the US have conducted economic analyses of the impact of bicycle tourism. This information is useful and interesting and can be lightly extrapolated to conject possible economic impacts for Carlyle Lake. Additionally, it is useful to note that the bicycling economy is a "clean" industry with little to no negative environmental impacts.

One such analysis was conducted for the state of Maine in April 2001. Some highlights from the study are as follows: (The full report's reference is: Maine Department of Transportation (2001). Bicycle Tourism in Maine: Economic Impacts and Marketing Recommendations. Maine Department of Transportation, Augusta.)

- In 1999, direct spending in Maine by over 2 million bicycle tourists is estimated to have totaled $36.3 million.
- Of the 2 million tourists, 98% were day trip cyclists who spent $30 million.
- Direct spending is only part of the picture - the total economic impact (including "spin-off" and "multiplier" effects) was estimated to be $66.8 million in 1999.

And a piece of advice from the study: "The goal of any planned marketing effort should be not to merely generate more business for the state by increasing bicycle tourism, but to generate "quality business" - to work with public and private partners to effectively "create" and guide bicycle tourists to routes that will ensure a positive experience."

Another study from Colorado (Argys, L and N. Mocan (2000). Bicycling and Walking in Colorado: Economic Impact and Household Survey Results. Colorado Department of Transportation) breaks the analysis into manufacturing, retail, tourism and other revenue generator benefits, bringing the total economic benefit from bicycling in Colorado to over $1 billion annually. This figure is not limited to the tourism sector, but includes residents and daily use as well. The study sites 10% of Colorado residents taking a bicycle vacation in Colorado in the past 12 months, with a total annual revenue of $48 million. A final crucial statistic from the report stated that 276,400 of the 699,000 tourists who engaged in bicycling indicated that they would have changed their vacation destination had bicycling not been available.


Duluth Lakefront Rail-With-Trail

"Economic Benefits of Trails and Greenways", a 2000 publication of the Rails to Trails Conservancy (http://www.railstotrails.org/resources/documents/resource_docs/tgc_economic.pdf) details the economic, conservation and property value impacts of rails to and with trails. Some excerpts:

- The Mineral Wells to Weatherford Rail-Trail near Dallas, Texas attracts approximately 300,000 people annually and generates local revenues of $2 million.
- Visitors to Ohio's Little Miami Scenic Trail spend an average of $13.54 per visit just on food, beverages and transportation to the trail. In addition, they spend an estimated $277 per person each year on clothing, equipment and accessories to use during these trail trips. The total economic benefit is impressive considering there are an estimated 150,000 trail users per year.

Illinois Statewide Comprehensive Outdoor Recreation Plan

The State of Illinois recently updated the Illinois Statewide Comprehensive Outdoor Recreation Plan 2009-2014. The plan takes a comprehensive look at the outdoor recreation needs and the changing trends by society as to what is needed.

The aging demographic has created a shift in outdoor recreation needs. There is a greater demand today of less active and more passive recreation experiences and there is a greater need to provide for accessible facilities and infrastructure improvements. The plan "recognizes that parks encourage people to get outdoors, to be more active, and to improve their health. Providing parks and outdoor recreation that are close to home makes it easier for people to incorporate physical activity into their daily lives. Walking is one of the simplest yet most powerful ways to improve health. Trails and greenways, especially, are accessible places for outdoor activity, e.g., walking with family, taking the baby or dog out for fresh air, jogging for exercise, bicycling, or rollerblading. Trails also offer alternative means of transportation, to go to school, work, stores, neighbors, etc., reducing the negative

environmental and health impacts associated with traffic congestion."

"In the 2008 Illinois Outdoor Recreation Survey, Illinois residents were asked their opinions regarding ten outdoor recreation issues. There was agreement on the importance of the issues from at least three-quarters of the respondents." More trails and greenways should be developed was supported by 85.1% of the statewide respondents.

In the findings the most popular outdoor activity among respondents was pleasure walking with 87% participating in the last year. Most respondents also participated in picnicking, observing wildlife/bird watching, swimming in a pool, and using a playground. The least popular activities include trapping, snowmobiling, cross-country skiing, and sailing.

The Potential Growth in Outdoor Recreation Activities was reflected in the findings with nearly half (46.3%) of survey respondents indicated that there were outdoor recreation activities that they would either like to start doing or do more often. Pleasure walking, already the most popular outdoor activity in Illinois, also shows the greatest potential growth area in both urban and rural counties. Bicycle riding, both on roads and on trails, is the second most popular outdoor activity with growth potential cited by the respondents.

The SCORP priorities include Greenways and Trail linear ribbons of open space are effective means of preserving green spaces in urban and suburban areas, especially as development occurs at the urban fringe. Greenways often protect waterways and provide and connect wildlife habitat. Trails are linear recreation facilities that serve various purposes, including alternative transportation within and between communities. The Carlyle Lake Bike Plan would connect to several communities and provide an alternative transportation option for recreation users at Carlyle Lake.

Plan Principles

For all intents and purposes, the planned users of this trail (both on-street and off) are what the Federal Highway Administration terms "Group B/C Bicyclists". These are "Basic Bicyclists" and children. They are described as the following in the FHWA's document "Selecting Roadway Design Treatments to Accommodate Bicycles" (FHWA-RD-92-073):

> Group B – Basic Bicyclists: These are casual or new adult and teenage riders who are less confident of their ability to operate in traffic without special provisions for bicycles. Some will develop greater skills and progress to the advanced level, but there will always be many millions of basic bicyclists. They prefer:
>
> - Comfortable access to destinations, preferably by a direct route, using either low-speed, low traffic-volume streets or designated bicycle facilities.
> - Well-defined separation of bicycles and motor vehicles on arterial and collector streets (bike lanes or shoulders) or separate bike paths.
>
> Group C – Children: These are pre-teen riders whose roadway use is initially monitored by parents. Eventually they are accorded independent access to the system. They and their parents prefer the following:
>
> - Access to key destinations surrounding residential areas, including schools, recreation facilities, shopping, or other residential areas.
> - Residential streets with low motor vehicle speed limits and volumes.
> - Well-defined separation of bicycles and motor vehicles on arterial and collector streets or separate bike paths.
>
> Generally, group B/C bicyclists will be best-served by a network of neighborhood streets and designated bicycle facilities, which can be provided by:
>
> • Ensuring neighborhood streets have low speed limits through effective speed enforcement or controls and/or by implementing "traffic-calming" strategies.
> • Providing a network of designated bicycle facilities (e.g. bicycle lanes, separate bike paths, or side-street bicycle routes) through the key travel corridors typically served by arterial and collector streets.
> • Providing usable roadway shoulders on rural highways.

The recommendations made in this plan should be used as a framework for developing more detailed design-engineering plans during subsequent implementation. The recommended routes, trails and bridges are consistent with the bicycle facility design material and typical sections in the Illinois Department of Transportation's (IDOT's) Bureau of Design and Engineering Manual (Appendix C). They also reflect the guidance presented in the American Association of State & Highway Transportation Officials's (AASHTO's) Guide for the Development of Bicycle Facilities and the Manual on Uniform Traffic Control Devices (MUTCD) (Appendices D & E). These three documents are fundamental in the current acceptable reference information for developing bicycle facilities. [Note:

The full documents should be consulted in the design-engineering/implementation phase of this plan.]

Trail & On-Street Plan Components

For ease of planning, dissemination and implementation, The Carlyle Lake Trail Plan has been divided into six (6) phases:

1. Allen Branch Parking Lot to Boulder Road/Saddle Dam
2. Boulder Road/Saddle Dam to Coles Creek
    2a. Allen Branch Parking Lot to Keyesport
3. Burlington Northern Santa Fe Rail-With-Trail
4. Coles Creek to Cox Bridge
5. Keyesport to Wildlife Management Area
6. On-Street Loop Connector in Fayette County

A summary of the phases and their costs can be seen on page 22 & 23.

While the overarching goal of this plan is to provide an off-road network of multi-use trails that consist primarily of bicycle and pedestrian-friendly facilities that will allow users to circumnavigate Carlyle Lake and interact with the public spaces and resource assets therein, all phases of this plan also take into account viable on-road facilities, both for the more advanced user and for transportation purposes. Each phase, therefore, includes a planned on-road portion including as many planned off-road facilities as are feasible with respect to existing conditions. Many of these planned off-road facilities demand creativity in design and implementation, as the physiographical conditions surrounding the lake are often marshy, seasonally flooded and/or highly contoured (see Appendix G). Many areas may even require structural components such as bridges and boardwalks. While this plan focused on the development of a bike and pedestrian system it does not preclude other uses. In fact, multiple non-motorized uses are encouraged.

Additionally, Carlyle's wildlife habitats are home to a number of senstive species, some of which are even listed as threatened or endangered. It is not the intention of this plan to degrade any of the natural habitats of the lake area through implementation. Special attention should be paid at all stages of this project to the sensitivity of these areas, both hydrologically and ecologically, and all permits should be obtained and guidelines followed. By increasing awareness of the unique environmental features that make Carlyle Lake a recreational asset for southwestern Illinois through recreation, we hope to preserve and enhance these features for current and future generations.

A third area of consideration are the various public and private hunting areas surrounding the lake. **Cyclists and trail users should not be allowed in these areas during hunting seasons, for obvious saftey reasons. Signage and education of both user groups should both prevent any accidents and maximize use of these areas.**

This plan was developed from the information and analysis conducted during meetings of the planning team and field research. It reflects information gathered at the public open house on June 23rd, 2010 along with stakeholder feedback from the Illinois Department of Natural Resources and various county highway departments. The final whole system map can be seen on page 21 (Illustration 2).

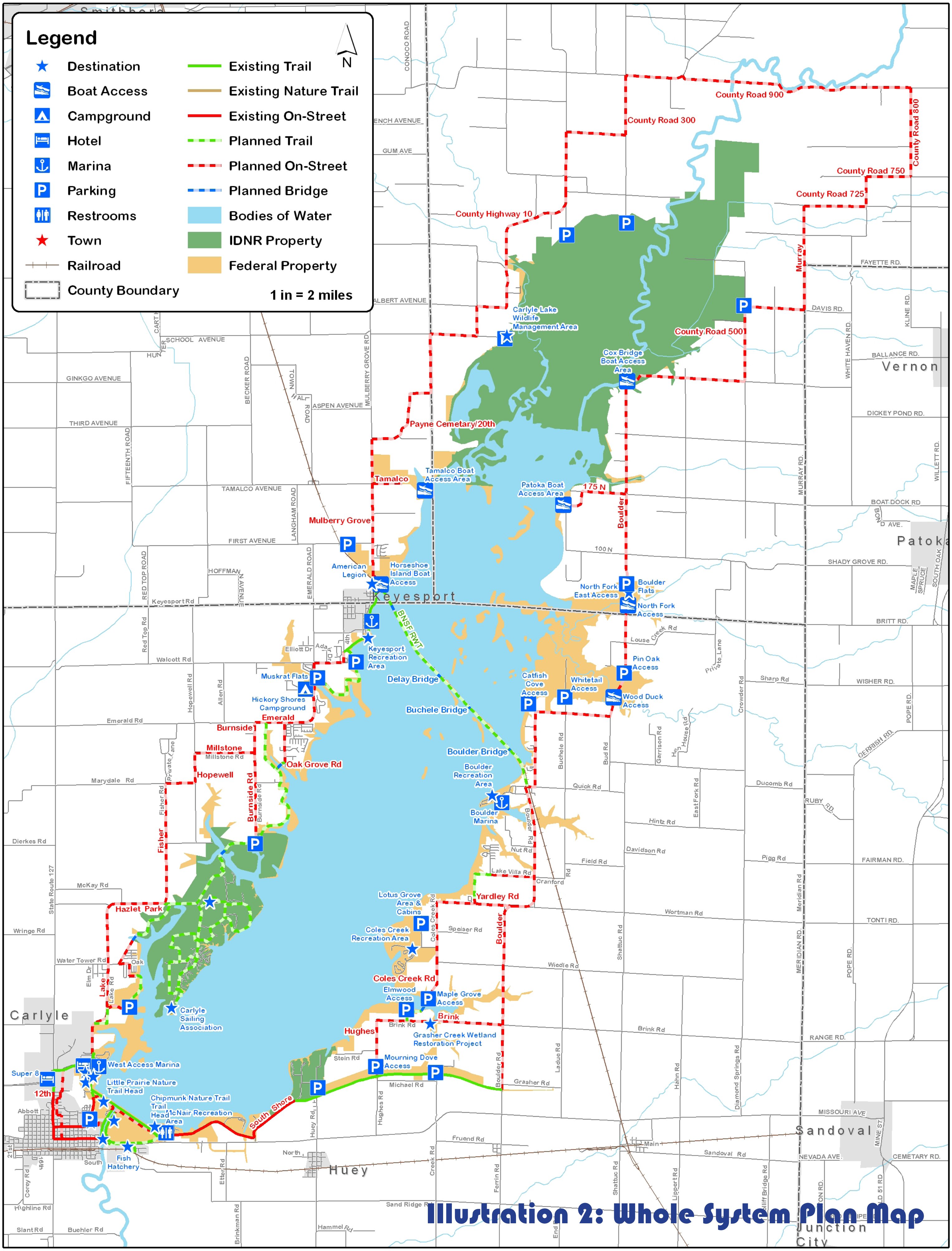


Illustration 2: Whole System Plan Map

Summary of Carlyle Lake Trail Plan Phases

Phase 1 - Allen Branch Parking Lot to Boulder Road/Saddle Dam

The Allen Branch of Carlyle Lake dissects Eldon Hazlet State Park just north of the main park road. There is a parking lot located here with boat access and phenomenal fishing opportunities. The first phase of this plan begins at this parking lot and travels southwest out of the park, south into and through the City of Carlyle and east to where the USACOE Saddle Dam 3 Trail meets Boulder Road.

Length (mi)	Length (ft)	Cost (retro)	Cost (new)	
14.2	**75,025.3**	**$39,224**	**$2,507,197**	**$2,546,420**

Phase 2 - Boulder Road/Saddle Dam to Coles Creek

As the crow flies, this phase is approximately 3 miles, but with the current topography, it is a much longer distance. The goal of this phase is to travel from the existing Saddle Dam 3 Trail to the Coles Creek Recreation Area. Currently, this can only be accomplished by traveling north on Boulder Road, and then west and south on Coles Creek Road, a distance of 5.5 miles. There are significant safety concerns at the intersection of Boulder Road and Coles Creek Road, so a couple of alternatives have been suggested. The planned facilities in this phase will offer some of the best viewsheds and interaction with Carlyle Lake as any in this plan.

Length (mi)	Length (ft)	Cost (retro)	Cost (new)	
9.8	**51,912.6**	**$48,205**	**$1,022,688**	**$1,070,893**

Phase 2a - Allen Branch Parking Lot to Keyesport

Connecting Phase 1 of this plan north to Keyesport is of similar importance as getting riders to Coles Creek Recreation Area - both are integral for increasing ridership and visitorship to key destinations and assets at Carlyle Lake.

Length (mi)	Length (ft)	Cost (retro)	Cost (new)	
15.0	**79,016.9**	**$49,447**	**$2,395,726**	**$2,445,173**

Phase 3 - Burlington Northern Santa Fe Rail-With-Trail

While the overarching goal of this plan is to create a bicycle-friendly system that will circumnavigate Carlyle Lake, various route alternatives and loops were considered as well. By creating a multitude of choices for riders/visitors, a broader audience will be attracted, and repeat visits will be increasingly interesting. Currently, there is no road/bridge that transects the lake open to vehicles/pedestrians/bicycles. The lack of such a facility limits interaction with both sides of the lake in one trip to more experienced riders or longer trips and limits the route alternatives drastically. This can be somewhat

rectified in the implementation of this plan. The only route that transects the lake is the Burlington Northern Santa Fe (BNSF) railroad levee. This levee and bridge system could be utilized as a Rail-With-Trail (RWT) for conveying cyclists and pedestrians across Carlyle Lake.

Length (mi)	Length (ft)	Cost (new)	
4.3	**22,896.5**	**~$12,000,000**	**$278,515**

Phase 4 - Coles Creek to Cox Bridge

The planned facilities in this phase are mostly on-street. The goal of this phase is to convey riders from the Coles Creek Recreation Area (by way of Coles Creek Road in Phase 2) to the Cox Bridge Access. There is only one planned trail in this phase, the Yardley-Lake Villa Trail Connector, which is utilized to avoid the dangerous intersection at Coles Creek Road and Boulder Road. The absence of other trails is evident in the difficulty of planning this one trail: there is a severe lack of usable public land in this phase. Much of the state and federal land in this phase is either too environmentally-sensitive and/or marshy for trails. Boulder Flats Wetland Restoration site is a good example of the physiography of this phase.

Length (mi)	Length (ft)	Cost (retro)	Cost (new)
13.5	**71,126.6**	**$67,488**	**$211,027**

Phase 5 - Keyesport to Fayette County On-Street Connector System

This phase completes the western half of the Carlyle Lake Trail loop, connecting the Keyesport Levee Trail (Phase 2a) with the Fayette County On-Street Connector (Phase 6).

Length (mi)	Length (ft)	Cost (retro)
6.5	**34,186.8**	**$34,187**

Phase 6 - On-Street Loop Connector in Fayette County

The primary prupose of this phase is to complete the northern end of the Carlyle Lake Trail system loop. This phase consists entirely of on-street facilities from the Wildlife Management Area (WMA) at Parking Lot #3 to the Cox Bridge Boat Access Area on the east side of the WMA. This phase is entirely within Fayette County.

Length (mi)	Length (ft)	Cost (retro)
21.5	**113,404.1**	**$113,404**

Phase 1 - Allen Branch Parking lot to Boulder Road/Saddle Dam

The Allen Branch of Carlyle Lake dissects Eldon Hazlet State Park just north of the main park road. There is a parking lot located here with boat access and phenomenal fishing opportunities. The first phase of this plan begins at this parking lot and travels southwest out of the park, south into and through the City of Carlyle and east to where the USACOE Saddle Dam 3 Trail meets Boulder Road.

Points of Interest (see Illustration 3. Phase 1 Plan Map):

- Eldon Hazlet State Park
- South Shore State Park
- Carlyle Sailing Association
- West Access Marina
- Visitor Center
- Dam West Recreation Area
- USACOE Carlyle Lake Project Office
- Carlyle Hotel & Conference Center
- Little Prairie Nature & Chipmunk Nature Trail Heads
- McNair Recreation Area
- General Dean Suspension Bridge
- Fish Hatchery
- All facilities within the City of Carlyle

Existing Facilities

There are numerous existing facilities, both off- and on-street in this phase.

Table 1. Phase 1 Existing Facilities

Type	Street Name/Label	Length (mi)	Length (ft)
On-Street	12th	0.8	4,190.1
On-Street	Carlyle City Park Bike Route	0.5	2,607.5
On-Street	Clinton	0.5	2,761.7
On-Street	Fairfax	0.8	4,043.6
On-Street	Lake Rd	0.5	2,814.0
On-Street	Saddle Dam 2 Road	1.6	8,597.7
On-Street	South Shore	1.0	5,143.3
Trail	Dam West Trail	0.5	2,893.7
Trail	General Dean/Spillway Trail	1.2	6,364.1
Trail	Lake View Trail	1.3	6,797.6
Trail	Main Dam	1.5	7,953.4
Trail	Saddle Dam 3 Trail	3.6	18,991.7
Nature Trail	City Park Trail	0.2	910.3

Existing On-Street

- There are just over 3 miles of existing bike routes within Carlyle city limits (Table 1). These wide city streets are maintained by the city and designed to encourage sharing the roadway.

- The USACOE maintains two existing bike routes:
  - 1.6 miles of Saddle Dam 2 Road from the east side of the Main Dam to South Shore Road
  - Just under one mile of South Shore Road from Saddle Dam 2 Road to the beginning of Saddle Dam 3 Trail at the entrance to South Shore State Park

Existing Trails

- The City of Carlyle recently completed the 1-mile Lake View Trail, which is an 8-foot wide paved path from Bond Street to the Visitor Center, connecting up to the USACOE existing trail network.
- The USACOE maintains 5 existing trails in this phase of the plan:

1. The Dam West Trail runs south from the Dam West Campground to the Visitor Center, passing through wooded areas and the West Access Marina before ending at the USACOE portion of the Lake View Trail.
2. The USACOE Lake View Trail is one-third of a mile long, and connects the Dam West Trail and the City of Carlyle Lake View Trail with the Main Dam Trail. This piece of the existing off-road network is a paved extension of the parking areas along the lake side of Lake Road and have beautiful views of the lakeshore.
3. The Main Dam Trail is a 2-mile limestone screening trail spanning the length of the main dam from Lake Road to Saddle Dam 2 Road. Along with excellent views of the lake and the spillway, this portion of the lake is blocked from vehicular access and provides an excellent route to the east side of the lake.
4. The General Dean/Spillway Trail connects the West and East Spillway Roads and crosses the famous and historical General Dean Suspension Bridge. There is an additional bicycle and pedestrian bridge that was recently constructed to complete the connection, which is just northeast of the General Dean bridge. This paved trail is at a low elevation and is therefore at the mercy of the water levels in the spillway and is often underwater in the late winter, early spring. This area is also restricted to vehicular traffic and provides a very intimate experience with the dam and spillway construction, in addition to the history of the suspension bridge.

5. The Saddle Dam 3 Trail is a 3.6 mile oil and chip trail running the length of the Saddle Dam 3 levee from South Shore State Park to Boulder Road. The levee top is closed to vehicular traffic and the well-maintained trail offers interaction with the marshy wetland ecosystems to the north, and the expansive farmland to the south.

Suggested improvements to the existing facilities in Phase 1:

- "Share The Road" signs should be added to the on-street network of existing bike routes in the City of Carlyle to encourage use and increase safety.
- Add signs at McDonald's entrance where it crosses the Lake View Trail off Lake Road to notify vehicles of the trail crossing and increase safety.

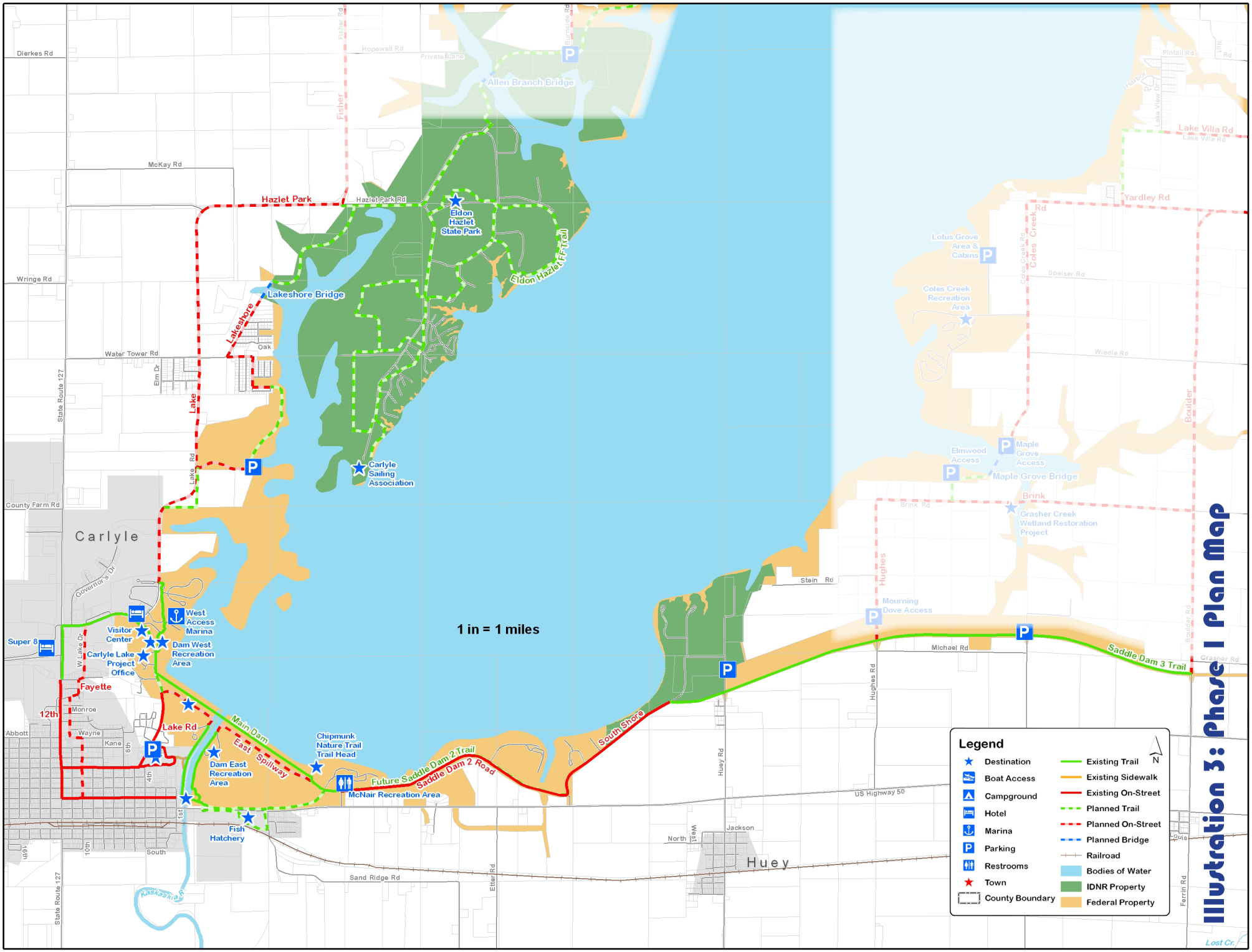


Illustration 3: Phase I Plan Map
1 in = 1 miles
Legend
Destination
Boat Access
Campground
Hotel
Marina
Parking
Restrooms
Town
County Boundary
Existing Trail
Existing Sidewalk
Existing On-Street
Planned Trail
Planned On-Street
Planned Bridge
Railroad
Bodies of Water
IDNR Property
Federal Property
N
Carlyle
Huey
Hazlet Park
Eldon Hazlet State Park
Eldon Hazlet FP Trail
Lakeshore Bridge
Allen Branch Bridge
Carlyle Sailing Association
Lake Rd
Lakeshore
West Access Marina
Visitor Center
Dam West Recreation Area
Carlyle Lake Project Office
Fayette
Lake Rd
Main Dam
East Spillway
Dam East Recreation Area
Chipmunk Nature Trail Trail Head
McNair Recreation Area
Future Saddle Dam 2 Trail
Saddle Dam 2 Road
South Shore
Saddle Dam 3 Trail
Fish Hatchery
Kaskaskia R
Lotus Grove Area & Cabins
Coles Creek Recreation Area
Elmwood Access
Maple Grove Access
Maple Grove Bridge
Grasher Creek Wetland Restoration Project
Mourning Dove Access
Brink
Oak
Abbott
Jackson
Lake Villa Rd
Yardley Rd
Wiedle Rd
Speiser Rd
Michael Rd
Stein Rd
Brink Rd
Hopewell Rd
McKay Rd
Wringe Rd
Water Tower Rd
County Farm Rd
Sand Ridge Rd
US Highway 50
Hughes Rd
Huey Rd
Etter Rd
Fisher Rd
Boulder Rd
Coles Creek Rd
State Route 127
Super 8

- Need signs at the intersection of Lake Rd/Clinton Rd in Carlyle. This is the exit of the one-way road/bike route that travels through the City Park and the sight distance for drivers is very poor. At minimum a warning sign for drivers should be placed on the northeast corner of Lake and Clinton and warning signs for cyclists placed at the exit of the park onto Lake Rd. If bicycle traffic increases, some warning lights may need to be added as well (see AASHTO & MUTCD for guidelines on signage).
- Bicycle/Pedestrian trail signs need to be added to the General Dean/Spillway Trail to encourage use and increase safety.

Planned Facilities

The planned bicycle routes and trails in this phase are designed using the existing facilities as a base, expanding on them to connect them up with the rest of the lake. All of the planned facilities in this phase are in Clinton County.

The costs represented in the table below fall into two categories (see Appendix B):

- Retro = retroactive. These costs represent expenses related to upgrading or adding features to existing facilities; specifically adding signage and pavement markings.
- New. These costs are estimates of new facilities in previously untouched areas, such as a trail or bridge (trail costs shown are for 10' paved asphalt - for boardwalk-style trails, use $720/linear ft).
- NOTE: these costs are a preliminary opinion of cost based on visual inspection of existing facilities (2010). They do not include ROW or easement costs and are in 2010 dollars. It is recommended that more specific cost estimates be obtained before annual budgets or grant amounts are determined.

Table 2. Phase 1 Planned Facilities

Type	Street Name/Label	Length (mi)	Length (ft)	Cost (retro)	Cost (new)
On-Street	10th	0.4	2,133.5	$2,133	$0
On-Street	11th	0.3	1,424.8	$1,425	$0
On-Street	East Spillway	0.8	3,985.5	$3,986	$0
On-Street	Edgewater Beach Dr	0.2	1,089.8	$1,090	$0
On-Street	Fayette	0.1	510.5	$511	$0
On-Street	Hazlet Park	0.9	4,930.7	$4,931	$0
On-Street	James W Hawn Access	0.4	2,040.9	$2,041	$0
On-Street	Lake	2.6	13,951.3	$13,951	$0
On-Street	Lakeshore	0.5	2,412.0	$2,412	$0
On-Street	Marion	0.1	322.8	$323	$0
On-Street	N Circle Dr	0.1	632.9	$633	$0
On-Street	Water Tower Rd	0.2	903.3	$903	$0
On-Street	Wayne	0.1	417.6	$418	$0
On-Street	West Lake Ter	0.4	2,110.2	$2,110	$0
On-Street	West Spillway	0.4	2,358.0	$2,358	$0
Trail	Eldon Hazlet State Park	0.8	4,022.3	$0	$233,293
Trail	Fish Hatchery Trail	1.1	5,996.8	$0	$347,815

Table 2. Phase 1 Planned Facilities

Type	Street Name/Label	Length (mi)	Length (ft)	Cost (retro)	Cost (new)
Trail	Future Saddle Dam 2 Trail	1.6	8,548.1	$0	$495,789
Trail	Hawn-Circle Trail Connector	0.7	3,480.8	$0	$201,887
Trail	Hazlet Park Rd Trail	0.5	2,850.0	$0	$165,302
Trail	Hwy 50 Bypass Trail	0.4	2,284.0	$0	$132,472
Trail	Lake Road Bypass Trail	0.5	2,563.9	$0	$148,709
Trail	Lakeshore Hazlet Trail Connector	0.9	4,585.0	$0	$265,930
Trail	Sidewalk	0.1	731.0	$0	$42,401
Bridge	Lakeshore Bridge	0.1	739.3	$0	$473,600
25	**Totals:**	**14.2**	**75,025.3**	**$39,224**	**$2,507,197**
				$2,546,420	

Planned On-Street

For both safety and liability reasons, this plan was written using the guidelines of the Federal Highway Administration and the AASHTO bicycle design standards.

For rural areas, the FHWA suggests utilizing wide shoulders on roadways for class B-C bicyclists in conjunction with "Share The Road" signage. The suggested width of the shoulders is dependent on four factors: Average Annual Daily Traffic (AADT) volume, speed limit of the road, sight distance and types of vehicles present. All of the roads in this phase that have been designated as planned bicycle routes have AADT values under 2,000 (some drastically under), putting them in the column of recommended shoulder widths of 4 ft (speed limits under 40 mph) or 6 ft (speed limits above 40 mph).

For many of the jurisdictions that maintain these roadways, the cost of widening these roads to include these recommended widths may be cost-prohibitive in implementing the plan alignments. Due to the low traffic volumes on many of these roadways, it is the opinion of the planning team that simple signage would be adequate for encouraging usage, warning drivers/riders and increasing safety. Current state law permits bicycle use on roadways except interstates. During future road improvement projects, it is the recommendation of this plan that the shoulders/bicycle facilities be constructed in accordance with the federal recommendations outlined above.

Cost information for widening these roadways and adding crossing structures to accommodate these federal regulations is shown in Appendix B. Based on the current road bed width, there are various cost estimate scenarios shown.

Signage should be in accordance with state and federal regulations. Both pavement markings ("sharrows") and standard traffic signs are recommended for all planned on-street alignments. Traffic signs ("Share The Road" with a bicycle symbol) should be placed every mile along the length of the roadway, on both sides of the roadway and at all intersections. Pavement markings should be placed at intersections at a minimum (especially in low-traffic areas) and in higher traffic areas, they should be placed every 250 feet.

There are 7.4 miles of planned on-street facilities in this phase (see Illustration 3. Phase 1 Plan Map). These planned alignments enhance the existing network within the City of Carlyle, providing alternative routes and increased connectivity. Additionally, some of the recommended routes (i.e. Lake Road) are included to provide an alternative to the planned trails and experienced riders should be comfortable on these roads, even without paved shoulders, with appropriate signage. Other on-street facilities, such as N Circle Drive, are included in this plan as on-street connectors for the planned trail system where the topography of the land makes off-road alignments impossible. These are low-traffic residential streets that will provide optimal connectivity with trail-like safety conditions. These on-street segments should provide the necessary comfort-level for class B/C bicyclists even without paved shoulders.

Planned Trails

All trails need to be constructed 8-10 feet in width at a minimum to accommodate bi-directional multi-use ridership. Surfaces should be smooth and well-maintained. Signage should also be placed at the terminus of each trail indicating its use and along the path where needed to increase safety and education. The costs outlined in Table are for both design/construction and conservative yearly maintenance requirements. This amount may be more or less depending on the jurisdiction responsible for maintenance.

There are 6.6 miles of planned trails in this phase (see Illustration 1. Phase 1 Plan Map):

- Extensive effort was made to place all recommended trail alignments within public property, either local, state or federal. Where this was not possible, additional effort was made to place the alignment along property boundaries to decrease any potential impact on willing landowners. Trail alignments shown on private property are strictly conceptual.
- The two bypass trails (Lake Road & Hwy 50) are strictly recommendations to avoid on-street bicycle travel on heavily-traveled roads and serve to connect other off-road alignments).
- The Future Saddle Dam 2 Trail is a USACOE alignment planned before this planning process began, but was absorbed into these recommendations to facilitate the network. This trail alignment would provide an alternative to the existing bicycle route on Saddle Dam 2 Road.
- The Sidewalk line item is a suggestion to widen an existing sidewalk in the City of Carlyle to an 8-10 foot multi-purpose trail. This would connect multiple existing trails and improve the quality of the network.
- Trail alignments shown in areas prone to flooding or marshy conditions will require special construction techniques and possibly the use of boardwalk-type materials. Where development is usually discouraged in environmentally-sensitive areas such as floodplains and wetlands, trails and other open spaces are good uses for these areas. With special care taken during construction, these trails can provide an enhanced experience between the public and these unique ecosystems as well as safe alternatives to roadway cycling. A good example of one such trail is the Silver Comet Trail - a 60-mile trail in Georgia that utilizes boardwalks over marshy areas (see Illustration 4).

Planned Bridge

The Lakeshore Bridge is planned to connect Lakeshore Road with Eldon Hazlet State Park and the planned trail through that property. It is 0.14 miles long and projected to cost approximately $473,600. While this is a considerable expense, this connection is crucial to the off-road component of this phase.

Without this bridge, riders cannot access the state park before Hazlet Park Road. This bridge also continues an off-main-road segment that begins 2.4 miles to the south when the route leaves Lake Road just north of Bond's Ditch. North of Hazlet Road, this off-road segment continues for 3.7 miles until it is forced on-road at Emerald Road. The topography of Carlyle Lake requires creativity and structural ingenuity to create an off-road alternative for cyclists, and bridges are a necessary component of this plan.

Illustration 4. Silver Comet Trail - boardwalk style. (James Pona)

Additional recommendations for Phase 1:

- If the elevation of Hazlet Park Road Trail cannot be made higher than the roadway, signs should be placed in both directions warning riders of seasonally high water that may submerge the roadway and the trail.
- The West Spillway parking lot has good quality parking facilities, restroom facilities and a playground. This location would make a good trailhead for this system.
- The planned Fish Hatchery Trail utilizes an old wildlife culvert below Hwy 50 just east of the Kaskaskia River. This culvert needs to be updated and improved (with lighting if desired) for cyclists to travel safely under the highway.
- A crossing needs to be constructed across Hwy 50 from the bypass trail to the hatchery trail - simple pavement markings and bicycle crossing signage will be adequate.
- The future parking lot to be constructed near the fish hatchery would also make a good trailhead location if desired.
- If a trail is ever constructed along South Shore Road (to connect the two Saddle Dam trails), it should be constructed on the north side of the road so as to minimalize any negative impact on the Eastern Massasauga Rattlesnake population known to reside in this area.

Phase 2 - Boulder Road/Saddle Dam to Coles Creek

As the crow flies, this phase is approximately 3 miles, but with the current topography, it is a much longer distance. The goal of this phase is to travel from the existing Saddle Dam 3 Trail to the Coles Creek Recreation Area. Currently, this can only be accomplished by traveling north on Boulder Road, and then west and south on Coles Creek Road, a distance of 5.5 miles. There are significant safety concerns at the intersection of Boulder Road and Coles Creek Road, so a couple of alternatives have been suggested. The planned facilities in this phase will offer some of the best viewsheds and interaction with Carlyle Lake as any in this plan.

Points of Interest (see Illustration 5. Phase 2 Plan Map):

- Coles Creek Recreation Area
- Lotus Grove Area & Cabins
- Maple Grove Access
- Elmwood Access
- Grasher Creek Wetland Restoration Project
- Mourning Dove Access

Existing Facilities

There are no existing facilities in this phase.

Planned Facilities

See Phase 1 for cost estimate explanation.

Table 3. Phase 2 Planned Facilities

Type	Street Name/Label	Length (mi)	Length (ft)	Cost (retro)	Cost (new)
On-Street	Boulder	1.1	5,749.4	$5,749	$0
On-Street	Boulder	2.1	11,029.4	$11,029	$0
On-Street	Brink	2.1	11,210.2	$11,210	$0
On-Street	Coles Creek Rd	2.3	12,108.6	$12,109	$0
On-Street	Coles Creek Rd	0.6	3,135.7	$3,136	$0
On-Street	Hughes	0.9	4,972.0	$4,972	$0
Trail	Elmwood Access Trail	0.4	2,109.7	$0	$122,360
Trail	Maple Grove Access Trail	0.1	378.1	$0	$21,928
Bridge	Maple Grove Bridge	0.2	1,219.6	$0	$878,400
9	**Totals:**	**9.8**	**51,912.6**	**$48,205**	**$1,022,688**
				$1,070,893	

There are 9.1 miles of planned on-street facilities in this phase (see Illustration 4). These planned alignments accomplish two objectives. The first is the 5.5 mile route mentioned previously, taking riders from the terminus of the Saddle Dam 3 Trail at Boulder Road north on Boulder and then west and south on Coles Creek Road to reach the recreation area. With a narrow bridge on Boulder north of Brink, and the dangerous intersection between Boulder and Coles Creek (lack of sight distance), this

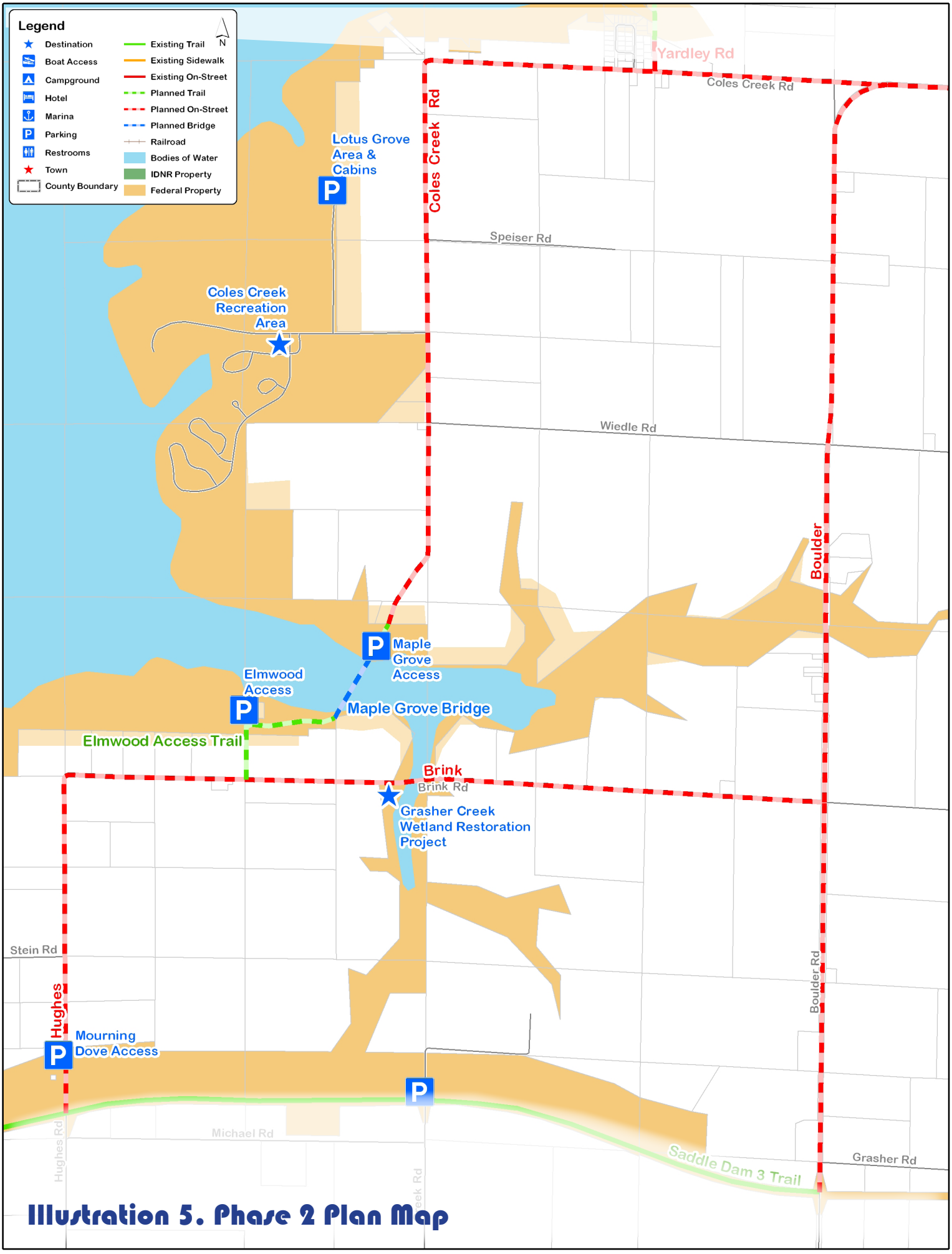


Illustration 5. Phase 2 Plan Map

route - even signed properly - is really only appropriate for a more experienced rider. Since the B/C riders are the target audience for this plan, the other planned on-street alignments create a part on-road/part trail and bridge system that alleviates some of those safety concerns while enhancing visitors' experience with increased interaction with the lake itself.

These on-street segments are located on either side of this branch of the lake. Hughes, Brink and Boulder serve as the two roadway options for getting riders from the Saddle Dam 3 Trail to Elmwood Access. Riders will leave Brink and get on the Elmwood Access Trail (or could even park at this access point), which would take them across the Maple Grove Bridge to the short Maple Grove Access Trail, which connects to Coles Creek Road and the recreation area. Conversely, riders could park at the recreation area or Maple Grove Access and take the trail/bridge to Brink and Hughes to get onto the Saddle Dam 3 Trail and into Carlyle. While the Maple Grove Bridge is estimated to cost $878,400, this connection is vital to the spirit and safety of this bicycle facility system not to mention becoming its own point of interest and tourist destination. All planned trails and bridges in this phase are located on public property.

Trail alignments shown in areas prone to flooding or marshy conditions will require special construction techniques and possibly the use of boardwalk-type materials. Where development is usually discouraged in environmentally-sensitive areas such as floodplains and wetlands, trails and other open spaces are good uses for these areas. With special care taken during construction, these trails can provide an enhanced experience between the public and these unique ecosystems as well as safe alternatives to roadway cycling.

Additional recommendations for Phase 2:

- Where Brink Road crosses the Grasher Creek Wetland Restoration Project, the road is quite low and floods during periods of high water. If possible, the road should be elevated or a boardwalk structure should be constructed (Appendix B) for safe bicycle travel. If neither of those options are possible, signage should be placed in both directions warning riders of seasonally high water that may submerge the roadway.
- Boulder Road crosses a branch of Carlyle Lake just north of Brink Road with a narrow bridge. A separate boardwalk-style bridge or bridges would be the most comprehensive solution to this safety impediment, however with an AADT of 1,250 on Boulder Road at that location, warning signage with flashing lights would also be adequate.

Phase 2a - Allen Branch Parking lot to Keyesport

Connecting Phase 1 of this plan north to Keyesport is of similar importance as getting riders to Coles Creek Recreation Area - both are integral for increasing ridership and visitorship to key destinations and assets at Carlyle Lake.

It is recommended that this sub-phase of the plan be implemented in conjunction with the Coles Creek connections. This phase crosses the Allen Branch of Carlyle lake, traveling north to Keyesport both on-street and off, connecting into the Keyesport Levee Trail and ending on the north side of Keyesport at the railroad crossing. There are a number of facilities useful to riders/visitors in Keyesport, enhancing the experience for users.

Except for the northernmost portion of the Keyesport Levee Trail, this entire phase is located in Clinton County.

Points of Interest (see Illustration 6. Phase 2a Plan Map):

- Hickory Shores Campground
- Keyesport Recreation Area
- Keyesport Marina

Existing Facilities

The only existing facility in this sub-phase is the 1.5 mile Keyesport Levee Trail, which runs from 4th Street just north of Pinnacle Drive northeast to Mulberry Grove Road just south of the rail line. It is a gravel trail well marked and maintained by the USACOE. It runs by both the Keyesport Recreation Area and the Keyesport Marina with excellent views of the lake.

Suggested improvements to the existing facilities in Phase 2a:

- To increase safety and rider comfort, the Keyesport Levee Trail should be paved in either asphalt or concrete at some future date.
- The parking area and access road at Muskrat Flats need to be improved (leveled and paved).

Planned Facilities

See Phase 1 for cost estimate explanation.

Table 4. Phase 2a Planned Facilities

Type	Street Name/Label	Length (mi)	Length (ft)	Cost (retro)	Cost (new)
On-Street	4th	0.2	988.7	$989	$0
On-Street	Burnside	0.5	2,671.9	$2,672	$0
On-Street	Burnside Rd	1.5	8,018.9	$8,019	$0
On-Street	Emerald	1.9	10,267.9	$10,268	$0
On-Street	Fisher	2.0	10,674.9	$10,675	$0
On-Street	Hopewell	0.5	2,614.2	$2,614	$0
On-Street	Marydale	0.5	2,650.6	$2,651	$0

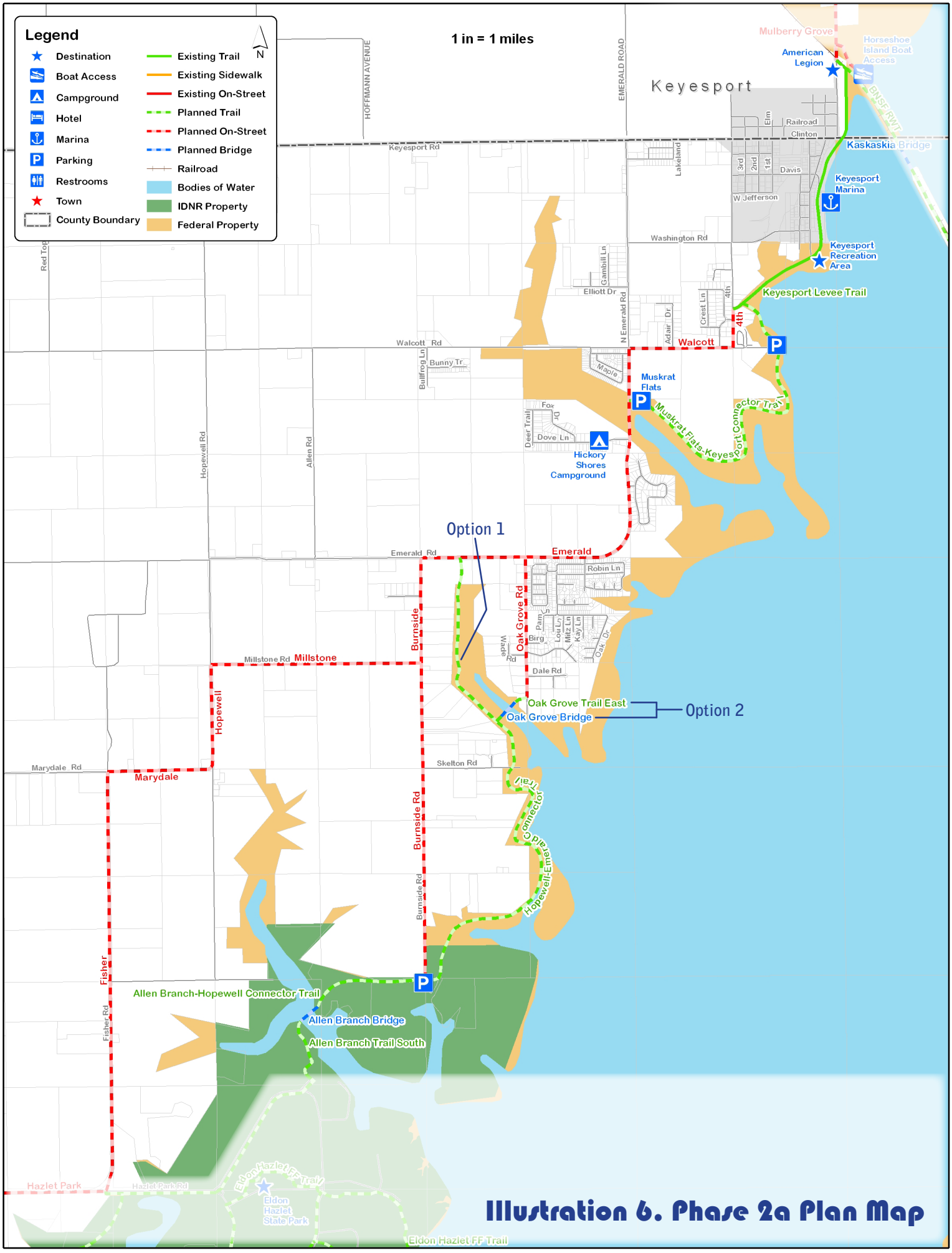


Illustration 6. Phase 2a Plan Map

Table 4. Phase 2a Planned Facilities

Type	Street Name/Label	Length (mi)	Length (ft)	Cost (retro)	Cost (new)
On-Street	Millstone	1.0	5,335.4	$5,335	$0
On-Street	Oak Grove Rd	0.7	3,573.8	$3,574	$0
On-Street	Walcott	0.5	2,650.6	$2,651	$0
Trail	Allen Branch Trail South	0.3	1,682.5	$0	$97,583
Trail	Allen Branch-Hopewell Connector Trail	0.6	3,018.8	$0	$175,093
Trail	Hopewell-Emerald Connector Trail	2.7	14,208.9	$0	$824,117
Trail	Muskrat Flats-Keyesport Connector Trail	1.7	9,084.2	$0	$526,881
Trail	Oak Grove Trail East	0.1	308.8	$0	$17,910
Trail	Oak Grove Trail West	0.0	169.3	$0	$9,822
Bridge	Allen Branch Bridge	0.1	577.7	$0	$369,920
Bridge	Oak Grove Bridge	0.1	519.8	$0	$374,400
18	**Totals:**	**15.0**	**79,016.9**	**$49,447**	**$2,395,726**
				$2,445,173	

Planned On-Street

There are 9.4 miles of planned on-street facilities in this sub-phase (see Illustration 6). These planned alignments fall into two categories - those that are necessary to connect trails where off-road facilities are not possible, and those that provide an alternate route for more advance cyclists. Fisher, Marydale, Hopewell, Burnside, Millstone, Walcott & 4th Street all fall into the latter category. If the trails and bridges planned in this sub-phase can be constructed, these on-road facilities will not be necessary for connecting riders from Eldon Hazlet to Keyesport. However, making these roads a safe alternative for cyclists will increase the types of riders attracted to this area as well as provide safe alternatives for riders during seasonally high water events or other incidents that make the trails unsafe or impassable. As previously stated, many of these roads do not currently meet the FHWA recommended widths for safe bicycle travel, however since their AADT amounts are so low, signage and pavement markings should be adequate for most riders' and drivers' safety. Some of the road surfaces should be improved when possible to increase not only bicycle traffic safety, but vehicle safety.

The topography of the lakeshore in this sub-phase made off-road facilities impossible in some areas, making the use of a few roadways a necessity. This first occurs (if riders are traveling north) at the Oak Grove branch of the lake. We have presented two options for getting riders onto Emerald Road. Option 1 (see Illustration 6) is to construct a trail north through USACOE property along the west side of the lake branch, and then utilizing private property for the final tenth of a mile to connect to Emerald Road. Option 2 (see Illustration 6) is to construct the Oak Grove Bridge, with trails on either side to connect to Oak Grove Road, which intersects with Emerald Road. Oak Grove Road, if utilized, would need to be improved.

Emerald Road takes a fairly sharp curve east of Oak Grove Road and this area should be equipped with warning signage to compensate for the lack of sight distance and high speed limits. Once riders (traveling north) reach Muskrat Flats, they do not have to utilize on-road facilities again during this

sub-phase.


Illustration 7.
ATV Trail at Muskrat Flats

Planned Trails

There are 5.4 miles of planned trails in this sub-phase (see Illustration 6):

- Extensive effort was made to place all recommended trail alignments within public property, either local, state or federal. Where this was not possible, additional effort was made to place the alignment along property boundaries to decrease any potential impact on willing landowners. Trail alignments shown on private property are strictly conceptual.
- The planned trail alignment at Muskrat Flats is designed to follow the existing ATV trail (see Illustration 7).
- The two trails located on either side of the terminus of Burnside Road are intended to take advantage of the old roadbed from the abandoned roadway that previously ran perpendicular to Burnside. This should reduce planning and construction costs where possible.
- Trail alignments shown in areas prone to flooding or marshy conditions will require special construction techniques and possibly the use of boardwalk-type materials. Where development is usually discouraged in environmentally-sensitive areas such as floodplains and wetlands, trails and other open spaces are good uses for these areas and with special care taken during construction, these trails can provide an enhanced experience between the public and these unique ecosystems as well as safe alternatives to roadway cycling (see Illustration 3).

Planned Bridges

There are two planned bridges in this sub-phase: the Allen Branch Bridge and the Oak Grove Bridge. The Allen Branch Bridge is critical for creating the off-road network of facilities that will remove riders from the on-street system and increase visitors' interaction with the lake and its environment. This bridge will cost an estimated $369,920 and will save riders 3.2 miles of travel distance. Since Allen Branch is a popular fishing location, the bridge should be placed as far north on the branch as possible and high enough for fishing boats to travel beneath.

The Oak Grove Bridge is one alternative, as mentioned above, to convey riders from the Hopewell-Emerald Connector Trail onto Emerald Road via Oak Grove Road. This alternative should only be considered if the less expensive alternative of the trail continuing north through USACOE and private property intersecting with Emerald Road cannot be completed.

Additional recommendations for Phase 2a:

- Extensive erosion control will most likely be needed along the lake side of the Muskrat Flats-Keyesport Connector Trail.
- The Keyesport Recreation Area has been recently renovated and would make an excellent trailhead.

- The American Legion Hall in Keyesport is located across from where the Keyesport Levee Trail meets Mulberry Grove Road. This location, combined with the facilities present at the Legion would make this location a good potential trailhead. Coordination with and permission from the Legion will be necessary to include this into the trail system.
- Signage needs to be placed along Emerald Road where the trail intersects to warn riders and drivers of merging/exiting traffic.

Phase 3 - Burlington Northern Santa Fe Rail-With-Trail

While the overarching goal of this plan is to create a bicycle-friendly system that will circumnavigate Carlyle Lake, various route alternatives and loops were considered as well. By creating a multitude of choices for riders/visitors, a broader audience will be attracted, and repeat visits will be increasingly interesting. Currently, there is no road/bridge that transects the lake open to vehicles/pedestrians/bicycles. The lack of such a facility limits interaction with both sides of the lake in one trip to more experienced riders or longer trips and limits the route alternatives drastically. Its absence can be somewhat rectified in the implementation of this plan. The only route that transects the lake is the Burlington Northern Santa Fe (BNSF) railroad levee. This four and a half mile levee and bridge system could be utilized as a Rail-With-Trail (RWT) for conveying cyclists and pedestrians across Carlyle Lake, creating an approximately 40 mile loop around Carlyle Lake.

Similar to its more well-known cousin the Rail-To-Trail, RWTs have become increasingly popular as many of the abandoned rail lines have already been developed into successful trail systems and the feasibility of rail lines and trails sharing one right-of-way becomes better understood. Appendix F has more detailed information regarding RWTs; as of 2002, about 65 RWTs encompassed 385 km (239 mi) in 30 states. All aspects of safety and liability must be covered in the early stages of planning, as well as maintenance contracts and trail rules and hours of operation. BNSF, as the landowner and rail line operator, should be approached at the earliest planning stage possible for their feedback on this innovative concept.

As discussed in the earlier section on economic impact, this RWT would serve as an economic stimulator as part of the entire Carlyle Lake Trail system, attracting bicycle tourists and families on vacation; the separated trail provides a sense of security and novelty - being able to experience the lake from a never-before-seen perspective. This boost to the regional economy would have positive rippling effects for all of the surrounding jurisdictions that could help defray some of the construction costs detailed below.

Planned Facilities (see Illustration 8. Phase 3 Plan Map)

Based on preliminary reconnaissance and evaluation, there appears to be a portion of the railroad levee that could be utilized for a trail. This would prevent a new levee or a doubling of the existing levee from being constructed. Shoring up the existing levees, while still considerably expensive, is a feasible alternative.

There are five sections of the levee system where a total of 4.1 miles of trail would be built, tying into the Keyesport Levee Trail on the west side of the lake, and Boulder Road on the east side. This 10'-wide paved trail would cost an estimated $385 per linear foot to construct for a total of $8.3 million for all five sections (see Phase 1 for a cost estimate explanation). This cost includes adding any needed aggregate embankment and safety railing/fencing (see Appendix B).

Appropriate signage is also needed at each end of the trail and on the roadways leading up to the trail entrance/exit to increase safety and awareness.

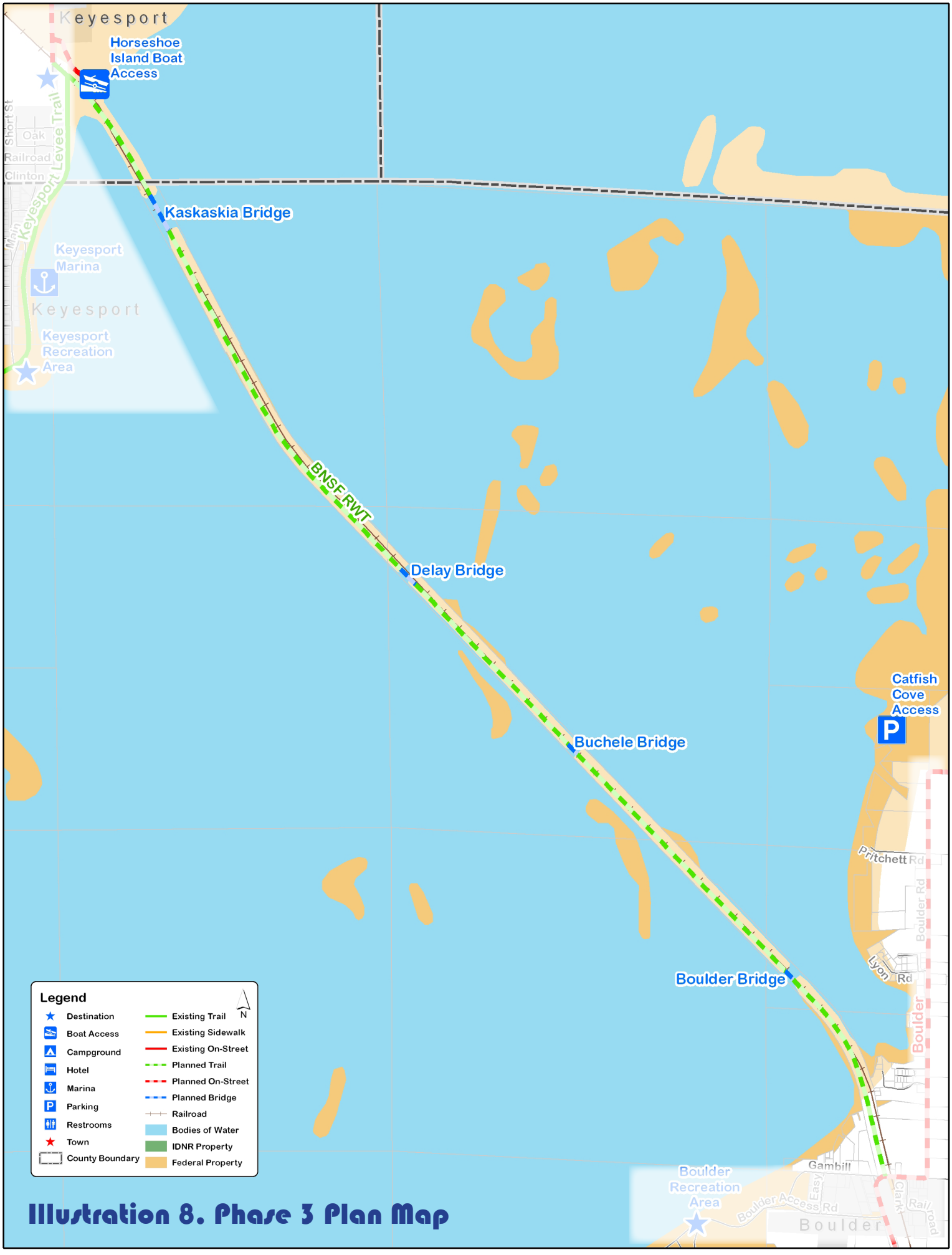


Illustration 8. Phase 3 Plan Map

Planned Bridges

See Phase 1 for cost estimate explanation.

Table 5. Phase 3 Planned Bridges

Type	Street Name/Label	Length (mi)	Length (ft)	Cost (new)
Bridge	Boulder Bridge	0.04	200.1	$480,000
Bridge	Buchele Bridge	0.04	227.8	$547,200
Bridge	Delay Bridge	0.1	350.7	$945,000
Bridge	Kaskaskia Bridge	0.1	659.8	$1,782,000
4	**Totals:**	**0.3**	**1,438.4**	**$3,754,200**

There are four existing railroad bridges connecting the five levee segments. With safety as the top priority, it was determined that separate bicycle/pedestrian bridges should be constructed to connect the five trail segments. Pre-fabricated steel truss bridges can be utilized to reduce cost as shown in Table 5.

Additional recommendations for Phase 3:

- The total cost estimate for implementation on this phase is $12 million. There are various federal and state funding programs available to assist with alternative transportation construction costs.
- The railroad crossing at Boulder Road (a terminus for this trail) is very dangerous with limited sight distance. Additional signage is necessary at this location to increase safety.

Phase 4 - Coles Creek to Cox Bridge

Points of Interest (see Illustration 9. Phase 4 Plan Map):

- Boulder Recreation Area
- Boulder Marina
- Catfish Cove Access
- Whitetail Access
- Wood Duck Access
- Pin Oak Access
- North Fork Access & North Fork East Access
- Boulder Flats Wetland Restoration Site


Boulder Flats Wetland Restoration Site

Existing Facilities

There are no existing facilities in Phase 4.

Planned Facilities

See Phase 1 for cost estimate explanation.

Table 6. Phase 4 Planned Facilities

Type	Street Name/Label	Length (mi)	Length (ft)	Cost (retro)	Cost (new)
On-Street	175 N	1.2	6,422.7	$6,423	$0
On-Street	Boulder	4.5	23,616.7	$23,617	$0
On-Street	Boulder	3.9	20,846.6	$20,847	$0
On-Street	Boulder	2.3	12,267.2	$12,267	$0
On-Street	Lake Villa Rd	0.7	3,865.4	$3,865	$0
On-Street	Yardley Rd	0.1	469.7	$470	$0
Trail	**Yardley-Lake Villa Trail Connector**	**0.7**	**3,638.4**	**$0**	**$211,027**
7	**Totals:**	**13.5**	**71,126.6**	**$67,488**	**$211,027**
				$278,515	

The planned facilities in this phase are mostly on-street. The goal of this phase is to convey riders from the Coles Creek Recreation Area (by way of Coles Creek Road in Phase 2) to the Cox Bridge Access. There is only one planned trail in this phase, the Yardley-Lake Villa Trail Connector, which is utilized to avoid the dangerous intersection at Coles Creek Road and Boulder Road. The absence of other trails is evident in the difficulty of planning this one trail: there is a severe lack of usable public land in this phase. Much of the state and federal land in this phase is either too environmentally-sensitive and/or marshy for trails. Boulder Flats Wetland Restoration site is a good example of the physiography of this phase.

The 12.7 miles of roadways in this phase have very low AADT numbers, indicating their readiness for

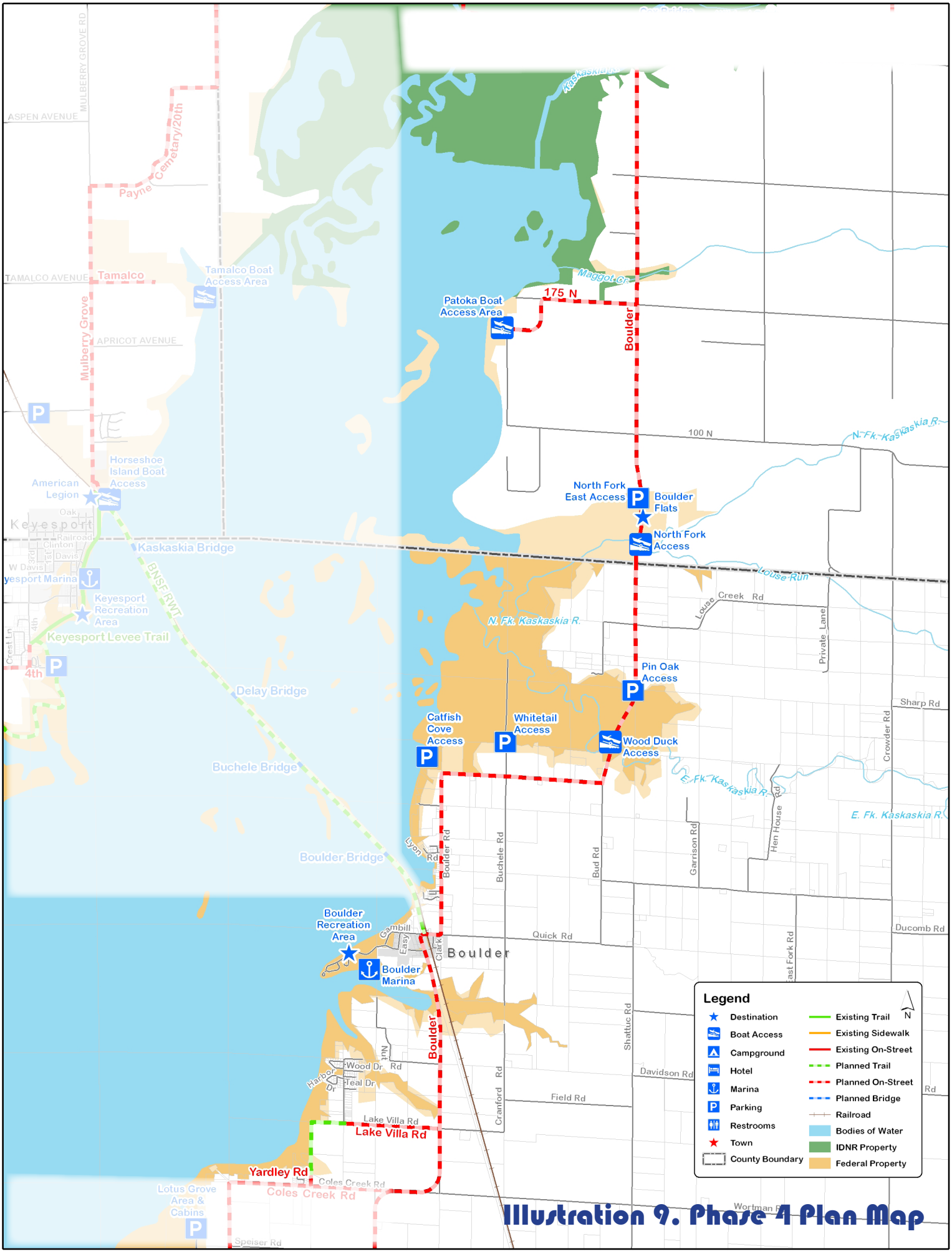


Illustration 9. Phase 4 Plan Map

bicycle traffic with the installation of safety signage. If their widths can be widened or their surfaces improved at some future date, this would be strongly encouraged.

Extensive effort was made to place all recommended trail alignments within public property, either local, state or federal. Where this was not possible, additional effort was made to place the alignment along property boundaries to decrease any potential impact on willing landowners. Trail alignments shown on private property are strictly conceptual.

The implementation of the on-street segments of this phase is crucial for two purposes: the first is to provide facilities for riders who wish to utilize the planned Burlington Northern Santa Fe Rail-With-Trail system planned in Phase 3. Being able to ride to and from this facility is an important component in increasing bicycle tourism for the lake area as a whole. Riders will be able to park/camp at various public facilities and then ride to this destination, enhancing the cycling experience. The second is to provide additional access to the Cox Bridge Access, which provides parking, restrooms and water. If the BNSF RWT and Fayette County loop are the two "loop connectors", then this phase is the bulk of the eastern half of the loop system.

Additional recommendations for Phase 4:

- A small bicycle/pedestrian bridge may be needed on the Yardley-Lake Villa Trail Connector just north of Yardley Road depending on the topography and available land.
- The railroad crossing at Boulder Road is a very dangerous intersection with limited sight distance; additional signage is necessary at this location to increase safety.
- The current road bridge on Boulder Road north of 175 North is a low, narrow bridge. At a minimum, special warning signage should be placed in both directions warning riders and drivers of the situation and the possibility that the road may be under water during seasonally high water events. If funds can be made available, two options should be considered: the first is one or more boardwalk-style bridge structures to convey riders around the low bridge (see Appendix B for cost estimate information); the second would be to replace the bridge with an elevated, widened bridge to accommodate cyclists on the shoulders of the bridge.

Phase 5 - Keyesport to Fayette County

This phase completes the western half of the Carlyle Lake Trail loop, connecting the Keyesport Levee Trail (Phase 2a) with the Fayette County On-Street Loop Connector (Phase 6).

Points of Interest (see Illustration 10):
- Horseshoe Island Boat Access
- Tamalco Boat Access

Existing Facilities
There are no existing facilities in this phase.

Planned Facilities
See Phase 1 for cost estimate explanation.

Table 7. Phase 5 Planned Facilities

Type	Street Name/Label	Length (mi)	Length (ft)	Cost (retro)
On-Street	County Highway 10	0.8	4,185.9	$4,186
On-Street	Horseshoe Island Access Road	0.2	997.4	$997
On-Street	Mulberry Grove	2.4	12,627.8	$12,628
On-Street	Payne Cemetery/20th	2.6	13,704.4	$13,704
On-Street	Tamalco	0.5	2,671.2	$2,671
4	**Totals:**	**6.5**	**34,186.8**	**$34,187**

This phase consists entirely of on-street facilities. Similarly to Phase 4, the combination of topography and property ownership prevents off-road facilities from being recommended. Riders traveling north will leave the Keyesport Levee Trail or the Burlington Northern Santa Fe Rail-With-Trail and cross over the rail line on Mulberry Grove Road. Alternatively, the Horseshoe Island Boat Access area, which is just north of the rail line, would make an excellent trailhead if its facilities were brought up to the level of the Keyesport Recreation Area, just to the south.

The purpose of the facilities in this phase are to convey riders between the facilities at Keyesport and the Fayette County On-Street Loop Connector, completing the western portion of the Carlyle Lake Trail system. The two potential stops or destinations in this phase are the Tamalco Boat Access area, which is also reached by roadway, and the Carlyle Lake Wildlife Management Area Parking Lot #3. While the roads in this phase have very low AADT numbers and could safely be traveled by riders if the appropriate signage was installed, some of the roads would be markedly improved by resurfacing them to make them smoother and easier for novice riders. Additionally, there is one area, near the cemetery on Payne Cemetery Road where the roadway is quite narrow and should be widened if funds allow.

While only 6.5 miles long and under $35,000 to implement, this phase is an important step in completing the loop system, which at its longest will be approximately 70 miles long with many loop and off-shoot possibilities for riders of all levels.

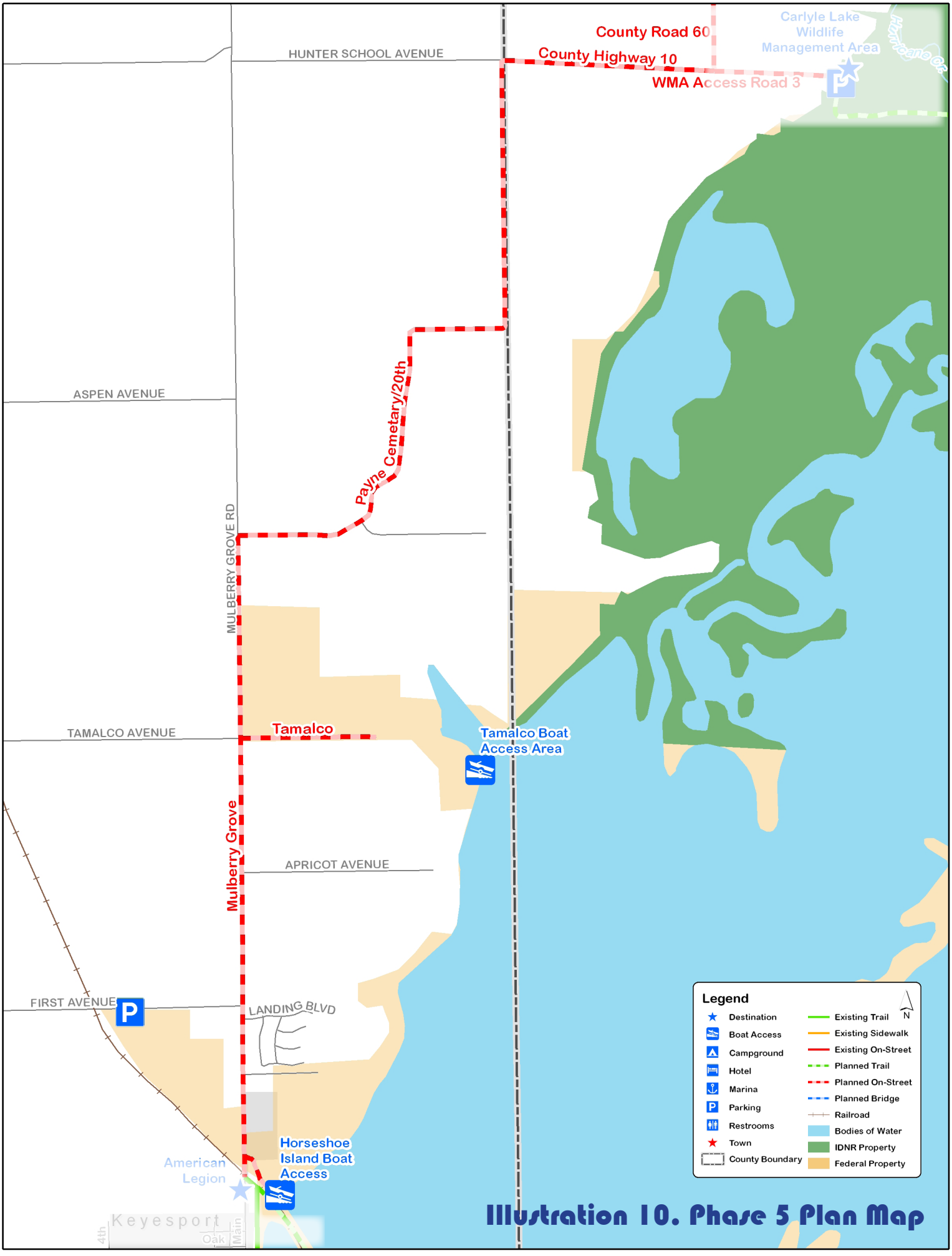


Illustration 10. Phase 5 Plan Map

Phase 6 - On-Street loop Connector in Fayette County

The primary prupose of this phase is to complete the northern end of the Carlyle Lake Trail system loop. This phase consists entirely of on-street facilities from the Wildlife Management Area (WMA) at Parking Lot #3 to the Cox Bridge Boat Access Area on the east side of the WMA. This phase is entirely within Fayette County.

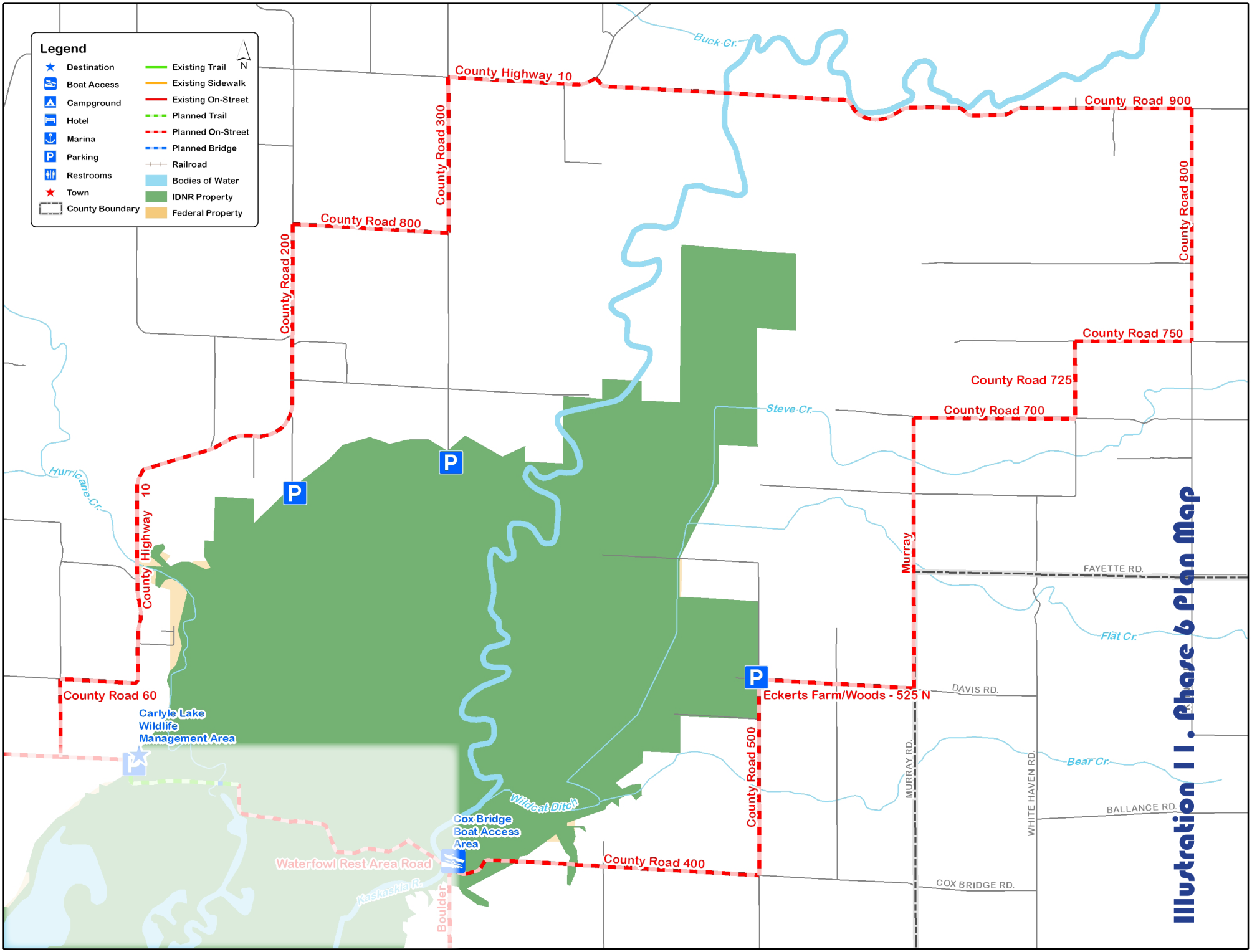
This 21.5 mile route (see Illustration 11) not only completes the overall loop system for around Carlyle Lake, but it also completes the northern loop - the section north of the Burlington Northern Railroad line. However this phase is incorporated into the recreational or transportation experience, its terrain and general lack of services make it less desirable for inexperienced riders/families and more appropriate for long-distance experiences cyclists. These roads are in the most rural portion of this plan, receiving very little vehicular traffic, which reduces the demand for improved surfaces and frequent maintenance. This route connects riders to the numerous assets and desirable destinations on the east side of Carlyle Lake, in addition to providng an opportunity for riders to cross the Kaskaskia River.

The costs of implementation are as follows (please see Phase 1 for cost estimate explanation):

Table 8. Phase 6 Planned Facilities

Type	Street Name/Label	Length (mi)	Length (ft)	Cost (retro)
On-Street	County Highway 10	3.2	16,655.1	$16,655
On-Street	County Highway 10	1.0	5,082.5	$5,083
On-Street	County Road 200	1.0	5,321.1	$5,321
On-Street	County Road 300	1.0	5,318.2	$5,318
On-Street	County Road 400	2.0	10,773.4	$10,773
On-Street	County Road 500	1.3	6,672.5	$6,672
On-Street	County Road 60	0.5	2,660.7	$2,661
On-Street	County Road 700	1.0	5,529.0	$5,529
On-Street	County Road 725	0.5	2,649.9	$2,650
On-Street	County Road 750	0.8	3,986.1	$3,986
On-Street	County Road 800	1.5	7,936.2	$7,936
On-Street	County Road 800	1.0	5,315.5	$5,315
On-Street	County Road 900	4.0	20,957.4	$20,957
On-Street	Eckerts Farm/Woods - 525 N	1.0	5,302.2	$5,302
On-Street	Murray	1.8	9,244.4	$9,244
15	**Totals:**	**21.5**	**113,404.1**	**$113,404**

The implementation of this alternate route may be advantageous in addition to the six phases of the plan if this route/area becomes popular with more advanced cyclists who enjoy long-distance rides.


Legend
Destination
Boat Access
Campground
Hotel
Marina
Parking
Restrooms
Town
County Boundary
Existing Trail
Existing Sidewalk
Existing On-Street
Planned Trail
Planned On-Street
Planned Bridge
Railroad
Bodies of Water
IDNR Property
Federal Property
N
Buck Cr.
County Highway 10
County Road 900
County Road 300
County Road 800
County Road 200
County Road 800
County Road 750
County Road 725
County Road 700
Steve Cr.
Hurricane Cr.
County Highway 10
Murray
FAYETTE RD.
Flat Cr.
County Road 60
Carlyle Lake
Wildlife
Management Area
Eckerts Farm/Woods - 525 N
DAVIS RD.
County Road 500
MURRAY RD.
WHITE HAVEN RD.
Bear Cr.
BALLANCE RD.
Wildcat Ditch
Cox Bridge
Boat Access
Area
Waterfowl Rest Area Road
County Road 400
COX BRIDGE RD.
Kaskaskia R.
Boulder
Illustration 11. Phase 6 Plan Map

Carlyle Lake State Fish & Wildlife Area

At the northern end of Carlyle Lake is the Wildlife Management Area (WMA), a 9,500 acre site leased to the Illinois Department of Natural Resources (IDNR) from the U.S. Army Corps of Engineers (USACOE). IDNR manages the 2,000 acres of woodland, 5,800 acres of open water and wetlands, 200 acres of grassland, and 1,500 acres of cropland planted for wildlife food and cover as well as providing management over the hunting and conducting a variety of habitat management measures aimed at increasing food, shelter and nesting areas for many wildlife species.

The funding source for the management of this area comes from an 11% excise tax on all firearms, ammunition, and archery equipment, making the primary goals for this site are providing habitat for wildlife and hunting and fishing opportunities. Camping, picnicking, horseback-riding, etc. are all prohibited activities at this site, although nature hikes and wildlife viewing are encouraged.

The Department of Natural Resources does not support a trail through the Wildlife Management Area. Therefore, the plan will not include consideration of possible future opportunities to locate a segment of the trail in the state fish and wildlife area.

Community Interconnectivity

In late January of 2010, letters were sent from the City of Carlyle to 29 surrounding communities and jurisdictions seeking information and feedback on the best routes for connecting each community up to the Carlyle Lake Trail Plan (Appendix A). While not specifically part of the implementation phases of this plan, these identified routes will serve to increase the interconnectivity of this route, once implemented, with the surrounding region. These connections can serve to expand the tourist and recreation opportunities for visitors/riders and better inform them of the amenities available in other communities. These connections will enhance the benefits of the trail system for the region, increasing visitor opportunities for tourism spending, in addition to an enhanced experience and opportunities for repeat visits.

The letters to surrounding communities included maps showing the area between the specific community and the Carlyle Lake Trail Plan draft. Representatives from each community were encouraged to identify on these maps any current bicycle facilities and/or the best connecting route for riders to travel to and from each community and the planned facilities around Carlyle Lake. Four responses were received; Greenville, Salem, O'Fallon and Beckemeyer. Copies of their responses can be seen in Appendix A and the connecting routes they identified have been mapped as part of this plan and can be seen on Illustration 12.

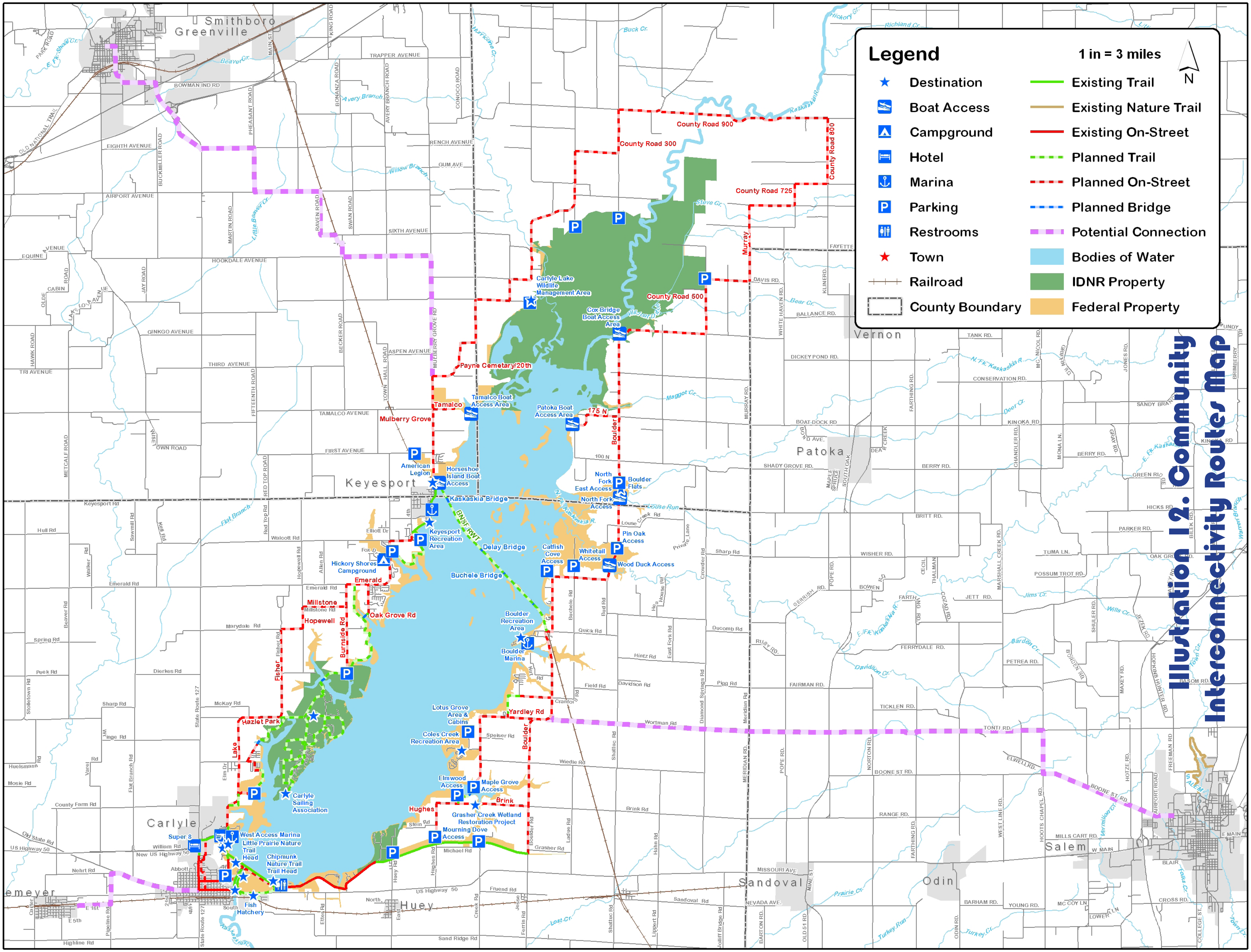


Illustration 12. Community Interconnectivity Routes Map

Appendices

Appendix A: Community Interconnectivity

This Appendix includes a copy of the letter sent from the City of Carlyle to 29 surrounding communities and jurisdictions asking for input on the best bicycle routes to connect each community to the planned trail system in this plan. The list of communities contacted and the responses received are also included. The responses are the source of the routes identified in Illustration 14 on page 51.

City of CARLYLE ILLINOIS

RECEIVED
JAN 20
CITY MANAGER
CITY OF SALEM

City of Salem
Attn: City Manager Thomas Christie
101 South Broadway Avenue
Salem, IL 62881

January 18, 2010

Dear Bike Trail Partner:

In 2009, the City of Carlyle and the Carlyle Lake Prairie View Trail Committee applied to the Dept. of Natural Resources and received a Greenways & Trails Planning Grant. This planning grant is supporting local efforts to plan for a bike trail that circumnavigates Carlyle Lake and that provides connectivity to surrounding communities and parks.

A bike-able route around Carlyle Lake currently exists, although it is not mapped for bicyclists, nor is it signed. Those who know the route use it. It predominantly makes use of county and township roads.

One phase of our planning effort involves identifying bike-able Carlyle Lake routes as they currently exist and to coherently promote them to both Carlyle residents and visitors. A second phase of the planning effort entails locating places where on-road bike routes around Carlyle Lake might be taken off road onto newly-constructed, traditional bike trails. A third phase, and the reason for this letter to you, involves identifying bike-able routes that connect Carlyle Lake routes to the bike-able routes or bike-friendly roads used by other communities.

On behalf of the City and the Committee, I am asking for your input on bike-able routes that can be used to connect your jurisdiction to existing and planned Carlyle Lake bike routes and trails. To facilitate your assistance, I have enclosed a set of maps. The first map details the DRAFT Carlyle Lake Bike Trail Plan. The other map or maps, which are blank, portray the general location of your jurisdiction in proximity to this Plan. Using these blank map(s), or another device of your choosing, please illustrate the most appropriate and bike-able routes, if any, that connect your jurisdiction to Carlyle Lake and any destinations along the way that would be appealing to users of this system. Please also include the following details:

1. The name of the person or people who represent your jurisdiction in an official capacity on matters related to bicycling facilities.

2. The name(s) of bike-able routes that serve to connect your jurisdiction to Carlyle Lake routes.

850 Franklin Street, Carlyle, IL 62231
Phone 618/594-2468 Fax: 618/594-5206 Website: www.playandstaycarlyle.com

3. A brief description of these routes, including surface type, traffic use of the route, and other relevant information. Please let us know whether the route is an official or unofficial bike route (i.e. signed).

The final product of this planning exercise will be a report and a map detailing existing and planned Carlyle Lake bike-able routes, locations of possible future off-road trails, and inter-jurisdictional connectivity. In order to encourage timely progress towards this final product, I ask that your response to this inquiry be received no later than **February 26, 2010**.

In addition to this request, your jurisdiction will receive future communications regarding scheduled public hearings leading up to our final report. These public hearings will afford the public an opportunity to review draft versions of our final report and to suggest changes.

Thank you in advance for your participation in this bike route planning progress! We look forward to the positive impact this plan and future implementation will have on the Carlyle Lake community and its neighbors. Please don't hesitate to contact me or anyone on our Planning Committee (roster enclosed) if you have any questions or requests.

Sincerely,

Bill Gruen

Bill Gruen
Carlyle City Administrator

Enclosures

Community Interconnectivity Recipients

Included below is a chart detailing potential recipients that have been identified to receive: (1) information on the efforts of the Carlyle Lake Prairie View Trail Committee; and (2) an invitation to consider potential connections between the Carlyle Lake Trail and either established or potential bike trails and routes within their jurisdictions.

Potential recipients have been identified for either their proximity to the Carlyle Lake Prairie View Trail and/or the existence of established or potential bike trails and routes.

Municipal / Gov. Entity	Distance to Carlyle Lake Trail	Park Entity	Distance to Carlyle Lake Trail
Bond County	0 miles	Eldon Hazlet	0 miles
Marion County	0 miles	South Shore	0 miles
Fayette County	0 miles	Carlyle Lake (Corps)	0 miles
Beckemeyer	6 miles	Ramsey Lake	25 miles
Vandalia	9 miles	Washington County Rec.	25 miles
Breese	10 miles	Coffeen Lake	30 miles
Greenville	14 miles	Stephen A. Forbes	35 miles
Aviston	15 miles	Pyramid Rec. Area	40 miles
Centralia	16 miles	Horseshoe Lake	50 miles
Salem	17 miles	Newton Lake	55 miles
Trenton	19 miles	Shelbyville Lake (Corps)	55 miles
Nashville	20 miles	Wayne Fitzgerrell / Rend	65 miles
Highland	25 miles		
Lebanon	25 miles		
Madison County Transit	30 miles		
O'Fallon	32 miles		
Metro Bike Link (St. Clair)	40 miles		

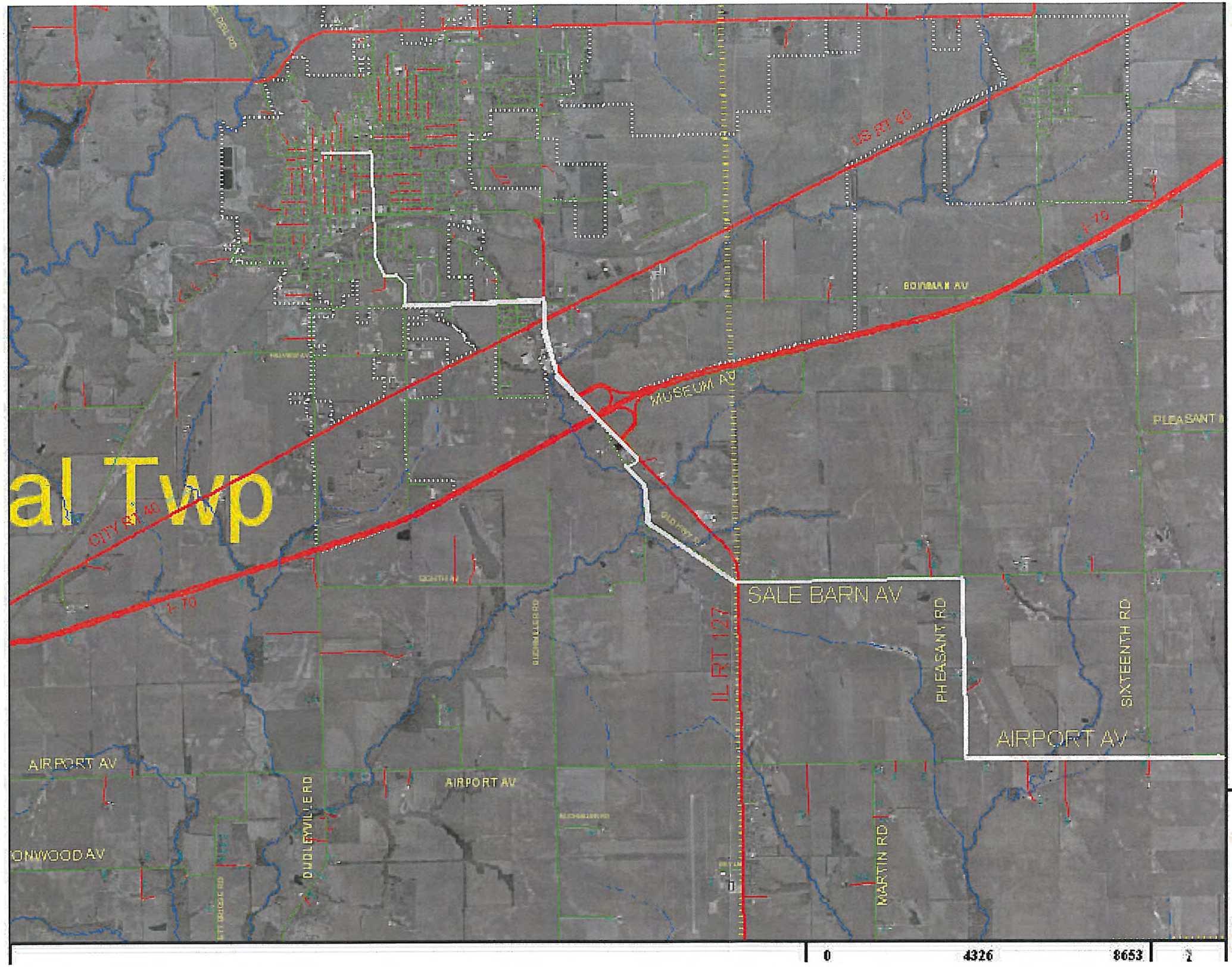
CITY OF GREENVILLE
404 SOUTH THIRD STREET
GREENVILLE, ILLINOIS 62246

Bill Gruen
Carlyle City Administrator
850 Franklin Street
Carlyle, Il. 62231

I am attaching maps showing a proposed bike path from Keyesport to Greenville. The path would leave Keyesport going North on Mulberry Grove Rd., turning West onto Hookdale Ave. and continuing west to Becker Rd. at what point a bicyclist would turn north & travel through the Village of Tamalco to and turning west onto Sixth Ave. As Sixth turns into Raven going north the path will lead them to Airport Ave. turning West & continuing to Pheasant & turn north to Sale Barn Ave & west again to Rt. 127. At this point you would cross 127 onto old Highway 127 leading to the Sleep Inn Hotel and go North to Bowman Dr. Then moving west along Bowman to S. Elm Street & turn north going past the Greenville College Sports Fields and the Bond Co. Fairgrounds. At Main & Elm the path will turn west for the final time passing the south end of Greenville College Campus & Bauer Park ending at the historical Downtown Square.

These routes are mostly oil & chip roads with minimal traffic. They are not currently marked as a Bike Path.

Matt Willman
City of Greenville
Planning & Zoning
404 S. 3rd Street
Greenville, Il. 62246
618-664-1644



Incorporated Bou

Tornado Sirens

Roads

Highways

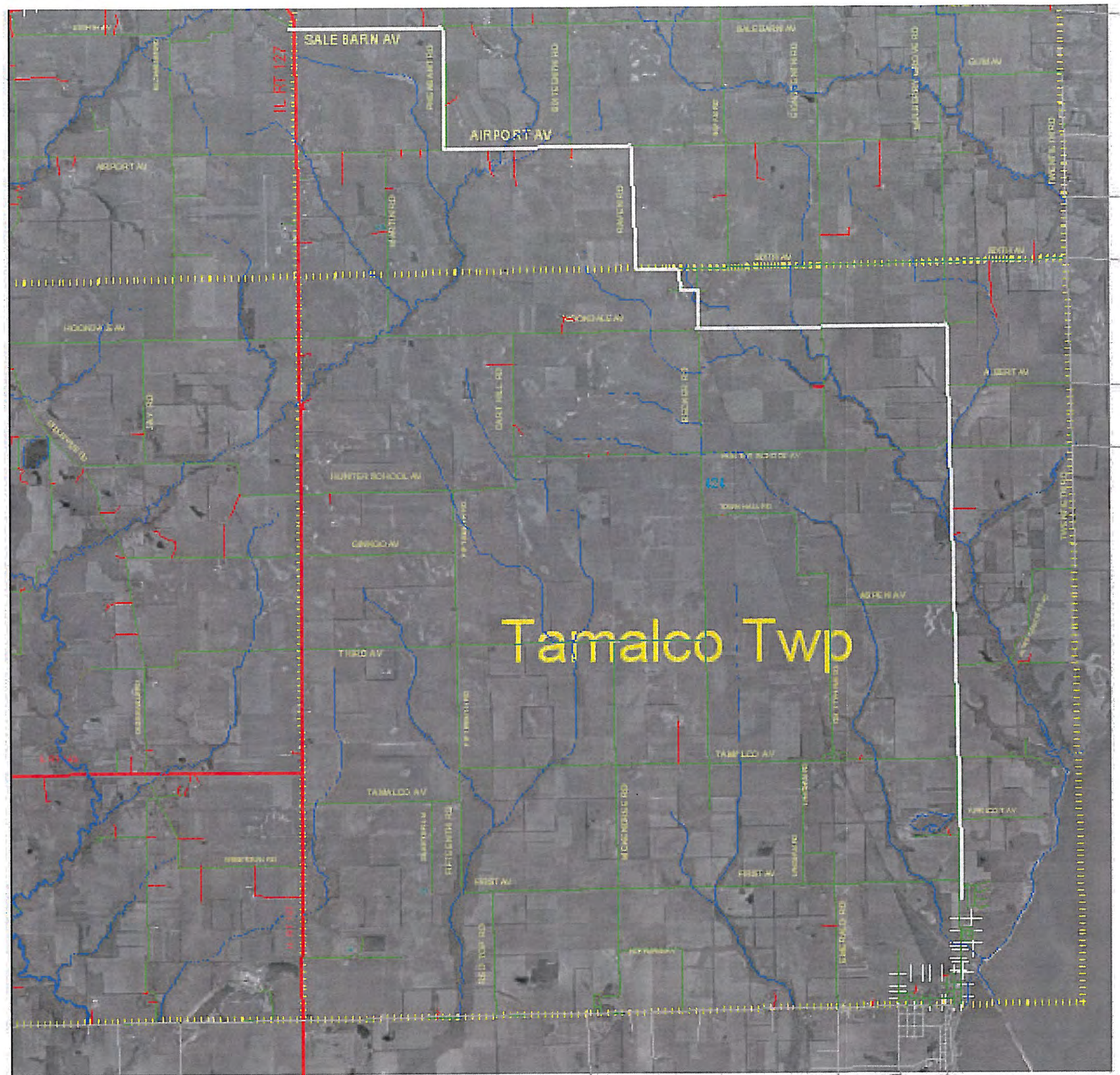
Water

Addresses

Regional Highway

Regional Roads

THINK GIS



Incorporated Bou

Adjacent County F

Roads

Highways

Water

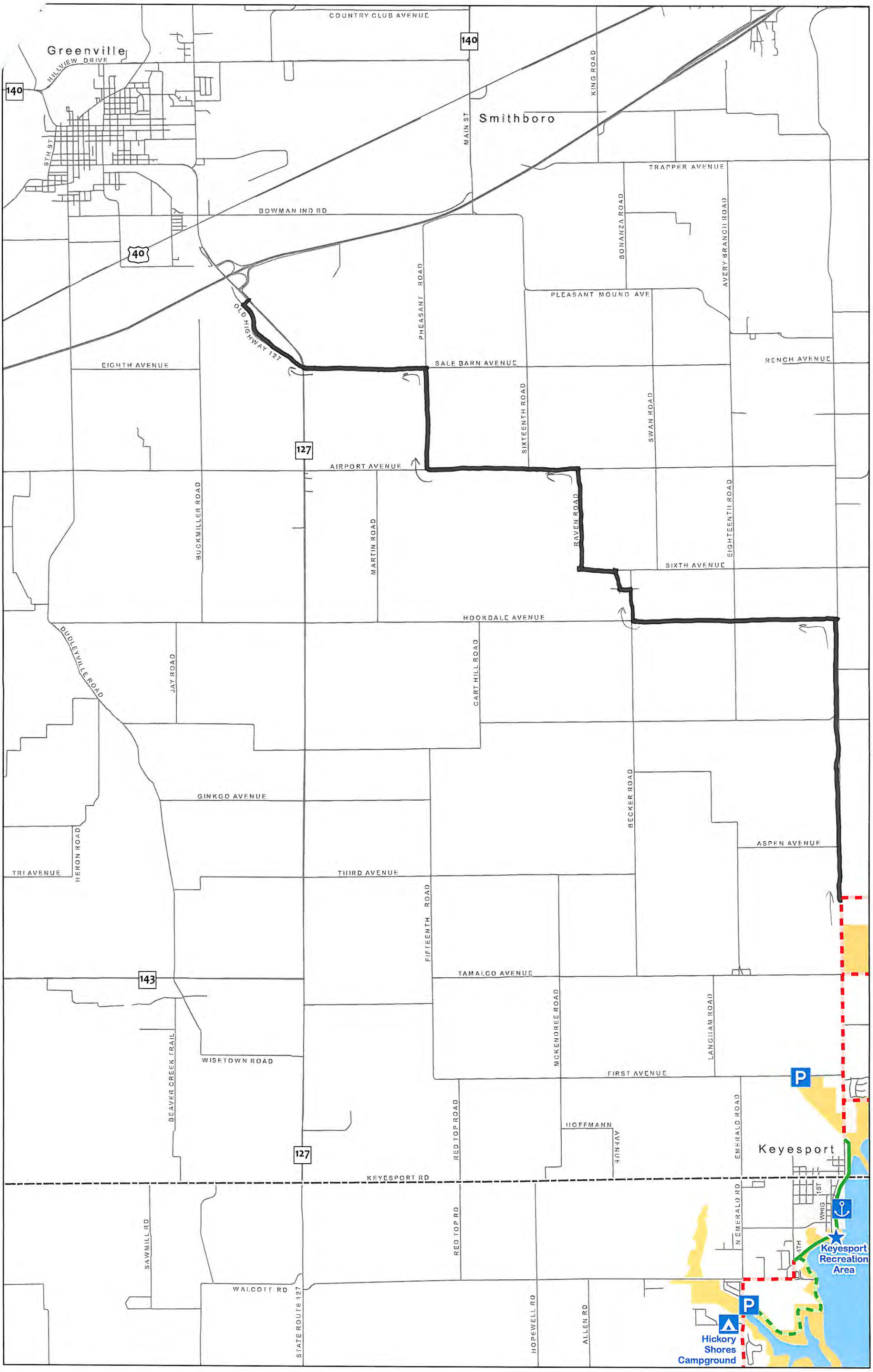
Addresses

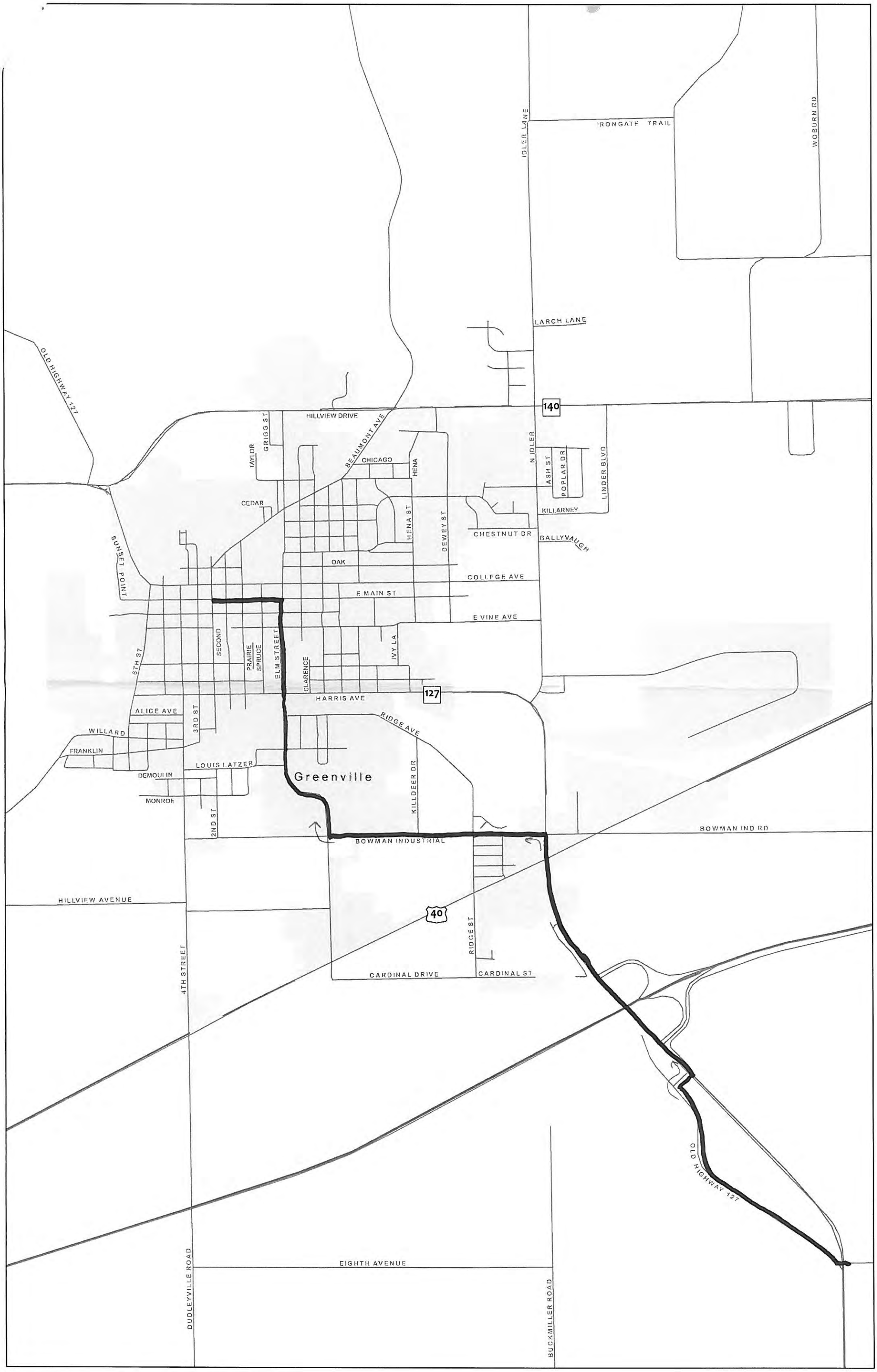
Regional Highway

Regional Roads

THINK GIS

0 7452 14904


COUNTRY CLUB AVENUE
140
Greenville
HILLVIEW DRIVE
140
6TH ST
KING ROAD
MAIN ST
Smithboro
TRAPPER AVENUE
BOWMAN IND RD
BONANZA ROAD
AVERY BRANCH ROAD
40
PLEASANT MOUND AVE
PHEASANT ROAD
OLD HIGHWAY 127
EIGHTH AVENUE
SALE BARN AVENUE
RENCH AVENUE
SIXTEENTH ROAD
SWAN ROAD
127
AIRPORT AVENUE
BUCKMILLER ROAD
MARTIN ROAD
RAVEN ROAD
EIGHTEENTH ROAD
SIXTH AVENUE
HOOKDALE AVENUE
DUDLEYVILLE ROAD
JAY ROAD
CART HILL ROAD
BECKER ROAD
GINKGO AVENUE
HERON ROAD
ASPEN AVENUE
TRI AVENUE
THIRD AVENUE
FIFTEENTH ROAD
143
TAMALCO AVENUE
MCKENDREE ROAD
LANGHAM ROAD
WISETOWN ROAD
BEAVER CREEK TRAIL
FIRST AVENUE
RED TOP ROAD
HOFFMANN AVENUE
EMERALD ROAD
Keyesport
127
KEYESPORT RD
N EMERALD RD
1ST
WHIG
4TH
Keyesport Recreation Area
SAWMILL RD
WALCOTT RD
STATE ROUTE 127
HOPEWELL RD
ALLEN RD
Hickory Shores Campground


IRONGATE TRAIL
IDLER LANE
WOBURN RD
LARCH LANE
140
OLD HIGHWAY 127
HILLVIEW DRIVE
GRIGG ST
TAYLOR
BEAUMONT AVE
CHICAGO
HENA
N IDLER
ASH ST
POPLAR DR
LINDER BLVD
CEDAR
HENA ST
DEWEY ST
KILLARNEY
CHESTNUT DR
BALLYVAUGN
SUNSET POINT
OAK
COLLEGE AVE
E MAIN ST
E VINE AVE
6TH ST
SECOND
PRAIRIE
SPRUCE
ELM STREET
IVY LA
CLARENCE
HARRIS AVE
127
ALICE AVE
3RD ST
RIDGE AVE
WILLARD
FRANKLIN
LOUIS LATZER
DEMOULIN
MONROE
2ND ST
Greenville
KILLDEER DR
BOWMAN IND RD
BOWMAN INDUSTRIAL
HILLVIEW AVENUE
4TH STREET
40
RIDGE ST
CARDINAL DRIVE
CARDINAL ST
OLD HIGHWAY 127
DUDLEYVILLE ROAD
EIGHTH AVENUE
BUCKMILLER ROAD

AN ILLINOIS
CERTIFIED CITY

The City of SALEM, ILLINOIS

The Gateway of Little Egypt

City Hall
Telephone 618/548-2222
101 South Broadway
Salem, Illinois 62881

JOHN W. PRUDEN
Public Works Director

February 03, 2009

Mr. Bill Gruen
City of Carlyle Administrator
850 Franklin St.
Carlyle, IL 62231

Re: Bike Trail

Mr. Gruen:

Per your letter to Salem's City Manager, Thomas Christie, I have reviewed and submit the attached information. The City of Salem's only designated walk/bicycle trail is a 2 mile (one-way) nature trail around the City's reservoir. The area is gravel surface and is closed to motorized traffic. I have highlighted a route from Salem to Carlyle that may be a bicycle friendly route.

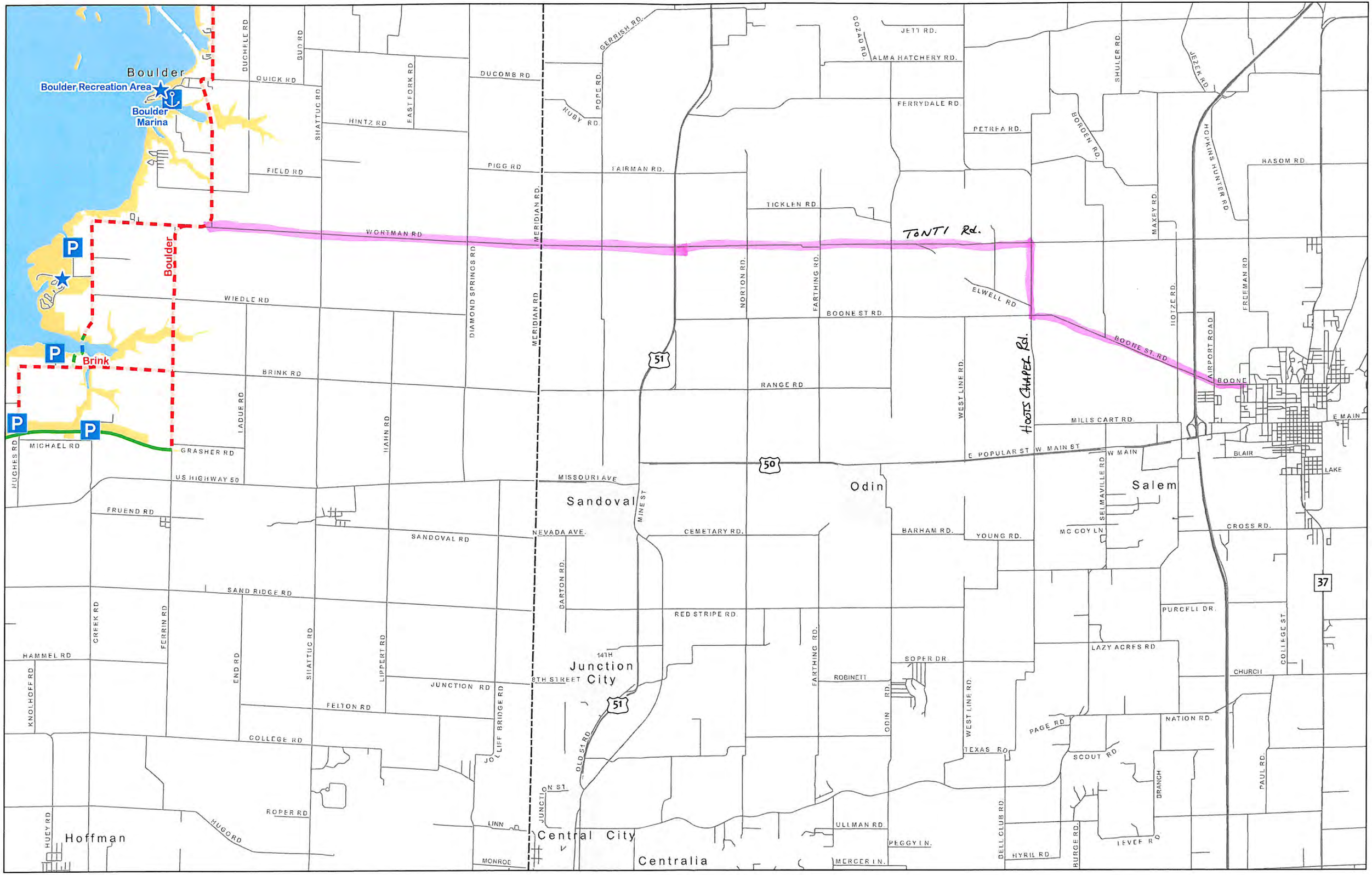
If you have further questions, please feel free to contact me at City Hall. Best of luck with the project.

Respectfully,
CITY OF SALEM, ILLINOIS

John W. Pruden
Public Works Director

SALEM RESERVOIR NATURE TRAIL 2 mi.

TONTI RD
WINEGARNER RD
WOODARD SCHOOL RD
HOTZE RD.
BOONE ST RD
HOOTS CHAPEL RD
AIRPORT ROAD
37
CHARLESTON RD
YARDS RD
EDGEWOOD RD
QUAIL RUN RD.
HARDACRE RD
EDGEWOOD DRIVE
CLARK RD.
BAKER RD
MILLER AVE
PARK HILL
BRYAN LA
ROTAN AVE
BOONE
OHIO AVE
WARMOTH
ALLMON
LOVELL
OLIVE
Salem
E MAIN
50
OAK TREE AVE
EDGEWOOD DR
RADIO TOWER RD
COUNTRY FARM RD.
RODDY RD
MILLS CART RD.
W MAIN
ELM
WHITTAKER
LACKEY AVE
KIM LN
E POPULAR ST
W MAIN ST
OLD TEXAS LN.
INDUSTRIAL DR
CARPENTER DR
BLAIR
E LESTER
LAKE ST
LAKE
SELMAVILLE RD
GREEN ACRES
BRYANT LN
LEGG LN
MC COY LN
COLLEGE AVE
BROADWAY
JEFFERSON AVE
MARION AVE
ROBIN RD.
COUNTY FARM RD.
CROSS ST
CROSS RD
YOUNG RD
MAIL ST LN
LOWERY LN
HESTER LN
COPE DR
FIELDER DR
BECKWOOD LN
JENKINS RD.
RED STRIPE RD.
COLLEGE ST


Boulder
Boulder Recreation Area
Boulder Marina
Brink
DUCHELE RD
BUD RD
QUICK RD
SHATTUC RD
HINTZ RD
EAST FORK RD
DUCOMB RD
FIELD RD
PIGG RD
WORTMAN RD
WIEDLE RD
BRINK RD
LADUE RD
HAHN RD
DIAMOND SPRINGS RD
MERIDIAN RD.
MERIDIAN RD
GERRISH RD.
RUBY RD.
POPE RD.
FAIRMAN RD.
TICKLEN RD
NORTON RD.
FARTHING RD.
COZAD RD.
JETT RD.
ALMA HATCHERY RD.
FERRYDALE RD.
PETREA RD.
BORDEN RD.
SHULER RD.
JEZEK RD.
HOPKINS HUNTER RD
MAXEY RD.
BASOM RD.
TONTI Rd.
ELWELL RD.
BOONE ST. RD.
HOOTS CHAPEL Rd.
WEST LINE RD.
110TZE RD.
AIRPORT ROAD
FREEMAN RD
BOONE
MILLS CART RD.
E MAIN
E POPULAR ST
W MAIN ST
W MAIN
BLAIR
LAKE
SELMAVILLE RD
Salem
CROSS RD.
MC COY LN
BARHAM RD.
YOUNG RD.
Odin
51
50
37
HUGHES RD
MICHAEL RD
GRASHER RD
US HIGHWAY 50
FRUEND RD
SANDOVAL RD
SAND RIDGE RD
HAMMEL RD
KNOLHOFF RD
CREEK RD
FERRIN RD
END RD
SHATTUC RD
LIPPERT RD
JUNCTION RD
FELTON RD
COLLEGE RD
LIFF BRIDGE RD
HUEY RD
ROPER RD
HUGO RD
Hoffman
LINN
MONROE
Sandoval
MISSOURI AVE
NEVADA AVE.
MINE ST
CEMETARY RD.
BARTON RD.
RED STRIPE RD.
14TH
8TH STREET
Junction City
OLD 51 RD
JUNCTION ST
Central City
Centralia
RANGE RD
ROBINETT
SOPER DR
ODIN RD.
ULLMAN RD.
PEGGY LN.
MERCER LN.
TEXAS RD
PAGE RD
SCOUT RD
NATION RD.
LAZY ACRES RD
CHURCH
PURCELL DR.
COLLEGE ST
BELL CLUB RD
HYRIL RD
BURGE RD
LEVEE RD
BRANCH
PAUL RD.

Village of BECKEMEYER

Box 278
Beckemeyer, IL 62219

Telephone:
618-227-8331
Fax:
618-227-8036
Email:
villageofbec@ezeeweb.com

January 26, 2010

City of Carlyle
850 Franklin St.
Carlyle, IL 62231

Dear Bill:

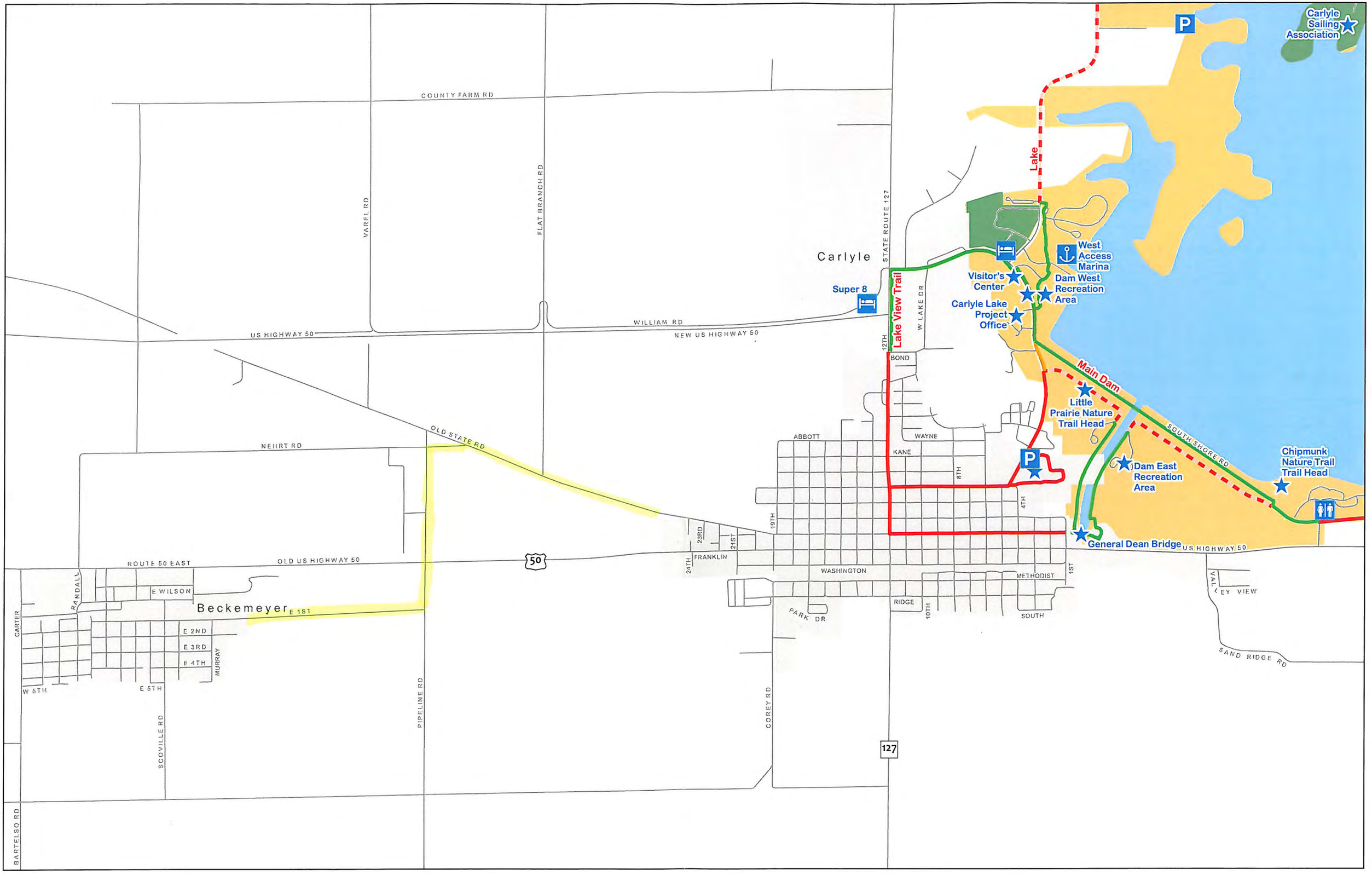
The Village of Beckemeyer would like to thank you for thinking of us in the planning stages of this bike trail. The Village can see a definite need for this bike-able route.

Randy Pulver is the Maintenance Superintendent and will be the contact person for Beckemeyer. The Village has numerous residents who do bike to Carlyle and we have marked the map according to the route most taken. This route is currently county and township roads.

Please let us know if you need further information and the Village will look forward to future updates.

Sincerely,

Michael J. Stock
Village President


COUNTY FARM RD
VAREL RD
FLAT BRANCH RD
STATE ROUTE 127
Carlyle
Lake
Carlyle Sailing Association
West Access Marina
Visitor's Center
Dam West Recreation Area
Carlyle Lake Project Office
Super 8
Lake View Trail
W LAKE DR
12TH
BOND
WILLIAM RD
US HIGHWAY 50
NEW US HIGHWAY 50
Main Dam
Little Prairie Nature Trail Head
SOUTH SHORE RD
Chipmunk Nature Trail Trail Head
Dam East Recreation Area
General Dean Bridge
US HIGHWAY 50
NEHRT RD
OLD STATE RD
ABBOTT
WAYNE
KANE
8TH
4TH
19TH
23RD
21ST
24TH
FRANKLIN
WASHINGTON
METHODIST
1ST
RIDGE
10TH
SOUTH
PARK DR
VALLEY VIEW
SAND RIDGE RD
ROUTE 50 EAST
OLD US HIGHWAY 50
50
RANDALL
E WILSON
Beckemeyer
E 1ST
E 2ND
E 3RD
E 4TH
MURRAY
CARTER
W 5TH
E 5TH
SCOVILLE RD
PIPELINE RD
COREY RD
127
BARTELSO RD

February 19, 2010

Mr. Bill Gruen
City of Carlyle
850 Franklin Street
Carlyle, IL 62231

Re: Carlyle Lake Bike Planning

Dear Mr. Gruen:

Thank you for allowing us an opportunity to participate in your bicycle planning efforts, and congratulations on receiving the grant! I have enclosed the map of O'Fallon you provided, as well as an additional map showing our bike-friendly routes. Below are answers to your questions:

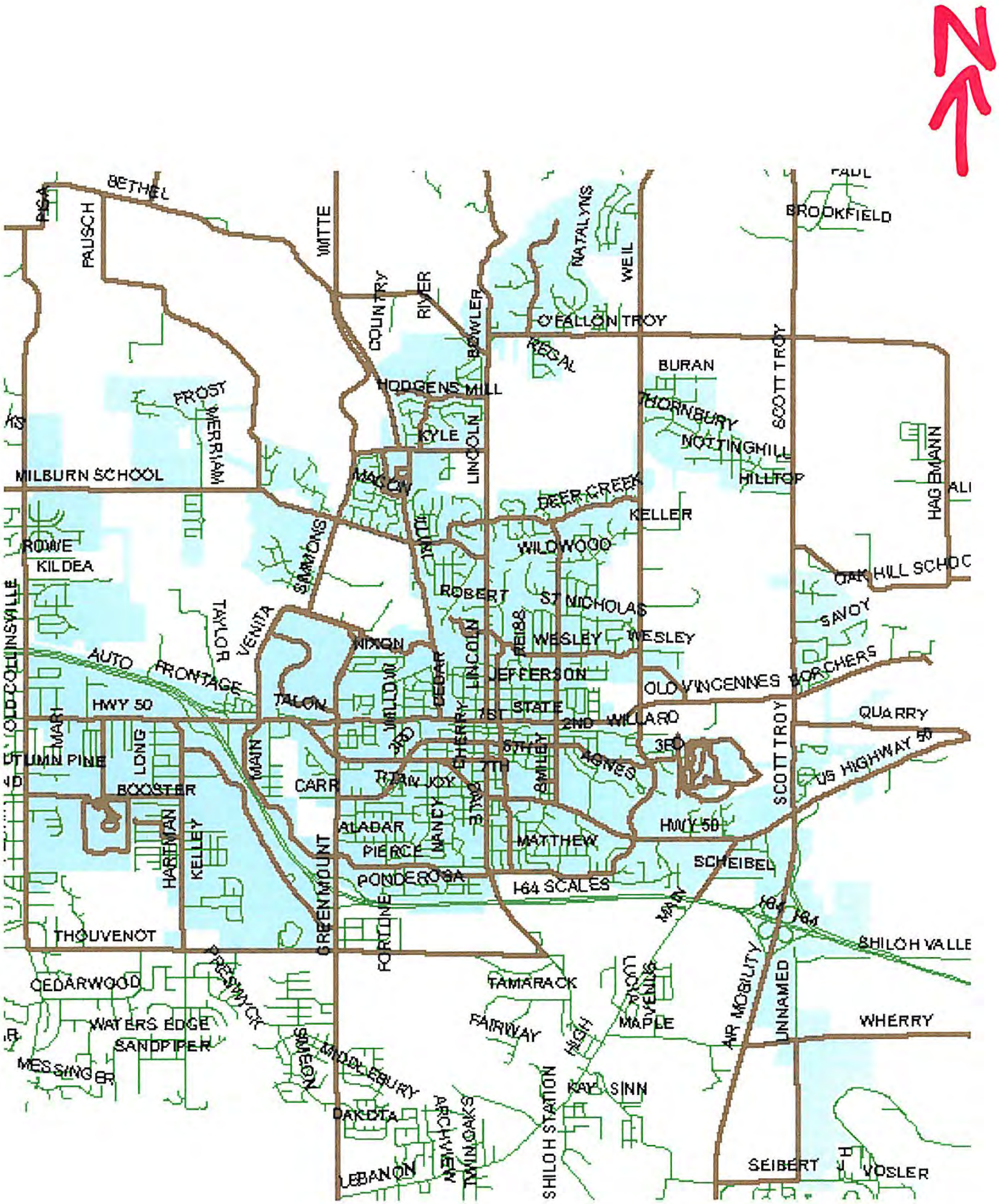
1. The name of the person or people who represent your jurisdiction in an official capacity on matters related to bicycling facilities:
    a. Jennifer Howland, Senior City Planner
    b. Mary Jeanne Hutchison, Parks Director
2. The name(s) of bike-able routes that serve to connect your jurisdiction to Carlyle Lake routes:
    a. We consider the majority of our road system to be bike-able routes. I've included a map of the streets that are considered bike-able as an attachment (those streets in brown).
3. A brief description of these routes, including surface type, traffic use of the route, and other relevant information. Please let us know whether the route is an official or unofficial bike route (i.e. signed):
    a. All of the streets are paved.
    b. For the most part, those streets north of State Street are used primarily for residential use, and those south of an including State Street are used primarily for commercial use.
    c. All of the streets are unofficial bike routes.

Please let me know if there's anything else the City of O'Fallon can do to help with your bike planning efforts, and please keep us informed of your progress!

If you have any questions, please contact me at (618) 624-4500, ext. 4.

Sincerely,
CITY OF O'FALLON

Jennifer Howland, AICP
Senior City Planner


N
BETHEL
PAUSCH
WITTE
COUNTRY
RIVER
BOWLER
NATALYNS
WEIL
O'FALLON TROY
REGAL
BROOKFIELD
BURAN
SCOTT TROY
HODGENS MILL
FROST
MERRIAM
THORNBURY
NOTTINGHILL
KYLE
LINCOLN
MILBURN SCHOOL
MACON
DEER CREEK
HILLTOP
HAGEMANN
KELLER
ROWE
KILDEA
SAMMONS
WILDWOOD
OAK HILL SCHO
ROBERT
ST NICHOLAS
TAYLOR
VENITA
SAVOY
OLD COLLINSVILLE
NIXON
WESLEY
AUTO
FRONTAGE
CEDAR
JEFFERSON
OLD VINCENNES
BORCHERS
HWY 50
TALON
1ST
STATE
QUARRY
MART
2ND
WILLARD
LONG
3RD
AUTUMN PINE
MAIN
CHERRY
5TH
SMILEY
AGNES
US HIGHWAY 50
7TH
BOOSTER
CARR
JOY
HWY 50
ALADAR
NANCY
PIERCE
MATTHEW
SCHEIBEL
HARTMAN
KELLEY
GREEN MOUNT
PONDEROSA
I-64 SCALES
MAIN
I-64
SHILOH VALLE
THOUVENOT
FORTLINE
PRESWYCK
TAMARACK
AIR MOBILITY
UNNAMED
CEDARWOOD
WATERS EDGE
FAIRWAY
HIGH
MAPLE
WHERRY
SANDPIPER
SIMEON
MIDDLEBURY
MESSINGER
SHILOH STATION
KAY
SINN
DAKOTA
ARCHVIEW
TWIN OAKS
SEIBERT
VOSLER
LEBANON

Family Sports Park

St. Ellen Mine Park

Rock Springs Park

O'Fallon

Fairview Heights

Shiloh

MILBURN SCHOOL ROAD
KYLE
SIMMONS RD
PORTER RD
POHLMAN ROAD
OLD COLLINSVILLE RD
ROWE LN
KILDEA LN
VENITA DR
NIBLICK
FAR OAKS DR
MERIAM PKWY
TAUSCH RD
CALLAWAY
MEADE
PICKETTS
LIBERTY
TAZEWELL
USHER
MACON
CONRAD LN
RUPEL
BOSSLER
O'FALLON TROY RD
SCHWARZ MEADOW
RED FOX
ENGLE CREEK
SCHWARZ
FIELDSPRING
CLAPS
ILLINI
CATALPA
ORIOLE
SHALLOWBROOK
DEER
WILDWOOD
QUAIL
GLENWOOD
SMILEY
WOODLEAF
ROBERT
FOX
LAKESHORE
RAVENWOOD
REISS
BELPRE
WHITE OAK
CHERRY
NIXON
MADISON
JUNIPER
WILLOW
MULBERRY
VINE
JULIA
EMILY
WESLEY
DUSTIN
JEFFERSON
SMILEY ST
SEVEN HILLS RD
TIMBER OAK
COVEY LN.
CARDIFF CT.
GREYSTONE
HILLTOP DRIVE
HUBERTS LANE
HAGEMAN RD
SCOTT-TROY RD
PEACEFUL
BORCHER RD
OLD VINCENNES TRAIL
QUARRY ROAD
BEL VISTA
MEMORY
FRONTAGE
TREA VIEW
CREEKVIEW
SALEM DR
TAYLOR ROAD
WEST HWY 50
LINCOLN HWY
EMBASSY
CRESTVIEW
WASHINGTON
HAMPTON
AUTO
HARRIS
BAYBERRY
CORAL
CATALINA
MARI
ST ELLEN MINE
1605 W HWY 50
DEAN
ALICE
JAMES
BELT
LONG
DELMAR
EASTON
FAMOUS
PARK PLAZA
AUTUMN PINE
OULVEY
BARCO
PERRIN
LEGEND
BOOSTER
ELLEN
MYLAUN
POWELL
BLACKHILLS
KELLEY
HILLOCK
JADE
DURLEY
TRAUBEL
FEHER
ENOS
COLUMIA
FAIRFIELD
DEPAUL
DUKE
STANFORD
MILLIKIN
WINDY
THOUVENOUT LN
FRANK SCOTT PKWY E
THAM DR
MAIN
ST CLAIR
CARR
HOLLOW
RAIN
LAWN
DOUGLAS
OAK
1ST
2ND
3RD ST
3RD
4TH
5TH
6TH
7TH
ELM
JOY
EDWARD
MARILYN
DONNA
NANCY
RUTH
SHAMROCK
EVAN
COLLEEN
DALE
WOODGATE
CIVIC
ALADAR
AMY
PIERCE
EVERGREEN
PONDEROSA
NORTH GREENMOUNT RD
CENTRAL PARK
EB I-64-GREENMOUNT
I-64
PARKVIEW
YALE
KIM
MATTHEW
DARTMOUTH
SUSAN
HOLLIDAY
E HWY 50
PINEHURST
WOODS
COLONY
EDGEWOOD
SCHEIBEL
EDNA
AGNES
SHORELINE
WEBER
NORTH MAIN ST
CROSS ST
LOUELLA
158
50

Lebanon has a great downtown blocklists may want to visit

There is a bike repair shop here in Shiloh (Bike Surgeon)

Appendix B: Supporting Documentation for Cost Estimates

The pre-engineering opinions of cost developed for this plan were developed courtesy of Henry, Meisenheimer & Gende (HMG), Inc. These figures as based on the local experience of this firm, in addition to preliminary visual inspection. Due to the nature of this planning document, and its intention to precede detailed plans and budgets, specifications and estimates of actual costs should be developed based on industry condtions and market prices at the time of implementation.

Estimated Cost of Bicycle Facility Construction

Provided Courtesy of Henry, Meisenheimer & Gende (HMG), Inc.

Trails

10’ HMA TRAIL (SEPARATE FROM ROADWAY)

EARTH EXCAVATION:	$8.14
AGGREGATE BASE COURSE:	$11.14
BITUMINOUS PRIME COAT:	$1.76
HOT-MIX ASPHALT SURFACE:	$14.29
MISC. ITEMS (SWALES, CULVERTS, SEEDING, ETC.):	$15.00
SUBTOTAL:	$50.33
+ 15% CONTENGENCY	$7.55
TOTAL COST PER LINEAR FOOT:	$57.88*

*This amount was rounded to $58 for the estimates included in the plan text

See the structure estimate breakdown for boardwalk-style trails, which are $720 per linear foot (14’ wide).

10’HMA TRAIL ON RAILROAD EMBANKMENT ACROSS LAKE

AGGREGATE EMBANKMENT:	$277.78
AGGREGATE BASE COURSE:	$11.14
BITUMINOUS PRIME COAT:	$1.76
HOT-MIX ASPHALT SURFACE:	$14.29
SAFETY RAILING / FENCE:	$30.00
SUBTOTAL:	$334.97
+ 15% CONTENGENCY	$50.25
TOTAL COST PER LINEAR FOOT:	$385.21*

*This amount was rounded to $385 for the estimates included in the plan text

On-Street

ADD 4’ SHOULDERS ALONG TWO-LANE ROAD ON BERM

FURNISHED EXCAVATION:	$34.90
AGGREGATE BASE COURSE:	$7.59
BITUMINOUS PRIME COAT:	$1.60
HOT-MIX ASPHALT SURFACE:	$31.73
MISC. ITEMS (SWALES, CULVERTS, SEEDING, ETC.):	$15.00
SUBTOTAL:	$90.83
+ 15% CONTENGENCY	$13.62
TOTAL COST PER LINEAR FOOT:	$104.45

On-Street Cont.

WIDEN TOWNSHIP ROADS TO 14' LANES ON BERM

EARTH EXCAVATION (WIDENING):	$10.37
FURNISHED EXCAVATION:	$34.90
AGGREGATE BASE COURSE:	$18.22
BITUMINOUS PRIME AND SEAL COATS:	$3.24
COVER AND SEAL COAT AGGREGATE:	$0.68
MISC. ITEMS (SWALES, CULVERTS, SEEDING, ETC.):	$15.00
SUBTOTAL:	$82.41
+ 15% CONTENGENCY	$12.36
TOTAL COST PER LINEAR FOOT:	$94.77

WIDEN TOWNSHIP ROADS TO 14' LANES

EARTH EXCAVATION:	$8.50
EARTH EXCAVATION (WIDENING):	$8.89
AGGREGATE BASE COURSE:	$18.22
BITUMINOUS PRIME AND SEAL COATS:	$3.24
COVER AND SEAL COAT AGGREGATE:	$0.68
MISC. ITEMS (SWALES, CULVERTS, SEEDING, ETC.):	$15.00
SUBTOTAL:	$54.53
+ 15% CONTENGENCY	$8.18
TOTAL COST PER LINEAR FOOT:	$62.72

"Share the Road" signs would be approx. $500 each - need one on the far side of each intersection and possibly additional signs depending on traffic and distance to next intersection.*

*1 sign per 1,000 feet was used for estimates in the plan text, and combined with the sharrow cost per linear foot provided the $1/linear foot estimate for on-street facilities to be properly signed as routes.

"Sharrows" approx. $115 each - recommended spacing is 250' but longer spacing in rural areas might be acceptable.

Bike lane markings would be a 6" stripe (approx. $2/LF) and the arrow and bicycle symbol (approx. $150 each) - need one on the far side of each intersection and possibly more depending on traffic and distance to next intersection.

Notes:
Estimates do not include any ROW or easement costs and are in 2010 dollars.

Structures

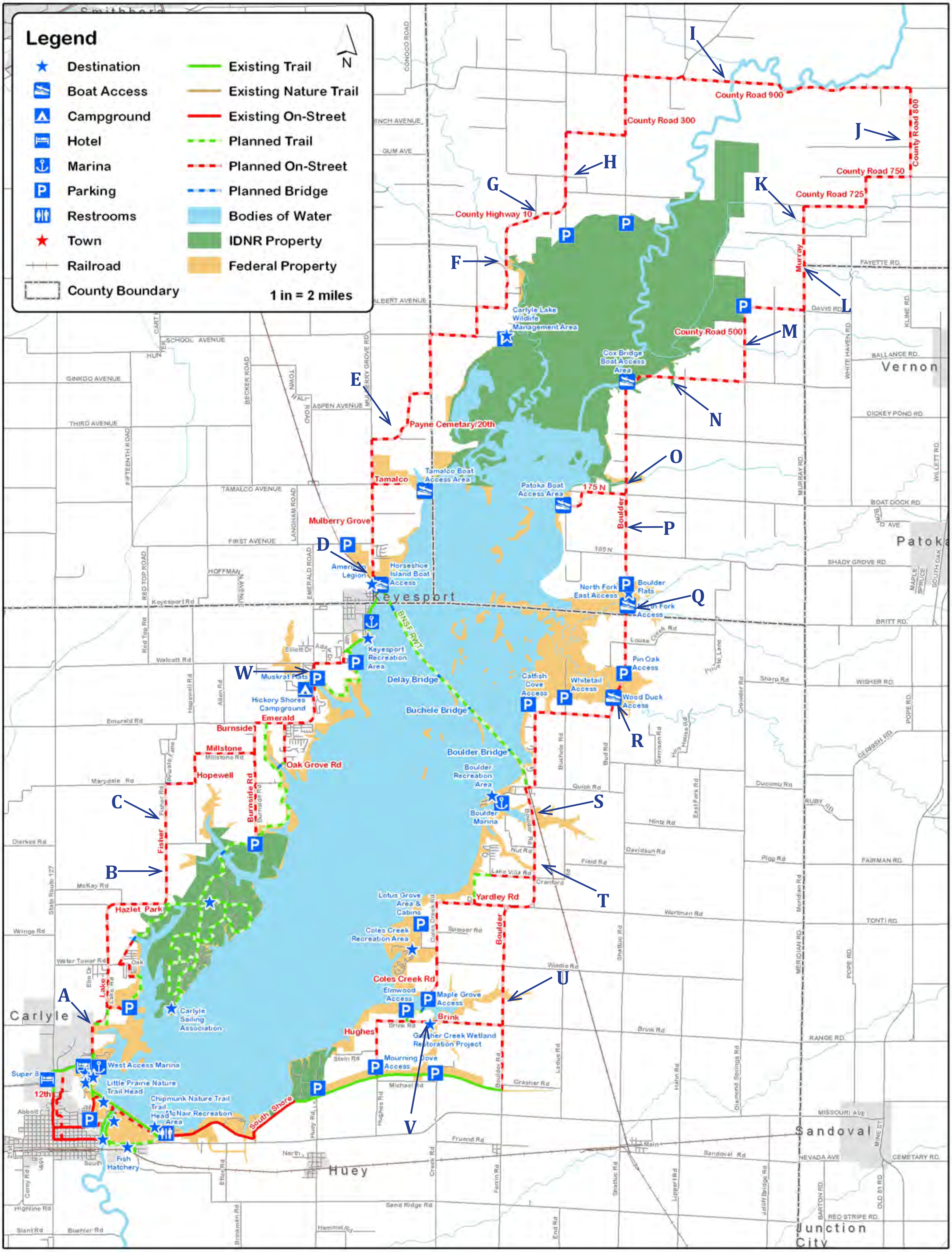
Assumption: Structure widths have been determined to provide 14' clear.
Unit costs: Boardwalk: $40 - $50 per square foot depending on height; Steel Truss: $160 per square foot (single spans); $180 (multi-spans)

The following structures are identified in the plan document:

FID (GIS)	Assumed Length (ft)	Steel Truss Option	Wooded Boardwalk Option	Probable Scenario
54	1,200	$3,294,000	$878,400	$878,400
57	233	$559,200	N/A	$559,200
61	162	$388,800	$116,640	$116,640
89	520	$1,404,000	$374,400	$374,400
93	578	$1,560,600	$369,920	$369,920
96	740	$1,998,000	$473,600	$473,600
125	660	$1,782,000	N/A	$1,782,000
126	350	$945,000	N/A	$945,000
127	228	$547,200	N/A	$547,200
128	200	$480,000	N/A	$480,000
			TOTAL:	$6,526,360

The following structure estimates are based on structures that may need to be constructed if roadways are widended, elevated or signage is not deemed adequate (see map on next page for labels/locations):

Label	Assumed Length (ft)	Steel Truss Option	Wooded Boardwalk Option	Probable Scenario
A	100	N/A	$64,000	$64,000
B	45	N/A	$28,800	$28,800
C	60	N/A	$38,400	$38,400
D	120	N/A	$86,400	$86,400
E	150	$360,000	$108,000	$108,000
F	300	$720,000	$216,000	$216,000
G	90	N/A	$64,800	$64,800
H	75	N/A	$54,000	$54,000
I	200	$480,000	N/A	$480,000
J	90	N/A	$57,600	$57,600
K	40	N/A	$25,600	$25,600
L	40	N/A	$25,600	$25,600
M	50	N/A	$32,000	$32,000
N	40	N/A	$25,600	$25,600
O	40	N/A	$25,600	$25,600
P	30	N/A	$19,200	$19,200
Q	200	$480,000	N/A	$480,000
R	180	$432,000	N/A	$432,000
S	125	$300,000	$90,000	$90,000
T	90	N/A	$64,800	$64,800
U	125	$300,000	$90,000	$90,000
V	700	N/A	$448,000	$448,000
W	160	$384,000	$128,000	$128,000
			TOTAL:	$1,803,200



Legend
Destination
Boat Access
Campground
Hotel
Marina
Parking
Restrooms
Town
Railroad
County Boundary
Existing Trail
Existing Nature Trail
Existing On-Street
Planned Trail
Planned On-Street
Planned Bridge
Bodies of Water
IDNR Property
Federal Property
N
1 in = 2 miles
County Road 900
County Road 300
County Road 800
County Road 750
County Road 725
County Highway 10
Murray
County Road 500
Carlyle Lake Wildlife Management Area
Cox Bridge Boat Access Area
Payne Cemetary/20th
Tamalco
Tamalco Boat Access Area
Patoka Boat Access Area
175 N
Boulder
Mulberry Grove
American Legion
Horseshoe Island Boat Access
Keyesport
North Fork East Access
Boulder Flats
North Fork Access
BNSF RWT
Keyesport Recreation Area
Muskrat Flats
Hickory Shores Campground
Delay Bridge
Buchele Bridge
Catfish Cove Access
Whitetail Access
Pin Oak Access
Wood Duck Access
Burnside
Emerald
Millstone
Hopewell
Oak Grove Rd
Boulder Bridge
Boulder Recreation Area
Boulder Marina
Fisher
Hazlet Park
Yardley Rd
Lotus Grove Area & Cabins
Coles Creek Recreation Area
Coles Creek Rd
Elmwood Access
Maple Grove Access
Brink
Hughes
Gather Creek Wetland Restoration Project
Mourning Dove Access
Carlyle Sailing Association
Lake
Carlyle
West Access Marina
Super 8
12th
Little Prairie Nature Trail Head
Chipmunk Nature Trail Trail Head
McNair Recreation Area
South Shore
Fish Hatchery
Huey
Sandoval
Vernon
Patoka
Junction City
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Appendix C: Illinois Department of Transportation's (IDOT's) Bureau of Design and Engineering Manual

Excerpts from Chapter 17: Bicycle & Pedestrian Accommodations

The following excerpts provide examples only of IDOT's typical design policies. This document is a definitive source for bikeway design and development in Illinois. Following the adoption of this plan, the implementation must involve plans, specifications and estimates developed by an experienced engineering firm which are in full compliance with the full text of this document.

Chapter Seventeen
BICYCLE AND PEDESTRIAN ACCOMMODATIONS

Table of Contents

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(Continued)

Section **Page**

CHAPTER SEVENTEEN
BICYCLE AND PEDESTRIAN ACCOMMODATIONS

When planning transportation improvements, the Department considers the travel needs of all users of a transportation corridor including bicyclists and pedestrians. Bicycle and pedestrian travel demand in the vicinity of a project is determined early in the project planning phase. When sufficient demand is indicated, the Department will provide the appropriate accommodations.

The correct application of the criteria and guidelines presented in Chapter 17 will result in consistent designs and subtle roadway design changes that will facilitate bicycle and pedestrian travel. Such changes will provide improved transportation opportunities for both bicyclists and pedestrians.

17-1 BICYCLE ACCOMMODATIONS: POLICIES AND PROCEDURES

17-1.01 Definitions

The following terms and definitions apply to Chapter 17:

1. Bikeway. A generic term for any road, street, path, or way which in some manner is specifically designated for bicycle travel, regardless of whether such facilities are designated for the exclusive use of bicycles or shared with other transportation modes.

2. Shared Roadway. Any roadway upon which a separate bicycle lane is not designated and which may be legally used by bicyclists regardless of whether such facility is specifically designated as a bikeway.

3. Bike Lane. The portion of a roadway surface that is designated by pavement markings and signing for the exclusive use of bicyclists.

4. Bicycle Path or Shared-Use Trail. A facility physically separated from the roadway and intended for bicycle or other non-motorized transportation (e.g., pedestrians, disabled persons in wheelchairs, in-line skaters). The terms path and trail generally are describing the same facility.

5. Bicycle Facilities. A broad term which includes bikeways, shared roadways, shoulders (which may be used by bicyclists), traffic control devices, shelters, and parking facilities for bicycles.

original road work. Design criteria should be consistent with Section 17-2.01. Design studies are not required.

17-1.03 Bikeway Warrants

Provide adequate on-road accommodations for bicycle travel in highway projects when any of the following situations exists:

- The highway or street is designated as a bikeway in a regionally or locally adopted bike plan or is published in a regionally or locally adopted map as a recommended bike route.

- The projected two-way bicycle traffic volume (see Section 17-1.04) will approximate 25 ADT or more during the peak three months of the bicycling season at a highway or street location where the current vehicular traffic volume will exceed 1000 ADT. Estimate the bicycle ADT projection based on a five-year time frame from completion of the project.

- The route provides primary access to a park, recreational area, school, or other significant destination.

- The route provides unique access across a natural or man-made barrier (e.g., bridges over rivers, bridges over railroad yards, bridges over freeways or expressways, highways through a National Forest).

- The highway project will negatively affect the recreational or transportation utility of an independent bikeway or trail. Highway projects will negatively affect at-grade paths and trails when they are severed, when the projected roadway traffic volumes increase to a level that prohibits safe crossings at-grade, or when the widening of the roadway prohibits sufficient time for safe crossing.

(For off-road Bicycle Path Warrants, see Section 17-2.02(a)).

17-1.04 Determining Bicycle Travel Demand

The concepts of identifying cycling origins and destinations, and thus travel demand, are discussed in the FHWA publication *Selecting Roadway Design Treatments to Accommodate Bicycles*. The following additional guidance is provided to determine bicycle travel demand where bicycle travel is difficult to predict:

1. Urban and Suburban Areas. Because of the potential for bicycle travel, bicycle accommodation will likely be warranted in the majority of urban and suburban areas, particularly at points of community development that generate, attract, or result in commercial, recreational, or institutional establishments near or along highways.

2. Rural Towns. Bicycle accommodation may be warranted in rural towns located on main highways where bicycle travel within the community and from the outlying populated areas could justify such accommodation.

3. Rural Highway Projects. Rural highway projects that provide unique access over a major barrier, such as a river, would be expected to meet the warrants.

4. Unpopulated Rural Areas. In unpopulated rural areas, typical origins and destinations are far less frequent. Thus, the need for bicycle accommodation may not be warranted.

17-1.04(a) Assessment of Bicycle Travel Within Highway Projects

Bicycle origins and destinations should be reviewed for each project and noted in a checklist format. All checklists are in the Section 17-6. Such information provides the basis for evaluating whether or not bicycle accommodation is necessary within a project. This section provides two checklists, an example map, and a travel assessment form that should be included in all Phase I reports, except for projects excluded in Section 17-1.02(a). If projects include accommodation for bicycles, notify BDE's Bicycle Coordinator. If bicycle accommodations will be excluded from the project, complete and include, in all applicable Phase I reports, the forms presented in Figures 17-1A, 17-1B, and 17-1C.

17-1.04(b) Bicycle Travel Generators in Project Vicinity

Review and record the potential bicycle travel generators in the vicinity of the project, such as those shown in the checklist in Figure 17-1A. Note on the checklist the types of generators within 1 mile (2 km) of the project corridor. To the Phase I Report, attach a map of this area showing the general location of these generators as illustrated in Figure 17-1B. Sections of Municipal or Township maps are acceptable, as well as photocopies of aerial photos. The map will serve to indicate where bicyclists will cross or ride along the corridor. It will also serve to indicate the absence of any of the destinations presented in Figure 17-1A and, thus, provide justification for excluding bicycle accommodation.

17-1.04(c) Public Coordination

The organizations presented in Figure 17-1C shall be contacted to assess any nearby bicycle travel or planned development of recreational trails or other generators. Include documentation of coordination in the Phase I report.

Generators	Yes	NA	Generators	Yes	NA
Residential Areas	☐	☐	Shopping Centers	☐	☐
Parks	☐	☐	Hospitals	☐	☐
Recreation Areas	☐	☐	Employment Center	☐	☐
Churches	☐	☐	Government Offices	☐	☐
Schools	☐	☐	Local Businesses	☐	☐
Libraries	☐	☐	Industrial Plants	☐	☐
Existing Bicycle Trails	☐	☐	Public Transportation Facilities	☐	☐
Planned Bicycle Trails	☐	☐	Other ( )	☐	☐

CHECKLIST FOR BICYCLE TRAVEL GENERATORS IN PROJECT VICINITY

Figure 17-1A

17-1.04(d) Bicycle Travel Assessment

Based on the bicycle travel indicators presented in Sections 17-1.04(b) and 17-1.04(c), address the questions in the bicycle travel assessment form (see Figure 17-1D) and attach the completed form to the Phase I report.

17-1.05 Maintenance and Jurisdiction

Responsibility for ongoing maintenance of bikeway facilities within the roadway surface is assumed to be an integral part of roadway maintenance.

Responsibility for maintenance of bikeway and pedestrian facilities separated from the roadway surface should be delegated by Agreement with local/State jurisdictions or others early in the planning process (see Chapter 5).

17-1.06 Right-of-Way

Acquire right-of-way for bikeway facilities in accordance with existing IDOT land acquisition policies and procedures. Additional right-of-way required for bikeway purposes should be purchased in conjunction with the right-of-way purchase of the overall roadway improvement.

17-2 DESIGN CRITERIA FOR BICYCLE FACILITIES

The Department utilizes the AASHTO publication *Guide for the Development of Bicycle Facilities* as the basis for design guidance. Further guidance is provided in the FHWA publication *Selecting Roadway Design Treatments to Accommodate Bicycles.* Also, coordinate bicycle facility design with the cross section criteria presented in Part IV, "Roadway Design Elements," (Chapter 39) and Part V, "Design of Highway Types."

17-2.01 On-Road Accommodations

17-2.01(a) On-Road Bikeways on Rural Roadways

Bicycle accommodation on rural cross sections consists of paving a portion of the shoulder. Paved shoulders can accommodate most types of bicycle travel very efficiently and offer benefits beyond accommodating bicyclists (e.g., added safety, reduced maintenance, rural mail delivery). See Figure 17-2A for width criteria.

Vehicular ADT (current)	Bicycle ADT ≥ 25 (projected) [1]
Under 1000	1 ft (300 mm) [2]
1000 to 2999	4 ft (1.2 m)
3000 or more	4ft – 6 ft (1.2 m - 1.8 m) [3]

Notes:

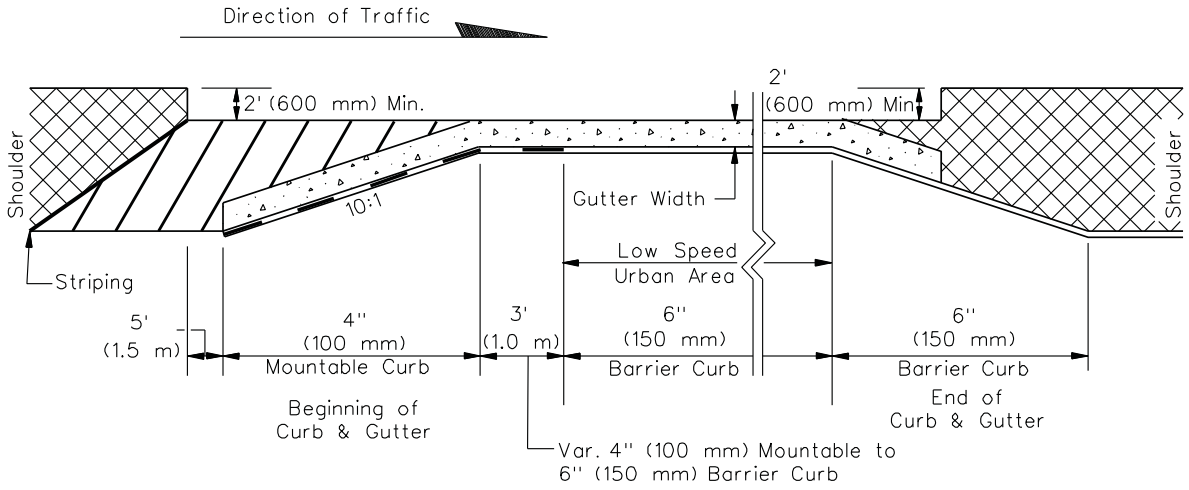
1. *Estimate bicycle ADT according to Section 17-1.04.*
2. *This value reflects 3R criteria.*
3. *Paved shoulder width should be increased to 6 ft (1.8 m) as follows:*
   - *where posted speeds are 55 mph or greater, or*
   - *where posted speeds equal or exceed 45 mph in areas with high truck, RV, or bus traffic or where usage by inexperienced bicyclists is expected.*

Where rumble strips are used, the paved shoulder should be sufficiently wide to provide a minimum 3 ft (1 m) smooth width to the outside of the rumble strip.

MINIMUM PAVED SHOULDER WIDTHS TO ACCOMMODATE BICYCLES ON RURAL CROSS SECTIONS

Figure 17-2A

Transitions from rural sections into urban sections (e.g., driveway entrances, intersections) should accommodate bicyclists' through movements by providing additional curb lane width to the curb and gutter section. Figure 17-2B illustrates an acceptable approach.



PAVED SHOULDER TRANSITION INTO CURB AND GUTTER

Figure 17-2B

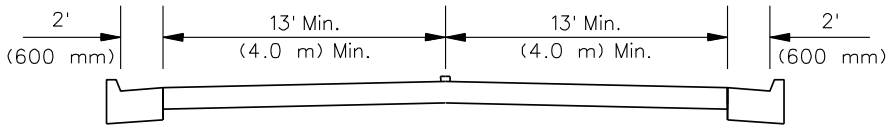
Avoid using rumble strips on shoulders where bicycles are allowed to operate (see Chapter 34). When rumble strips are warranted to address a high-crash location or a history of run-off-the-road crashes, and there is a need to accommodate bicycle travel, provide a minimum 3 ft (900 mm) smooth paved area to the outside of the rumble strip as per the *Highway Standards*. The design should be coordinated with and approved by BDE.

17-2.01(b) On-Road Bikeways On Shared Urban Roadways

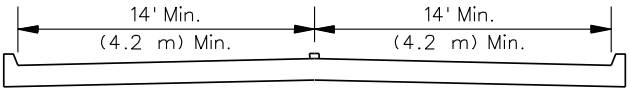
On a shared roadway facility, bicyclists and motorists share the same travel lanes without a striped separation. Minimum cross sections are shown in Figure 17-2C. Shared roadways have particular application where physical constraints such as buildings, narrow sidewalks, or environmentally sensitive areas prevent widening a street to provide bike lanes.

Wide curb lanes usually are the most effective and efficient means of accommodating bicycle travel in urban roadway sections. The width of the lane is the most important factor for allowing vehicles sufficient room to pass a slower-moving bicyclist. As speeds increase or as the percentage of truck traffic increases, the width should increase according to the criteria presented in Figure 17-2C. Measure the width of the lane from the lane stripe to the joint between the pavement and the gutter. If no joint exists, as with monolithic pavement, take the measurement to the face of the curb. Bicycles, because of their narrow tires, cannot be expected to be ridden on or near a longitudinal pavement joint because of the potential for catching the wheel in the joint and throwing a rider into traffic.

TWO-LANE ROADWAYS WITH WIDE LANES
(Posted Speed < 45 mph)

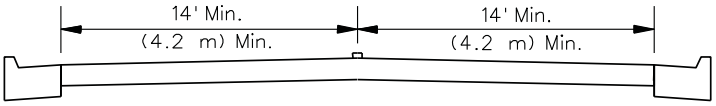


Curb and Gutter Section



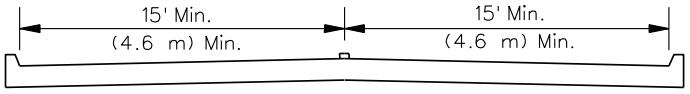
Monolithic Curb and Gutter Section
(Existing Roadway Only)

TWO-LANE ROADWAYS WITH WIDE LANES
(Posted Speed = 45 mph)



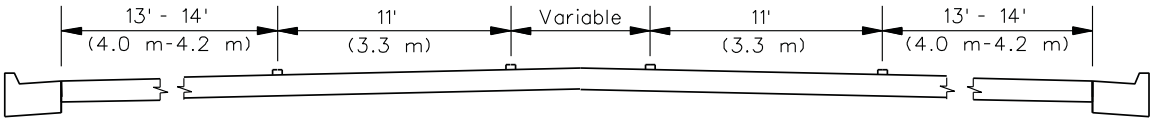
Curb and Gutter Section

Note: Gutter widths may be reduced to 1' (300 mm) in accordance with the Drainage Manual.

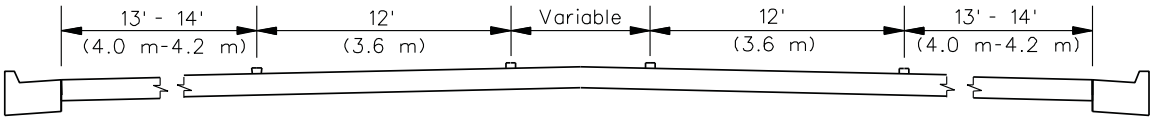


Monolithic Curb and Gutter Section

FIVE-LANE SECTIONS



Section with Differential Striping



Section with 12' (3.6-m) Inside Lanes and Widened Curb Lanes

MINIMUM CROSS SECTIONS FOR SHARED URBAN ROADWAYS
(Unmarked Bicycle Lanes)
Figure 17-2C

Gutter widths are not considered acceptable for bicycle travel. A bicyclist riding in the gutter is often forced to leave this area because of debris or broken pavement. If the pavement/gutter joint is vertically uneven or has separated from the gutter, a bicyclist can become trapped and forced to make unsafe maneuvers.

17-2.01(c) On-Road Marked Bicycle Lanes on Urban Roadways

Bicycle lanes that are marked on curbed streets serve to separate bicycle traffic from motor vehicle traffic. The provision of marked bike lanes may be considered appropriate if any of the following conditions exist:

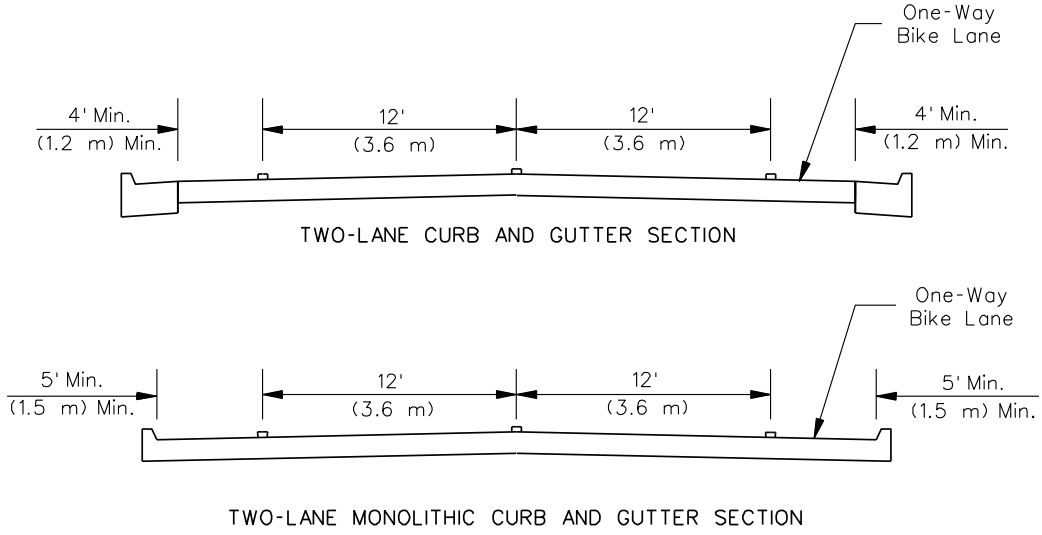
- A combination of speeds (i.e., posted 45 mph or less) and high vehicular traffic volumes exist, especially on roadways with high truck, RV, or bus traffic (refer also to *Selecting Roadway Design Treatments to Accommodate Bicycles*).

- The bicycle lanes provide a linkage to a continued marked bikeway along or at either end of the project.

- The roadway provides a key linkage to a destination, such as a college or recreational area, which will be frequented by casual bicyclists.

The following are minimum cross section requirements:

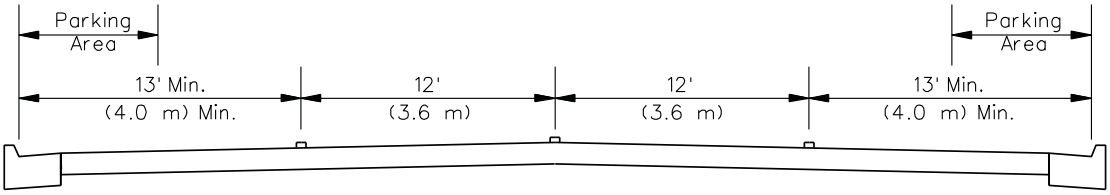
- On curbed streets without parking, locate the bicycle lane next to the gutter, as shown in Figure 17-2D.



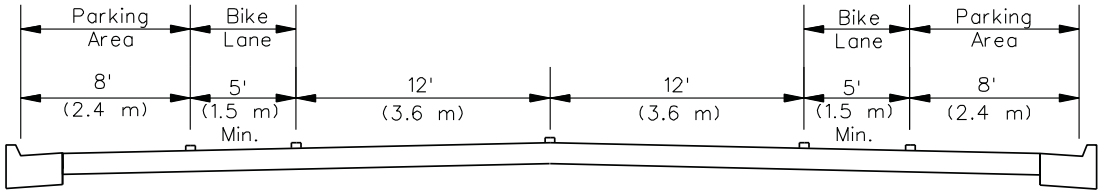
MINIMUM CROSS SECTIONS FOR CURBED STREETS WITHOUT PARKING (Marked Bicycle Lanes)

Figure 17-2D

- Where parking is permitted, locate the bicycle lane between the parking lane and the through traffic lanes as shown in Figure 17-2E.



TWO-LANE SECTION WITH
COMBINED BICYCLE AND PARKING USE AREAS
(Unmarked Bicycle Use Area)



TWO-LANE SECTION WITH
MARKED PARKING
(Marked Bicycle Lanes)

MINIMUM CROSS SECTIONS FOR CURBED STREETS WITH PARKING

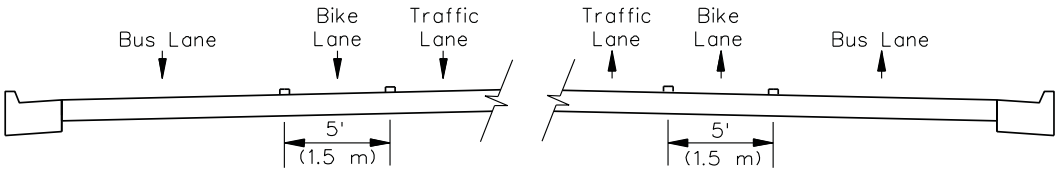
Figure 17-2E

- Where parking is allowed on a street, provide additional parking-lane width, above the required minimum, under the following conditions:

  + where there is frequent parking turnover,
  + where parked vehicles are mostly commercial vehicles, or
  + where posted motor vehicle speeds equal 45 mph.

Design bicycle lanes as one-way facilities that carry bicycle traffic in the same direction as adjacent motor vehicle traffic. Two-way bicycle lanes on one side of the roadway (without physical separation) are unacceptable because they promote riding against the flow of motor vehicle traffic. Wrong-way riding is a major cause of bicycle crashes nationally and violates the *Illinois Vehicle Code* (625 ILCS 5/11-1505). Locate one-way bicycle lanes that are on one-way streets on the right side of the street, except in areas where placing the bicycle lane on the left will decrease the number of conflicts (e.g., those caused by heavy bus traffic).

Place bicycle lanes that are adjacent to dedicated bus lanes between the vehicular traffic lane and the bus lane as shown in Figure 17-2F. Where roadway width is limited, bicycles and buses may share an outside lane with a minimum width of 16.5 ft (5 m) to the curb face.



BICYCLE LANES ADJACENT TO BUS LANES

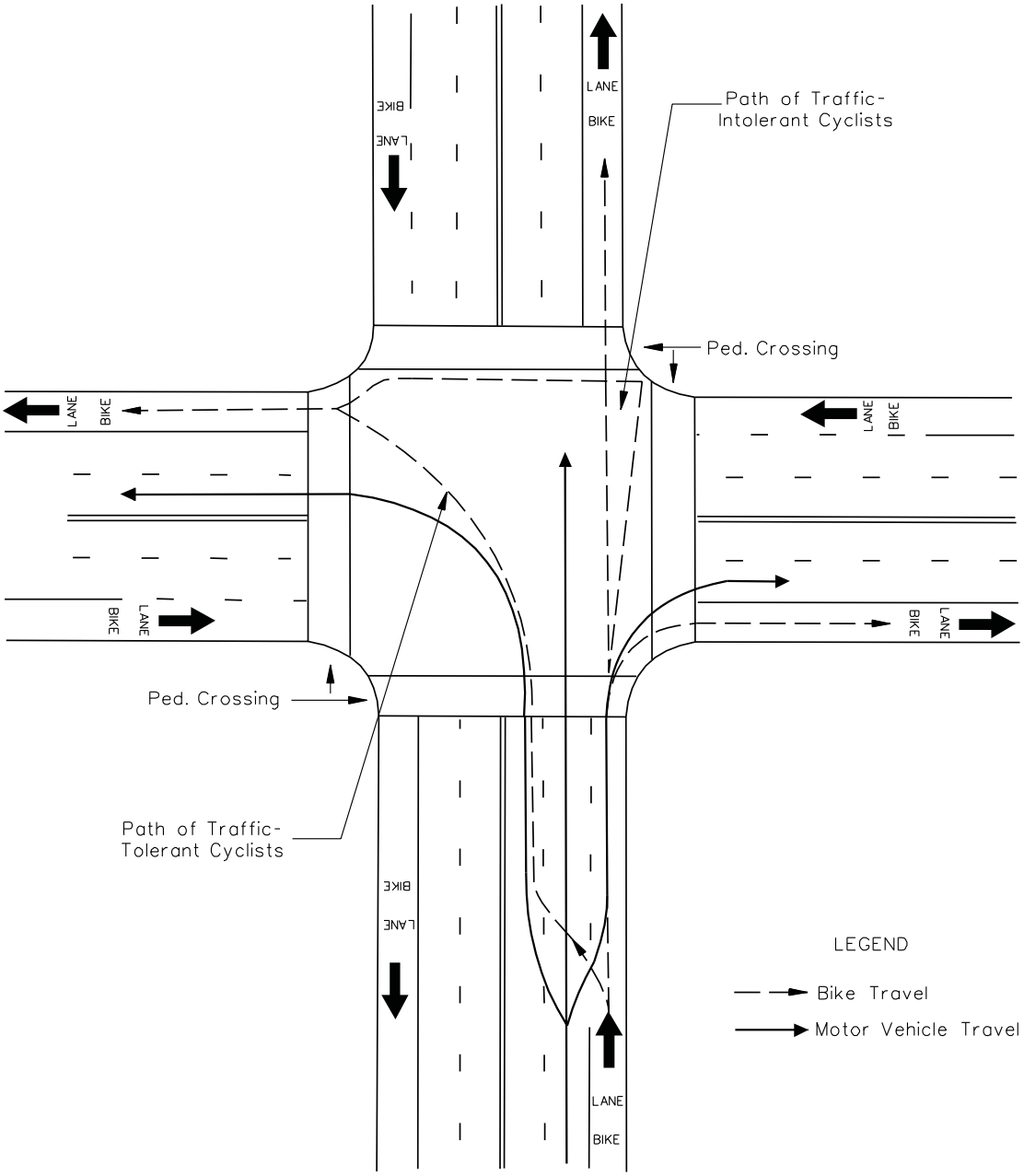
Figure 17-2F

17-2.01(d) Intersections

On-road bicycle movements through intersections should be an integral part of a roadway improvement. As practical, continue existing wide curb lanes through intersections to accommodate bicycle through movements. If right- or left-turn bicycle movements are expected, provide adequate turn-lane widths to allow bicyclists to share the lane with turning vehicular traffic. When an approach roadway in a rural section transitions into an urban intersection, use the criteria presented in Section 17-2.01(a).

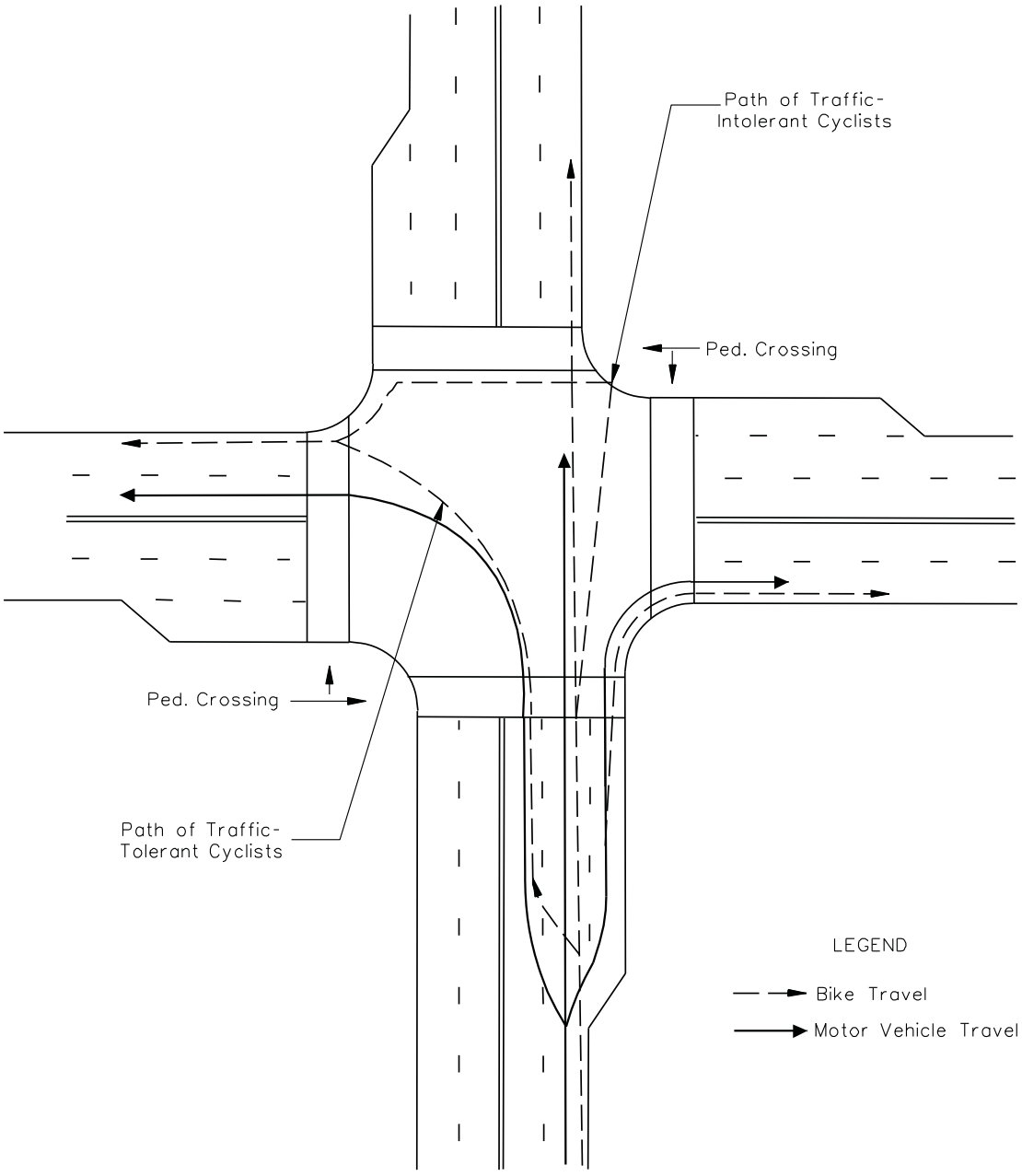
Bicycle lanes on an intersection approach should be continued through the intersection as shown in Figure 17-2G. When width for a separate lane is unavailable, actual bicycle movements are likely to follow those shown in Figure 17-2H. Traffic-tolerant cyclists will generally mimic vehicular movements and traffic-intolerant cyclists will generally mimic pedestrian movements.

Different approaches to accommodating bicycle traffic through intersections are necessary as the level of vehicular traffic and speeds through the intersection increase. Accommodating bicyclists through a free-flow interchange may be of concern, due to possible safety issues; consider providing a separate structure for bicyclists and pedestrians. However, if on-road accommodation is necessary, the design shown in Figure 17-2I reflects an acceptable approach to directing bicyclists across interchanges. Other designs may need to be considered to meet the requirements of individual intersections/interchanges.



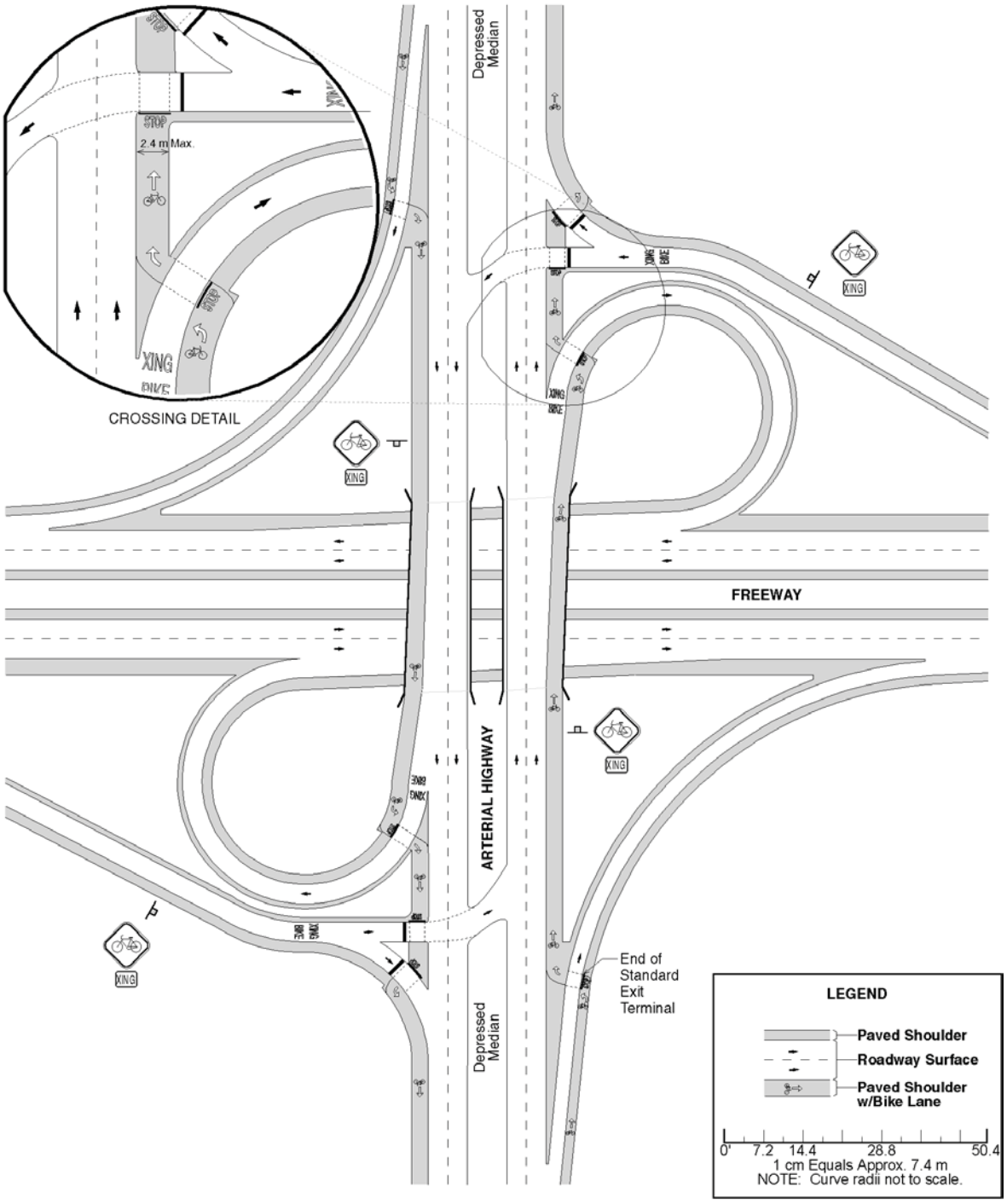
TYPICAL BICYCLE MOVEMENTS AT INTERSECTIONS ON MULTI-LANE STREETS WITH BICYCLE LANES

Figure 17-2G



TYPICAL BICYCLE MOVEMENTS AT INTERSECTIONS ON MULTI-LANE STREETS WITHOUT BICYCLE LANES

Figure 17-2H



BIKE LANES ACROSS HIGHER SPEED INTERCHANGES

Figure 17-2I

17-2.01(e) Bikeway on Highway Structures

Bicycle accommodations on approach roadways should be carried across structures. The width of new highway structures should, at a minimum, equal the width of the traveled way plus the width of approaching bicycle lanes and/or sidewalks. Minimum cross sections for roadways and structures will vary significantly depending on the type of bicycle facility being accommodated. Several examples of minimum cross sections for shared roadways, bicycle lanes and bicycle paths are shown in Figures 17-2J through 17-2L. In addition, the criteria for accommodating bikeways at or near bridges along freeways and expressways are illustrated in Figure 17-2M. Figure 17-2N presents a typical modification of existing facilities for bikeways under a bridge.

Where it is necessary to retrofit a separated bicycle path (see Section 17-2.02) onto an existing highway bridge, several alternatives should be considered in light of what the geometrics of the bridge will allow. One option is to carry the bicycle path across one side of the structure. This should be considered where:

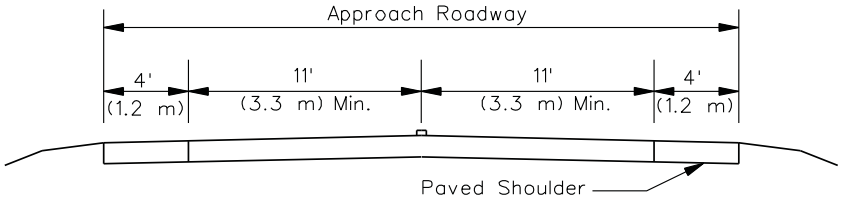
- the bridge facility will connect to a bicycle path at both ends,
- sufficient width exists on that side of the bridge or can be obtained by widening or restriping lanes, and
- provisions are made to physically separate bicycle traffic from motor vehicle traffic.

Another option is to use existing sidewalks as one-way or two-way facilities. This may be advisable where:

- conflicts between bicyclists and pedestrians will not exceed tolerable limits, and
- the existing sidewalks are adequately wide.

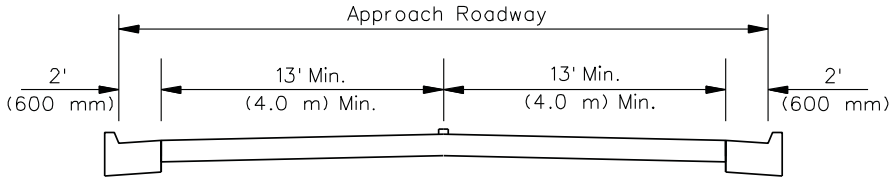
If the facility cannot provide adequate accommodation (per widths indicated in this section), appropriately sign the facility to warn users of the deficiencies or require bicyclists to dismount and cross the structure as a pedestrian. Section 17-2.02(i) provides additional design guidance for structures on bicycle paths. The AASHTO *Bridge Manual* specifies a 4′-6″ (1.4 m) outside railing height. Design on-road bicycle accommodations accordingly. Bridge railing on off-road-shared-use paths must meet a 3′-6″ (1.1 m) minimum rail height requirement.

Where bridge projects include bikeway or sidewalk accommodations, the approaches to the structure should ensure a usable facility by continuing the accommodation to logical termini.

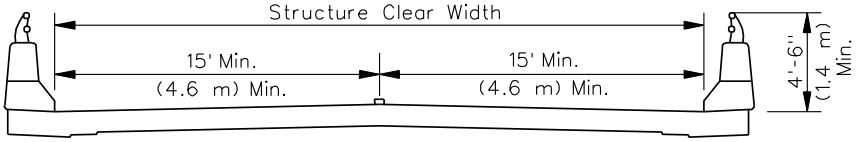


TWO-LANE ROADWAY WITH PAVED SHOULDERS

Note: Shoulder width should be increased to 6' (1.8 m) with conditions indicated in Figure 17-2A.



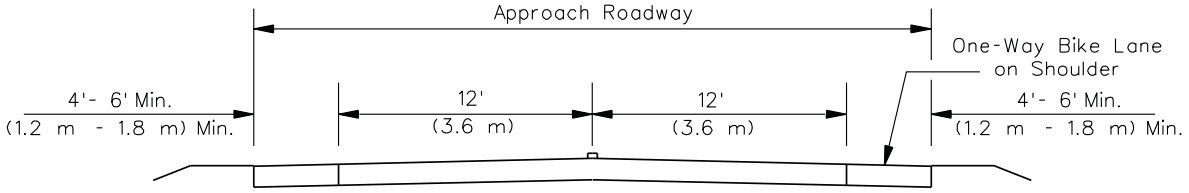
TWO-LANE URBAN ROADWAY WITH WIDE LANES



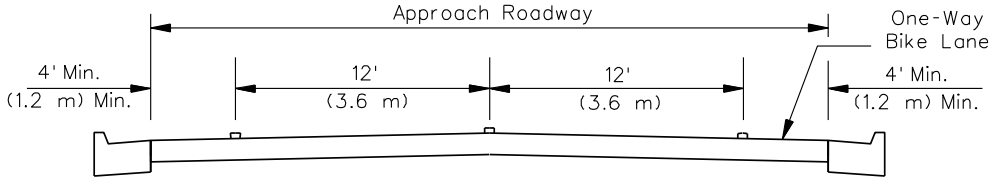
WIDE LANES/SHOULDERS CONTINUED ACROSS STRUCTURE

CROSS SECTIONS FOR SHARED ROADWAY ON TWO-LANE HIGHWAY STRUCTURES (Unmarked Bicycle Lanes)

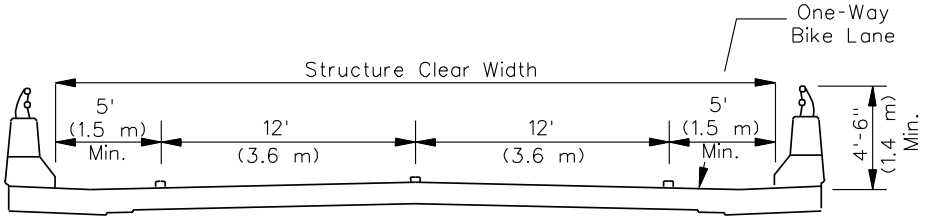
Figure 17-2J



BIKE LANES ON SHOULDERS



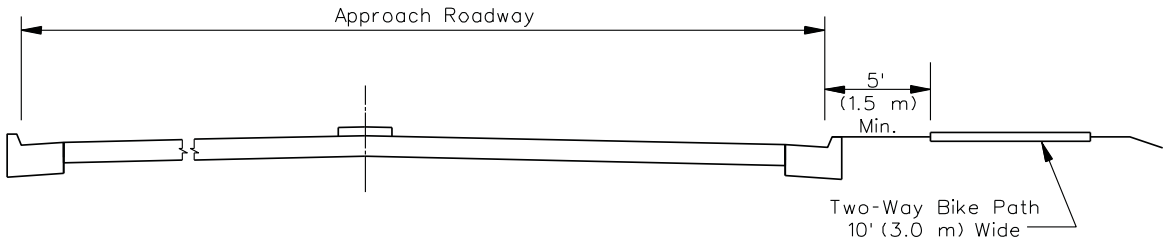
BIKE LANES ON ROADWAY



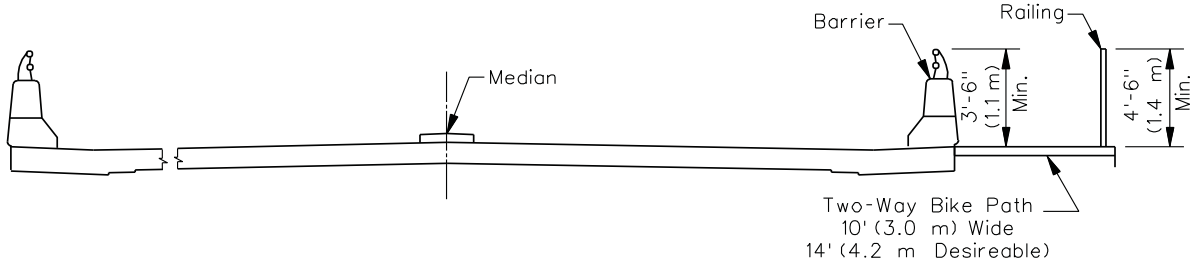
BIKE LANES ACROSS STRUCTURE

CROSS SECTIONS FOR MARKED BIKE LANES ON TWO-LANE HIGHWAY STRUCTURES

Figure 17-2K



APPROACHING FOUR-LANE SECTION
WITH ADJACENT TWO-WAY BIKE PATH



FOUR-LANE SECTION CONTINUED ACROSS
BRIDGE WITH INTEGRAL BIKE PATH

CROSS SECTIONS FOR BIKE PATHS ON FOUR-LANE HIGHWAY STRUCTURES

Figure 17-2L

17-2.01(f) Bikeway Adjacent to Highways

Railings or barriers, 3.5 ft (1.1 m) high, are required wherever a two-way bike path is proposed within 5 ft (1.5 m) of a roadway. In addition, approach guardrails should be extended to a 3.5 ft (1.1 m) height until the bike path is more than 5 ft (1.5 m) from the edge of the traveled way. The requisite extension on a standard guardrail to extend its height to 3.5 ft (1.1 m) is shown in Figure 17-2O. The width of the two-way bike path generally should be 10 ft (3.0 m), but widths should be adjusted according to Figure 17-2X in Section 17-2.02(d). Separation railings are not required when bicycle traffic flows in the same direction as vehicular traffic.

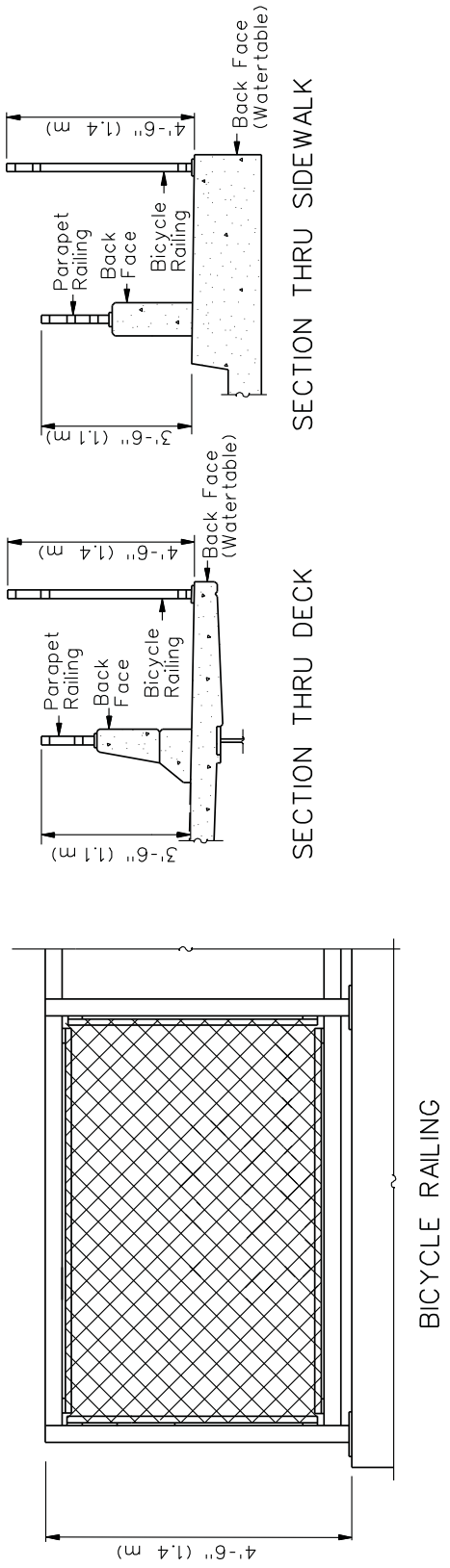
Railings and barriers that provide a separation between the roadway and a bike path are primarily intended to prevent the bicyclist from falling over the railing into opposing traffic. Thus, the type of railing provided is dependent on its proximity to vehicular traffic and its ability to deflect vehicular impacts. For example, railings located on top of a raised sidewalk edge will require an impact resistance different than railings located adjacent to the traffic lane. The designer of the railing also should consider sight impediments the railing might impose. Examples of such railings are shown in Figure 17-2P.

All vertical surfaces within a 2 ft (600 mm) clear area adjacent to the bicyclists' path should be smooth to avoid snagging of clothing or incurring abrasive injuries from contact with the surface. For example, protect the sharp edges of the backside of a guardrail located within 2 ft (600 mm) of the edge of a bikeway by smooth planking or rub rail as shown in Figure 17-2Q.

17-2.01(g) Additional Considerations for Accommodations on Existing Roadways

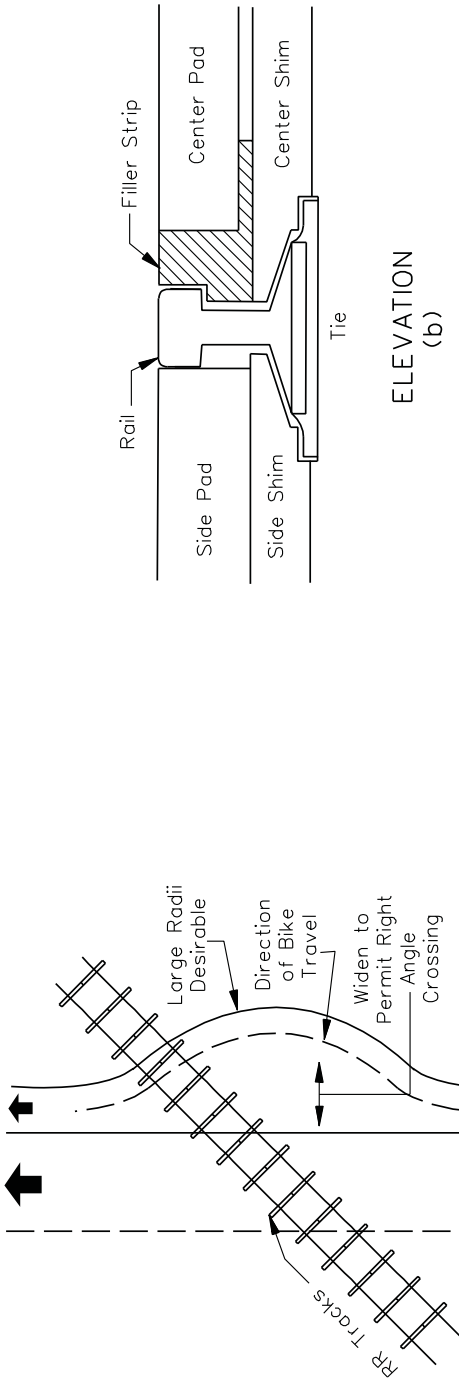
Bicycles also can be accommodated on a roadway by marking or re-marking the pavement to increase the width of the curb lane or to add bike lanes. For example, it may be feasible to:

- reduce the width of inside traffic lanes in accordance with IDOT and AASHTO criteria;
- reduce the median width, especially with the removal of raised curb medians, or the two-way center turn lane width;
- remove parking, possibly in conjunction with providing off-street parking;
- reduce the number of traffic lanes (e.g., if one-way couples are created or if a parallel roadway improvement reduces the traffic demand on an adjacent street that is more suited for bicycle travel); and
- where grades for on-road bicycle facilities exceed bike path grades in Figure 17-2AF, consider using signs to alert bicyclists of upcoming grades.



BICYCLE RAILING

Figure 17-2P



BIKE LANE CROSSING WITH RAILROAD

Figure 17-2R

surfaces should be free of irregularities and the edge of the pavement should be uniform in width. To assure pavement suitability, overlay projects should consider options to scarify the old pavement up to the gutter edge.

b. Rumble Strips. Where rumble strips are placed across the traffic lane in rural areas to warn motorists of upcoming traffic controls, provide a 3 ft (1.0 m) clear paved area on the paved portion of the shoulder to allow a bicyclist an opportunity to avoid the rumble strip.

c. Surface Type. Many rural roadways, because of their low traffic volumes, are very conducive to bicycling. When selecting the surface type and maintenance methods, consider the impacts on bicycle use. Particularly with oil and chip (A2/A3) surfaces, the aggregate specified should be a coarse aggregate, preferably CA 16, and care should be exercised to ensure that the surface is properly rolled and swept. Any loose stone allowed to accumulate on the outer edges of the roadway is extremely hazardous as it forces bicyclists to move toward the center of the roadway to avoid the hazard.

17-2.01(i) Bicycle Routes

It may be advantageous to sign some urban and rural roadways as bicycle routes, particularly if certain roadways provide preferred alternatives to heavily traveled highways. When providing continuity to other bicycle facilities, a bicycle route can be relatively short; however, a bicycle touring route can be quite long.

Base the decision whether to provide a bicycle route on the advisability of encouraging bicycle use on a particular road instead of on parallel and adjacent highways. Consider the roadway width and other factors (e.g., volume, speed, type of traffic, parking conditions, grade, sight distance) when determining the feasibility of a bicycle route.

Generally, bicycle traffic cannot be diverted to a less direct alternative route unless the favorable factors outweigh the inconvenience to the bicyclist. Roadway conditions such as adequate pavement width, drainage grates, railroad crossings, pavement smoothness, work schedules, and signal responsiveness to bicycles always should be considered before a roadway is identified as a bicycle route.

Bicycle route signing should not end at a barrier; rather, provide information signing to direct the bicyclist around the barrier. Further guidance on signing bicycle routes is provided in the *ILMUTCD*.

17-2.01(j) Signing, Marking, and Traffic Control

Signing, pavement markings, and traffic control for bicycle facilities will be in accordance with the criteria presented in the *ILMUTCD* and applicable local ordinances. For fully access controlled highway facilities, appropriate signing may be provided to prohibit bicycle access. Consult the District Operations Engineer and the District Bicycle Coordinator to determine appropriate signing, pavement marking, and traffic control requirements. Signing and pavement markings are especially important at the approaches to intersections and at bike lane termini. Where a bike lane ends, bicyclists may be required to merge with motor vehicle traffic. Bicyclists should be encouraged with the appropriate signing and pavement markings to make lane changes in advance of the intersection.

Not all bicycle accommodations or bikeways need to be or should be marked as bike routes. Generally, only bike lanes and bicycle paths should be marked as designated bicycle facilities. The following are some examples of what should not be marked:

- wide curb lanes that provide intermittent access to businesses along the route, but provide no connection to another part of a bike route; and

- any facility that does not meet minimum design criteria in the AASHTO publication *Guide for the Development of Bicycle Facilities*.

However, short segments of a continuous bike route that do not meet minimum criteria may be marked if the user is adequately warned of the conditions. For example, where a roadway serves as a bikeway and intermittent restrictions on width exist, such as at narrow bridges, mark these obstructions with both signing and pavement markings to warn bicyclists and motorists of the hazards (see Figure 17-2S).

At signalized intersections where frequent bicyclists need access to a green signal phase, a number of acceptable alternative methods are available including timed signals (where a cyclist must wait for the signal to change), traffic-actuated detectors, and push-button actuation. This opportunity (to access a green signal) should be provided where a marked bikeway crosses the project corridor. Other crossing locations to consider include potential bicycle travel from schools, parks, or other significant destinations described in Section 17-1.04(b).

Traffic-actuated detection should be sensitive to bicycles and should be located in the bicyclist's expected path, including left-turn lanes if necessary. Figure 17-2T(a) shows three recommended loop types for bicycle detection, each with particular advantages. Figure 17-2T(b) shows a pavement-marking stencil used to designate where a bicyclist should stand to activate the detector loop. The following information on bicycle detection should be considered:

Signal timing usually does not need to be lengthened to allow adequate time for bicycle crossing. The AASHTO publication *Guide for the Development of Bicycle Facilities* recommends calculating clearance intervals with a bicyclist's speed of 10 mph (16 km/h) and a perception/reaction/braking time of 2.5 seconds. Figure 17-2U illustrates the approximate times for bicycles to cross intersections. At extremely wide intersections, however, consider providing a median refuge area that is at least 6 ft (2 m) wide if signal timing would prohibit adequate crossing time.

Number of Lanes*	2	3	4	5	6	7	8	9
Approximate Time to Cross Intersection	4.2 sec	5.0 sec	5.8 sec	6.6 sec	7.4 sec	8.2 sec	9.0 sec	9.9 sec

** Assumes average of 12 ft (3.6 m) lane widths*

APPROXIMATE BICYCLE TRAVEL TIMES THROUGH INTERSECTIONS

Figure 17-2U

17-2.02 Separated Bicycle Facilities

Bicycle (or shared-use) paths are facilities on exclusive rights-of-way with minimal cross flow by motor vehicles. Bicycle paths can serve a variety of purposes. They can provide a commuting bicyclist with a shortcut through a residential neighborhood, such as a connection between two cul-de-sac streets. Bicycle paths can be located along abandoned railroad rights-of-way, on former canal towpaths, river banks, and other similar areas. Bicycle paths also can provide access to areas that are otherwise only served by limited-access highways that are closed to bicycles. Appropriate locations can be identified during the planning process.

Bicycle paths should be considered extensions of the highway system. They are intended for the preferential use of bicycles in much the same way as freeways are intended for the exclusive or preferential use of motor vehicles. There are many similarities between the design criteria for bicycle paths and those for highways (e.g., horizontal alignment determination, sight distance requirements, drainage, signing and markings). However, some criteria (e.g., horizontal and vertical clearance requirements, grades, pavement structure) are dictated by the operating characteristics of bicycles that are substantially different from those of motor vehicles (see Figures 17-3A and 17-3B). During design, always be cognizant of the operating characteristics of bicycles and how they influence the design of bicycle paths. The following sections provide guidance for designing safe and functional bicycle paths.

17-2.02(a) Bicycle Path Warrants

Separated bicycle paths shall be approved by BDE, be accompanied by a transfer of maintenance and jurisdictional responsibility to local entities (see Chapter 5 for information on Local Agency Agreements and Jurisdictional Transfers), and meet one or more of the following conditions:

- A bikeway located within the adjacent roadway is considered hazardous because of factors such as motor vehicle traffic volumes and/or speeds.

- There are no alternatives for bikeways on parallel routes within 1 mile (2 km) of the project corridor.

- There is a commitment to provide bike-path continuity for an extensive length of the roadway.

The AASHTO publication *Guide for the Development of Bicycle Facilities* includes detailed information on the design and location of bicycle paths. Further guidance on bicycle paths is also available in the Rails to Trails Conservancy publication *Trails for the Twenty-First Century —Planning, Design and Management Manual for Multi-Use Trails*.

17-2.02(b) Bike Paths Versus Sidewalks

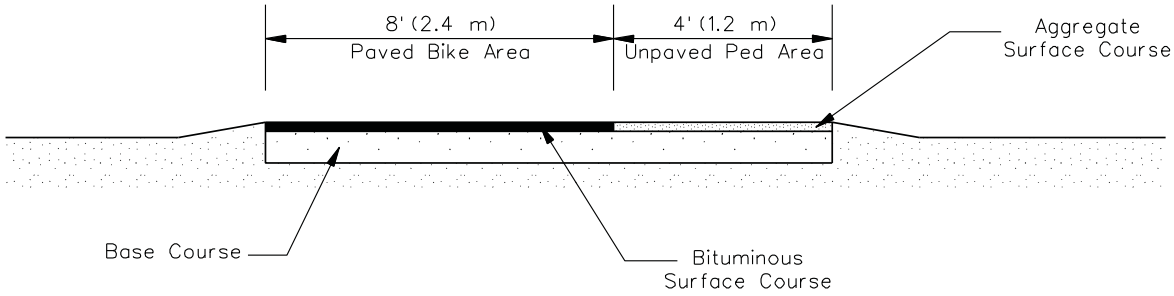
Both AASHTO and FHWA state that sidewalks generally are not designed nor recommended for bicycle travel, primarily because of their narrow width and multiple opportunities for conflicts with driveways and commercial entrances. Some suburban sidewalks, however, may be preferable to on-road accommodations, particularly if they provide adequate width, are located on both sides of the roadway (to encourage one-way travel), and are designed to minimize conflicts. In contrast, bicycling on storefront sidewalks in urban areas or in residential areas with multiple driveways should be strongly discouraged.

When assessing the appropriateness of using a sidewalk for bicycle travel, conduct a thorough survey of the area (e.g., conditions, potential conflicts), review the AASHTO publication *Guide for the Development of Bicycle Facilities,* and research any local ordinances prohibiting bicycles on sidewalks. Any decision to utilize sidewalks for bicycle accommodations shall be approved by BDE.

17-2.02(c) Shared-Use Paths

While exclusive bicycle use of a bicycle path is often ideal, it seldom occurs. For this reason, pedestrian, in-line skaters and other anticipated uses always should be considered in the design of the facility. Where practical, separate areas to minimize the conflicts arising from the different speeds of these modes. If this is not feasible, provide additional width, signing and pavement

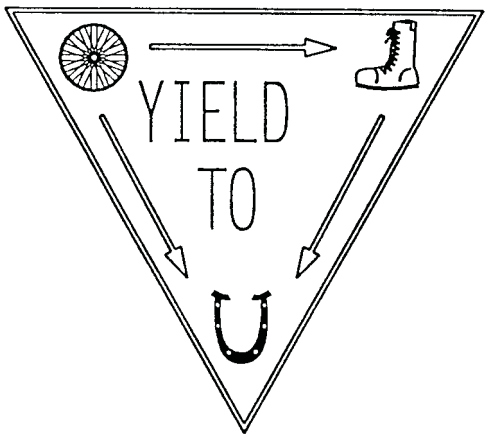
markings, and partial paving, such as that shown in Figure 17-2V, to minimize conflicts and delineate rights-of-way.



ALTERNATE BIKE PATH CROSS SECTION WITH PARTIAL PAVING

Figure 17-2V

Using a path for both bicycles and horses is not a recommended practice. However, when circumstances dictate that horses share the same corridor as bicyclists, provide a minimum shoulder width of 3 ft (1 m) and provide signs to warn users of shared use (see Figure 17-2W) and to restrict equestrians to the shoulder. Further guidance on equestrian trails is provided in the publication *Trails for the Twenty-First Century*.



SHARED-USED PATH ETIQUETTE SIGN
Figure 17-2W

17-2.02(d) Width and Clearance

Widths for shared-use bicycle paths will vary in accordance with the conditions illustrated in Figure 17-2X. Figure 17-2Y illustrates the minimum cross sections for two-way, shared-use paths.

ANTICIPATED VOLUME	ONE-WAY[1]	TWO-WAY
< 100 Users per Peak Hour	5 ft (1.5 m)	8 ft (2.4 m)[2]
100 - 300 Users per Peak	6 ft (1.8 m)	10 ft (3.0 m)
> 300 Users per Peak Hour	7 ft (2.1 m)	12 ft (3.6 m) [3]

Notes:

1. *It should be recognized that one-way bicycle paths will often be used as two-way facilities unless effective measures are taken to assure one-way operation. Without such enforcement, it should be assumed that bicycle paths will be used as two-way facilities and designed accordingly.*

2. *Use the 8 ft (2.4 m) width only at locations where there will be low usage, few conflicts among users, good horizontal and vertical alignment providing for safe and frequent passing opportunities, minimal maintenance vehicle traffic which would cause pavement edge damage, and/or right-of-way constraints or physical barriers (requires BDE approval).*

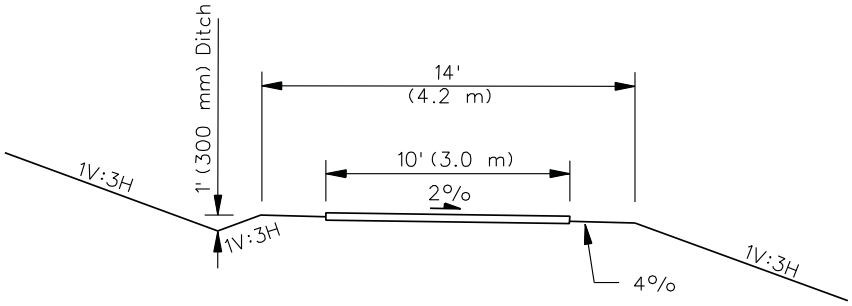
3. *Where usage exceeds 300 users per hour during the peak periods of usage, separating bicycle and pedestrian travel may be considered. Stripe 4 ft (1.2 m) bike lanes in each direction and a 4 ft (1.2 m) width for pedestrians, as shown in Figure 17-2Y. Constructing a separated pathway for pedestrians also may be considered.*

SHARED-USE BICYCLE PATH WIDTHS

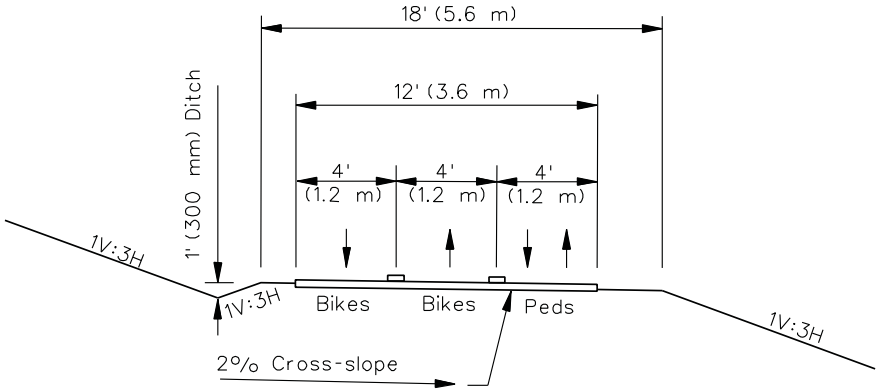
Figure 17-2X

A minimum 2 ft (600 mm) wide graded turf or gravel area should be maintained adjacent to both sides of the pavement; however, 3 ft (900 mm) or more is desirable to provide clearance from trees, poles, walls, fences, guardrails, and other lateral obstructions. A wider graded area on either side of the bicycle path also can serve occasional equestrian use or as a separate jogging path. See Section 17-2.02(c).

Where a two-way bike path is physically located within the highway right-of-way, it shall be separated horizontally from motorized traffic so as not to interfere with the operational aspects of the roadway. This separation should be as wide as practical, but not less than 5 ft (1.5 m), and still allow the bicyclist to be visible by the motorist. For example, in an urban section, a two-way



TYPICAL BIKE PATH FOR MINIMAL SHARED USE



TYPICAL BIKE PATH FOR SUBSTANTIAL SHARED USE
(Optional Striping Shown)

CROSS SECTIONS FOR TWO-WAY, SHARED-USE BICYCLE PATHS
Figure 17-2Y

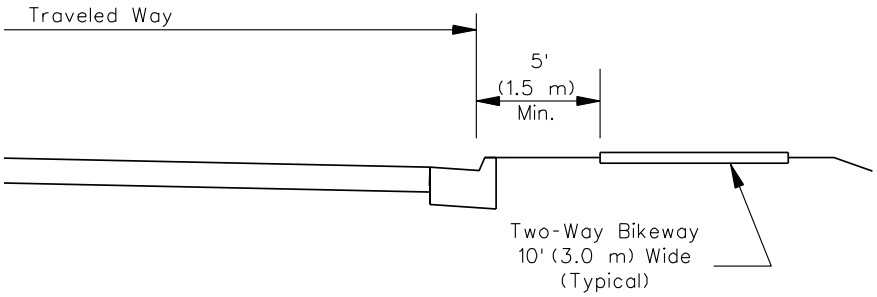
bike path would be placed much like a typical sidewalk, provided the edge of the path is more than 5 ft (1.5 m) from the curb face (see Figure 17-2Z). In a rural section, it is desirable for a two-way bike path to be located on the top of the back slope. At a minimum, the path should be no less than 10 ft (3 m) from the edge of the traffic lane in a rural section. In all cases, where a bike path is expected to cross a street near an intersection, the bike path should cross the side street either in a typical crosswalk fashion as in Figure 17-2AI or mid-block (see the AASHTO *Guide for the Development of Bicycle Facilities*).

Protect two-way bikeways located less than 5 ft (1.5 m) from the traveled way (generally, the face of the curb) with a 3.5 ft (1.1 m) high barrier. Such barriers serve both to prevent bicyclists from making undesirable movements between the path and the highway shoulder and to reinforce the concept that the bicycle path is an independent facility. For additional information on barriers and railings, see Section 17-2.01(e).

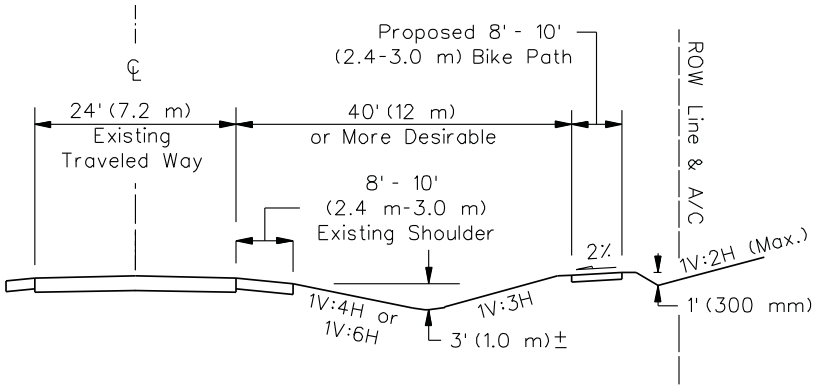
The consideration of safety rails along side slopes should be based on a subjective analysis of trail-side elements and conditions. Generally, if the consequences of striking a fixed object hazard or running off the path are believed to be more serious than hitting the railing, then the barrier may be warranted. In addition, the cost effectiveness and probability of encroachment also should be considered. For example, along a lengthy tangent section of bicycle path on an elevated railroad section, the cost effectiveness of installing safety rail along the entire distance would be questionable; however, the placement of rail at clearly hazardous locations (e.g., river crossing approaches, less than minimum widths and curves, potential points of conflict) would be prudent. Select the treatment that is judged to be the most practical and cost-effective for the site. The range of treatments includes:

- eliminating the hazard (e.g., flatten embankment, remove rock outcroppings);
- relocating the hazard;
- shielding the hazard with safety railing; or
- doing nothing.

The determination of the separation distance between a bike path and an active railroad is dependent on the speed and frequency of the rail service, the amount of access available to the railroad from the surrounding area, and the requirements of the railroad company. For low speed and low frequency service, the separation may be as little as 10 ft – 15 ft (3 m – 5 m), with no physical barrier (e.g., fencing, landscaping). As railroad speeds and frequencies increase, the requirements for increased separation and a physical barrier increase as well. A 8 ft (2.4 m) high chain link fence or other barrier type may be required to satisfy the railroad company that bicyclists will be adequately separately from the hazards of the trains.



(a)



(b)

CROSS SECTION OF PATH SEPARATED FROM ADJACENT ROADWAY

Figure 17-2Z

Appendix D: American Association of State & Highway Transportation Officials's (AASHTO's) Guide for the Development of Bicycle Facilities

This Appendix is an excerpt from the AASHTO "green book" - the Guide for the Development of Bicycle Facilities (1999). The document in its entirely is a valuable industry-standard resource for the development of bicycle facilities. If a newer version has been published at the time of implementation of any of the phases of this plan, the newest version should be referenced.

The entire document can be found at:
http://www.sccrtc.org/bikes/AASHTO_1999_BikeBook.pdf

Figure 2. Example of a Shared Use Roadway

Shared Roadways

To varying extent, bicycles will be used on all highways where they are permitted. Bicycle-safe design practices, as described in this guide, should be followed during initial roadway design to avoid costly subsequent improvements. Because most existing highways have not been designed with bicycle travel in mind, roadways can often be improved to more safely accommodate bicycle traffic. Design features that can make roadways more compatible to bicycle travel include bicycle-safe drainage grates and bridge expansion joints, improved railroad crossings, smooth pavements, adequate sight distances, and signal timing and detector systems that respond to bicycles. In addition, more costly shoulder improvements and wide curb lanes can be considered. Also see Chapter 2, Other Design Considerations.

Width is the most critical variable affecting the ability of a roadway to accommodate bicycle traffic. In order for bicycles and motor vehicles to share the use of a roadway without compromising the level of service and safety for either, the facility should provide sufficient paved width to accommodate both modes. This width can be achieved by providing wide outside lanes or paved shoulders.

Paved Shoulders

Adding or improving paved shoulders often can be the best way to accommodate bicyclists in rural areas and benefit motor vehicle traffic. Paved shoulders can extend the service life of the road surface since edge deterioration will be significantly reduced. Paved shoulders also provide a break-down area for motor vehicles. Where funding is limited, adding or improving shoulders on uphill sections will give slow-moving bicyclists needed maneuvering space and will decrease conflicts with faster moving motor vehicle traffic.

Paved shoulders should be at least 1.2 m (4 feet) wide to accommodate bicycle travel. However, where 1.2-m (4-foot) widths cannot be achieved, any additional shoulder width is better than none at all. The measurement of usable shoulder width should not include the width of a gutter pan, unless the pan width is 1.2 m (4 feet) or greater. Shoulder width of 1.5 m (5 feet) is recommended from the face of guardrail, curb or other roadside barriers. It is desirable to increase the width of shoulders where higher bicycle usage is expected. Additional shoulder width is also desirable if motor vehicle speeds exceed 80 km/h (50 mph), or the percentage of trucks, buses and recreational vehicles is high, or if static obstructions exist at the right side of the roadway.

In general, AASHTO's recommendations for shoulder width (as described in *A Policy on Geometric Design of Highways and Streets (Green Book*[1]*))* are the best guide for bicycles as well, since wider shoulders are recommended on heavily traveled and high-speed roads and those carrying large numbers of trucks. However, in order to be usable by bicyclists the shoulder must be paved.

Rumble strips or raised pavement markers, where installed to discourage or warn motorists they are driving on the shoulder, are not recommended where shoulders are used by bicyclists unless there is a minimum clear path of 0.3 m (1 foot) from the rumble strip to the traveled way, 1.2 m (4 feet) from the rumble strip to the outside edge of paved shoulder, or 1.5 m (5 feet) to adjacent guardrail, curb or other obstacle. If existing conditions preclude achieving the minimum desirable clearance, the width of the rumble strip may be decreased or other appropriate alternative solutions should be considered.

Increased Lane Width

Wide curb lanes for bicycle use are usually preferred where shoulders are not provided, such as in restrictive urban areas. On highway sections without designated bikeways, an outside or curb lane wider than 3.6 m (12 feet) can better accommodate both bicycles and motor vehicles in the same lane and thus is beneficial to both bicyclists and motorists. In many cases where there is a wide curb lane, motorists will not need to change lanes to pass a bicyclist. Also, a wide curb lane provides more maneuvering room when drivers are exiting from driveways or in areas with limited sight distance.

In general, 4.2 m (14 feet) of usable lane width is the recommended width for shared use in a wide curb lane. Usable width normally would be from edge stripe to lane stripe or from the longitudinal joint of the gutter pan to lane stripe (the gutter pan should not be included as usable width). On stretches of roadway with steep grades where bicyclists need more maneuvering space, the wide curb lane should be slightly wider where practicable [4.5 m (15 feet) is preferred]. The 4.5-m (15-foot) width may also be necessary in areas where drainage grates, raised reflectors on the right-hand side of the road, or on-street parking effectively reduce the usable width. With these exceptions in mind, widths greater than 4.2 m (14 feet) that extend *continuously* along a stretch of roadway may encourage the undesirable operation of two motor vehicles in one lane, especially in urban areas, and therefore are not recommended. In situations where more than 4.5 m (15 feet) of pavement width exists, consideration should be given to striping bike lanes or shoulders.

Restriping to provide wide curb lanes may also be considered on some existing multi-lane facilities by making the remaining travel lanes and left-turn lanes narrower. This should only be considered after careful review of traffic characteristics along the corridor and supported by a documented engineering analysis based on applicable design criteria.

On-Street Parking

On-street parking increases the potential for conflicts between motor vehicles and bicyclists. The most common bicycle riding location on urban roadways is in the area between parked cars and moving motor vehicles. Here, bicyclists are subjected to opening car doors, vehicles exiting parking spaces, extended mirrors that narrow the travel space, and ob-

scured views of intersecting traffic. Therefore, 3.6 m (12 feet) of combined bicycle travel and parking width should be the minimum considered for this type of shared use.

Pavement Surface Quality

The smoothness of the riding surface affects the comfort, safety and speed of bicyclists. Pavement surface irregularities can do more than cause an unpleasant ride. Pavement surfaces should be smooth, and the pavement should be uniform in width. Wide cracks, joints or drop-offs at the edge of traveled way parallel to the direction of travel can trap a bicycle wheel and cause loss of control; holes and bumps can cause bicyclists to swerve into the path of motor vehicle traffic. In addition, a reduction in the operating speed of the bicyclist below a comfortable level results in less stability of the bicycle. As pavements age it may be necessary to fill joints or cracks, adjust utility covers or even overlay the pavement in some cases to make it suitable for bicycling.

Drainage Inlet Grates

Drainage inlet grates and utility covers are potential obstructions to bicyclists. Therefore, bicycle-safe grates should be used, and grates and covers should be located in a manner which will minimize severe and/or frequent maneuvering by the bicyclist. When new highway facilities are constructed, curb opening inlets should be considered to minimize the number of potential obstructions. Drainage inlet grates and utility covers should be placed or adjusted to be flush with the adjacent pavement surface.

Drainage inlet grates with slots parallel to the roadway, or a gap between the frame and the grate, can trap the front wheel of a bicycle, causing loss of steering control. If the slot spacing is wide enough, narrow bicycle wheels can drop into the grates. Conflicts with grates may result in serious damage to the bicycle wheel and frame and/or injury to the bicyclist. These grates should be replaced with bicycle-safe, hydraulically-efficient versions. When this is not immediately possible, a temporary correction is to weld steel cross straps or bars perpendicular to the parallel bars at 100-mm (4-inch) center-to-center maximum spacing to provide a maximum safe opening between straps.

While identifying a grate with pavement markings would be acceptable in some situations, as indicated in the *MUTCD*[2], bar grates with bars parallel to the direction of travel deserve special attention. Because of the serious consequences of a bicyclist missing the pavement marking in the dark or being forced over such a grate inlet by other traffic, these grates should be physically corrected, as described above, as soon as practicable after they are identified.

Signed Shared Roadways

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

a. The route provides continuity to other bicycle facilities such as bike lanes and shared use paths.

b. The road is a common route for bicyclists through a high demand corridor.

c. In rural areas, the route is preferred for bicycling due to low motor vehicle traffic volume or paved shoulder availability.

d. The route extends along local neighborhood streets and collectors that lead to an internal neighborhood destination such as a park, school or commercial district.

Bike route signs may also be used on streets with bike lanes, as well as on shared use paths. Regardless of the type of facility or roadway where they are used, it is recommended that bike route signs include destination information, as shown in Figure 4.

Signing of shared roadways indicates to cyclists that there are particular advantages to using these routes compared to alternate routes. This means the responsible agencies have taken action to ensure these routes are suitable as shared routes and will be maintained.

The following criteria should be considered prior to signing a route:

a. The route provides through and direct travel in bicycle-demand corridors.

b. The route connects discontinuous segments of shared use paths, bike lanes and/or other bike routes.

c. An effort has been made to adjust traffic control devices (e.g., stop signs, signals) to give greater priority to bicyclists on the route, as opposed to alternative streets. This could include placement of bicycle-sensitive detectors where bicyclists are expected to stop.

d. Street parking has been removed or restricted in areas of critical width to provide improved safety.

e. A smooth surface has been provided (e.g., adjust utility covers to grade, install bicycle-safe drainage grates, fill potholes, etc.)

f. Maintenance of the route will be sufficient to prevent accumulation of debris (e.g., regular street sweeping).

g. Wider curb lanes are provided compared to parallel roads.

Figure 3. Example of a Signed Shared Roadway

h. Shoulder or curb lane widths generally meet or exceed width requirements included under *Shared Roadways*, page 17.

Designating Sidewalks as Signed Bikeways

In general, the designated use of sidewalks (as a signed shared facility) for bicycle travel is unsatisfactory. (See *Undesirability of Sidewalks as Shared Use Paths*, page 58.)

It is important to recognize that the development of extremely wide sidewalks does not necessarily add to the safety of sidewalk bicycle travel, since wide sidewalks encourage higher speed bicycle use and increase potential for conflicts with motor vehicles at intersections, as well as with pedestrians and fixed objects.

Sidewalk bikeways should be considered only under certain limited circumstances, such as:

a. To provide bikeway continuity along high speed or heavily traveled roadways having inadequate space for bicyclists, and uninterrupted by driveways and intersections for long distances.

b. On long, narrow bridges. In such cases, ramps should be installed at the sidewalk approaches. If approach bikeways are two-way, sidewalk facilities also should be two-way.

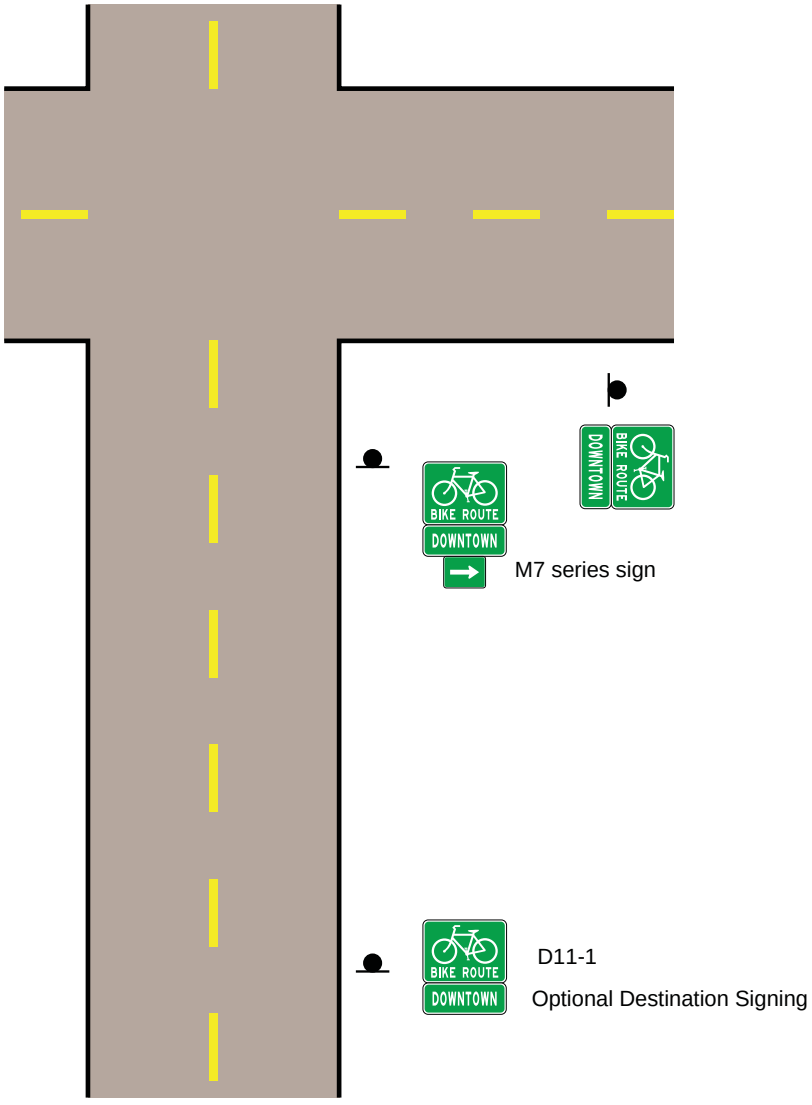
Whenever sidewalk bikeways are established, unnecessary obstacles should be removed. Whenever bicyclists are directed from signed shared roadways to sidewalks, curb cuts should be flush with the street to assure that bicyclists are not subjected to problems associated with crossing a vertical lip at a flat angle. Curb cuts at every intersection are necessary, as well as bikeway yield or stop signs at uncontrolled intersections. Curb cuts should be wide enough to accommodate adult tricycles and two-wheel bicycle trailers.

In residential areas, sidewalk riding by young children is common. With lower bicycle speeds and lower cross street auto speeds, potential conflicts are somewhat lessened, but still exist. Nevertheless, this type of sidewalk bicycle use is accepted. It is inappropriate to sign these facilities as bicycle routes. In general, bicyclists should not be encouraged through signing to ride facilities that are not designed to accommodate bicycle travel.

Signing of Shared Roadways

Typical bicycle route signing is shown in Figure 4. For these signs to be more functional, supplemental destination plates should be placed beneath them when located along routes leading to high demand destinations (e.g., “To Downtown”, “To State College”, etc.).

There are instances where it is necessary to sign a route to direct bicyclists to a logical destination; however, the route does not offer any of the above signed shared roadway criteria. In such cases, the route should not be signed as a bike route, although destination signing may be advisable. A typical application of destination signing would be where bicyclists are directed off a highway to bypass a section of freeway. Special signs would be placed to guide bicyclists to the next logical destination, much as motorists would be directed if a highway detour were required. In urban areas, signs typically would be placed every 500 m (approximately every 1/4 mile), at all turns, and at major signalized intersections.



In urban areas, signs should be placed every 500 m (approx. 1/4 mile), at every turn, and at all signalized intersections.

Figure 4. Typical Signed Shared Route Signing

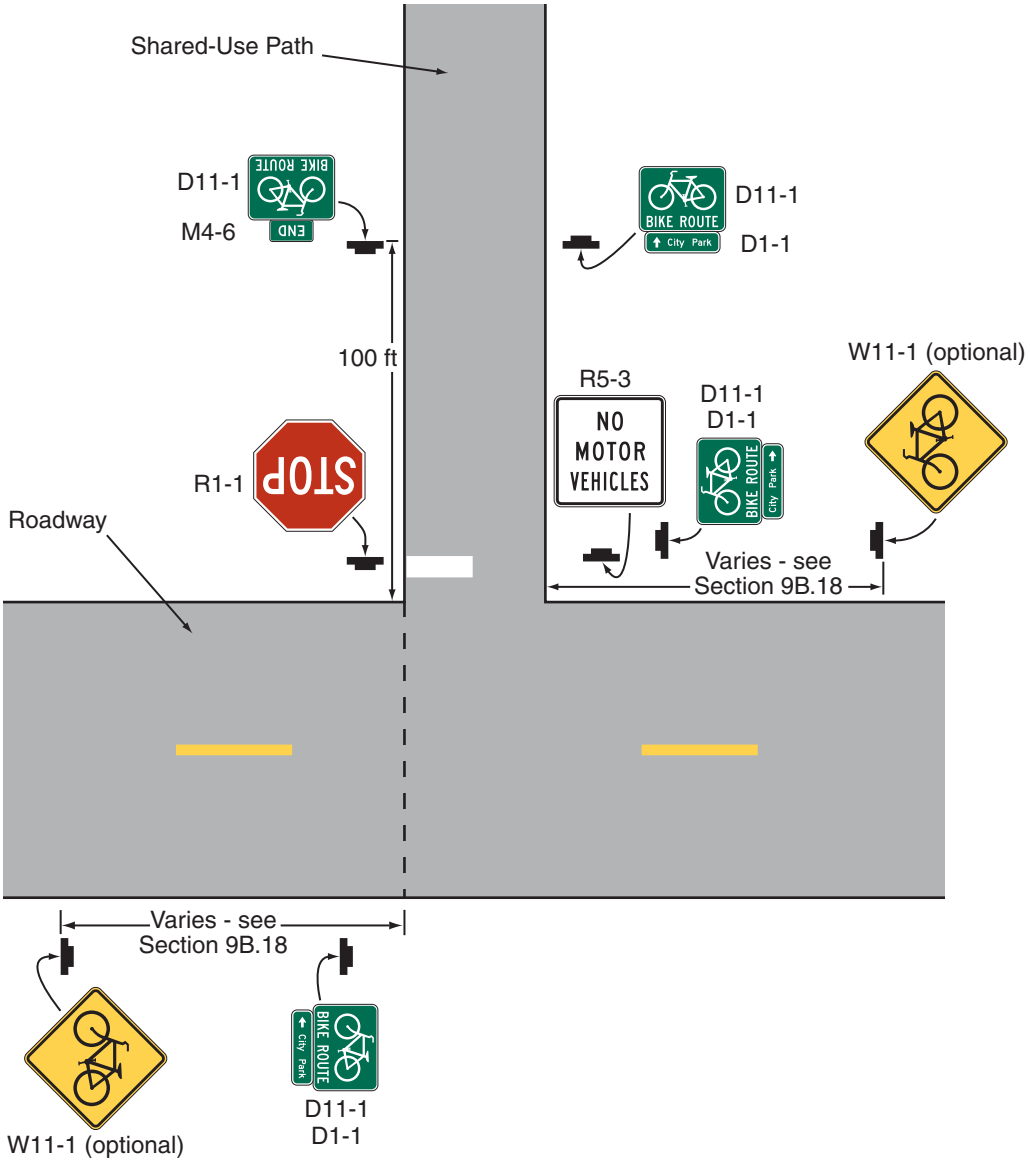
Appendix E: Manual on Uniform Traffic Control Devices (MUTCD)

Excerpts from Part 9: Traffic Control for Bicycle Facilities

While other sections of the 2009 MUTCD contain guidance about bicycle facilties, the bulk of the information is contained in Part 9, some of which is included in this Appendix. This document is the industry-standard guidance on signage and pavement markings, and the 2009 version was the first to encourage the use of pavement markings known as "sharrows" at a federal level. If a new MUTCD version is available at the time of implementation of any phase of this plan, the newest version should be consulted for final designs.

The entire document can be found at:
http://mutcd.fhwa.dot.gov/

Figure 9B-5. Example of Signing for the Beginning and End of a Designated Bicycle Route on a Shared-Use Path



04 *Where a designated bicycle route extends through two or more States, a coordinated submittal by the affected States for an assignment of a U.S. Bicycle Route number designation should be sent to the American Association of State Highway and Transportation Officials (see Page i for the address).*

Standard:

05 **The U.S. Bicycle Route (M1-9) sign (see Figure 9B-4) shall contain the route designation as assigned by AASHTO and shall have a black legend and border with a retroreflectorized white background.**

Guidance:

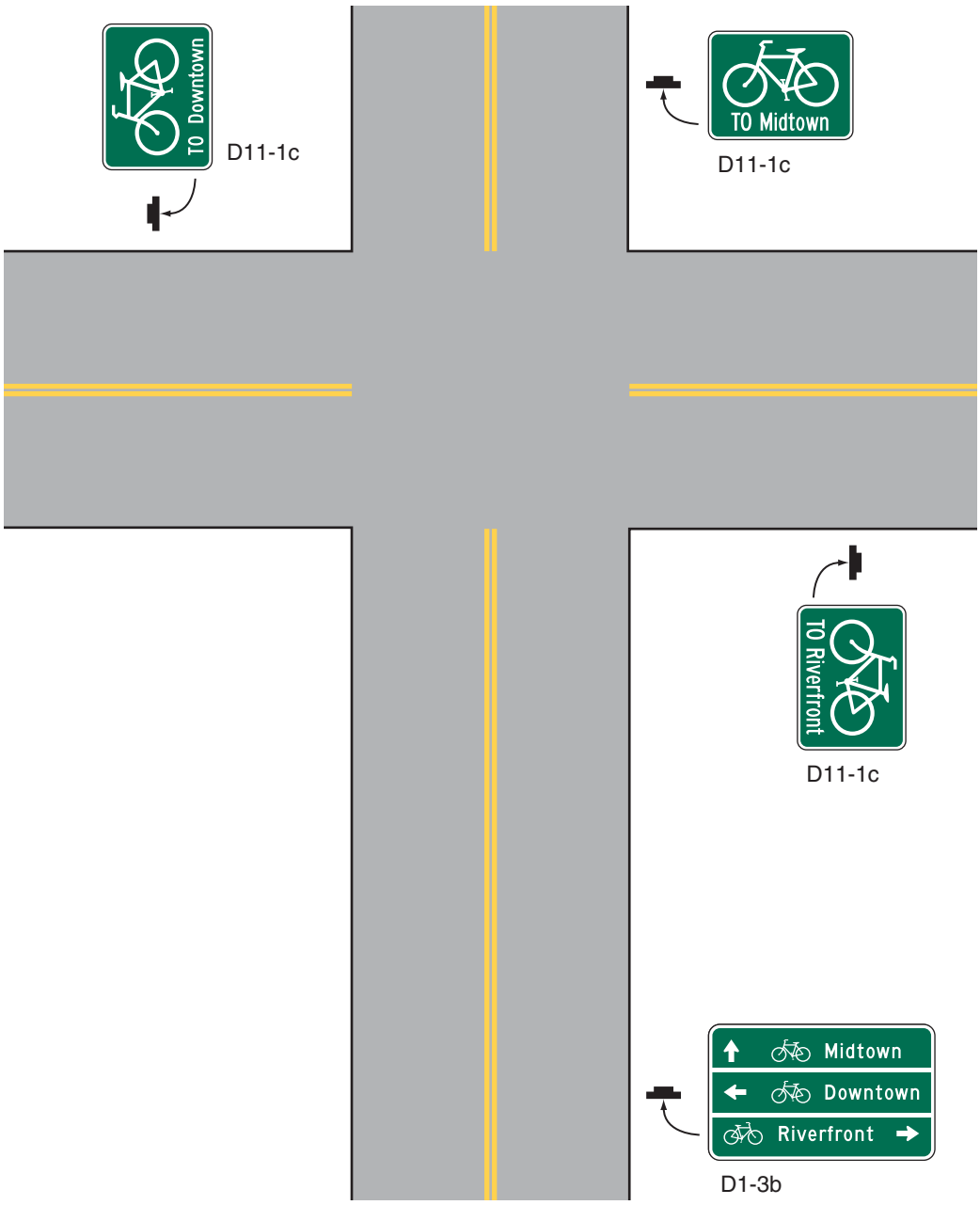
06 *If used, the Bicycle Route or U.S. Bicycle Route signs should be placed at intervals frequent enough to keep bicyclists informed of changes in route direction and to remind motorists of the presence of bicyclists.*

Option:

07 Bicycle Route or U.S. Bicycle Route signs may be installed on shared roadways or on shared-use paths to provide guidance for bicyclists.

08 The Bicycle Route Guide (D11-1) sign (see Figure 9B-4) may be installed where no unique designation of routes is desired.

Figure 9B-6. Example of Bicycle Guide Signing



Section 9B.22 Bicycle Route Sign Auxiliary Plaques

Option:

01 Auxiliary plaques may be used in conjunction with Bike Route Guide signs, Bicycle Route signs, or U.S. Bicycle Route signs as needed.

Guidance:

02 *If used, Junction (M2-1), Cardinal Direction (M3 series), and Alternative Route (M4 series) auxiliary plaques (see Figure 9B-4) should be mounted above the appropriate Bike Route Guide signs, Bicycle Route signs, or U.S. Bicycle Route signs.*

03 *If used, Advance Turn Arrow (M5 series) and Directional Arrow (M6 series) auxiliary plaques (see Figure 9B-4) should be mounted below the appropriate Bike Route Guide sign, Bicycle Route sign, or U.S. Bicycle Route sign.*

04 *Except for the M4-8 plaque, all route sign auxiliary plaques should match the color combination of the route sign that they supplement.*

Figure 9B-7. Examples of Signing and Markings for a Shared-Use Path Crossing

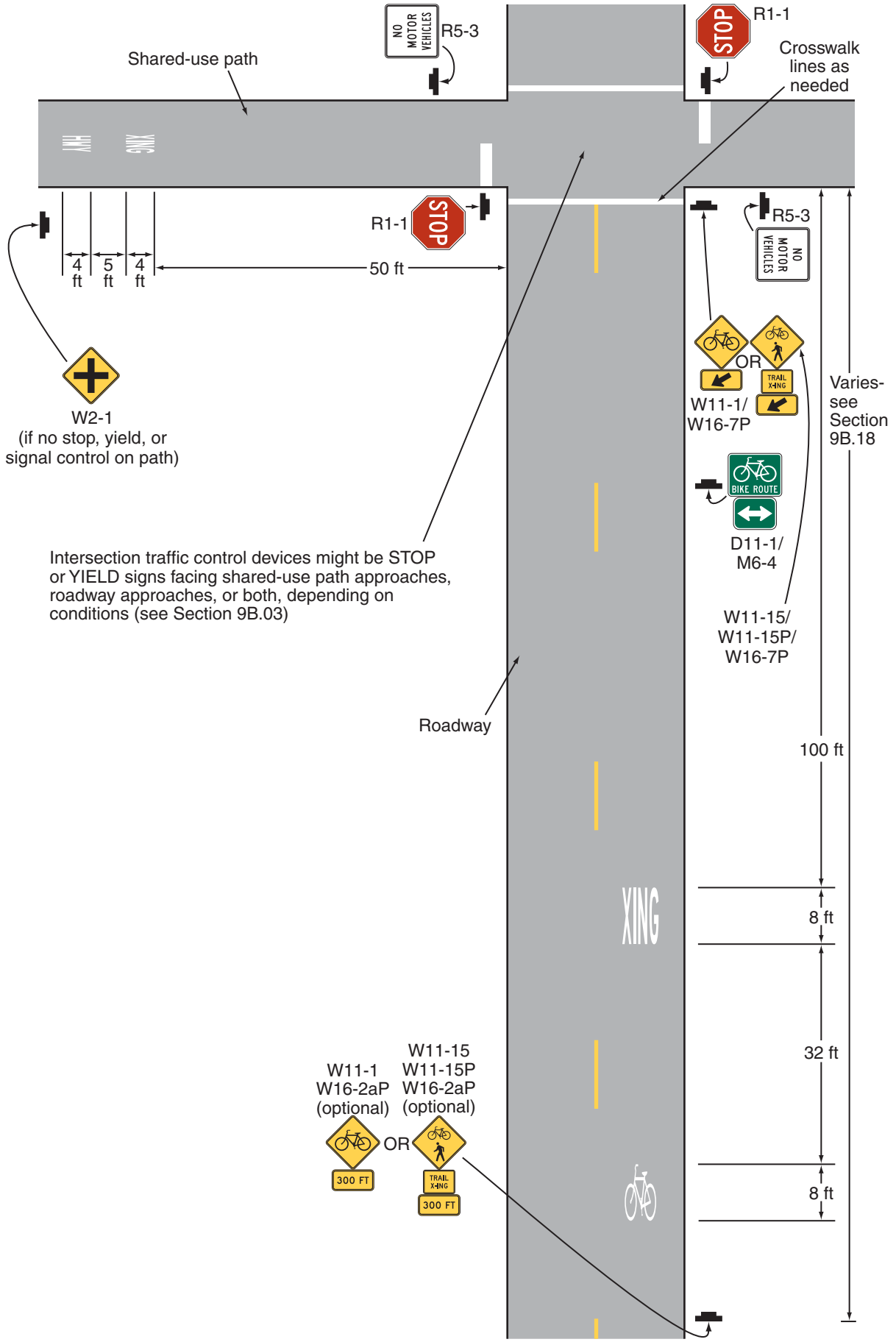
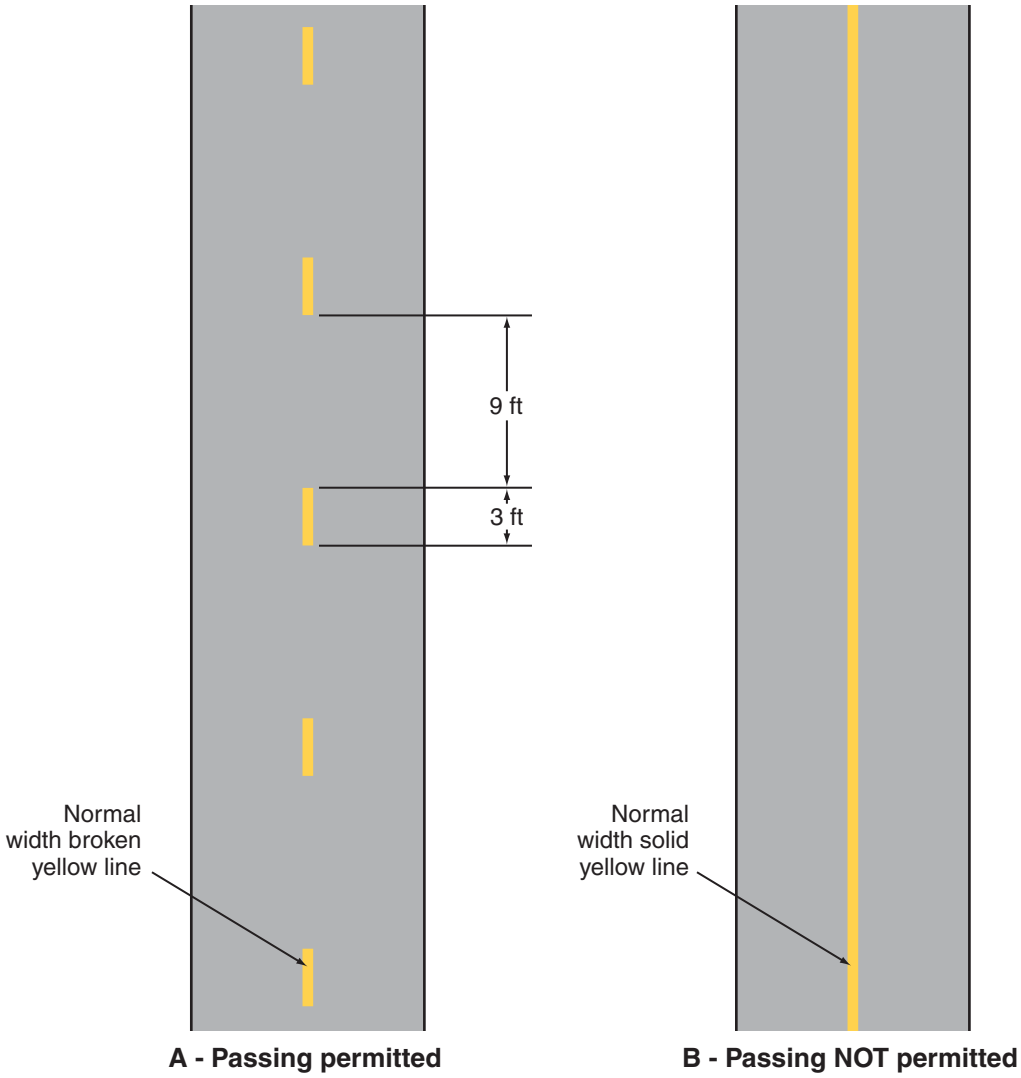


Figure 9C-2. Examples of Center Line Markings for Shared-Use Paths



Standard:

04 **If the bicycle lane symbol marking is used in conjunction with word or arrow messages, it shall precede them.**

Option:

05 If the word, symbol, and/or arrow pavement markings shown in Figure 9C-3 are used, Bike Lane signs (see Section 9B.04) may also be used, but to avoid overuse of the signs not necessarily adjacent to every set of pavement markings.

Standard:

06 **A through bicycle lane shall not be positioned to the right of a right turn only lane or to the left of a left turn only lane.**

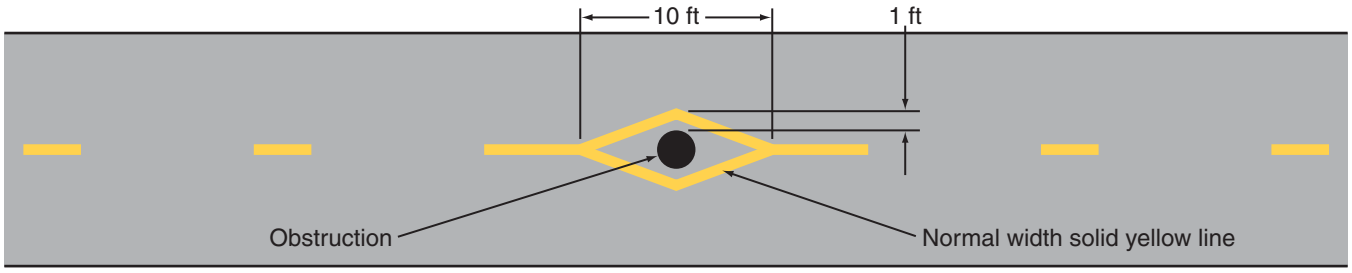
Support:

07 A bicyclist continuing straight through an intersection from the right of a right-turn lane or from the left of a left-turn lane would be inconsistent with normal traffic behavior and would violate the expectations of right- or left-turning motorists.

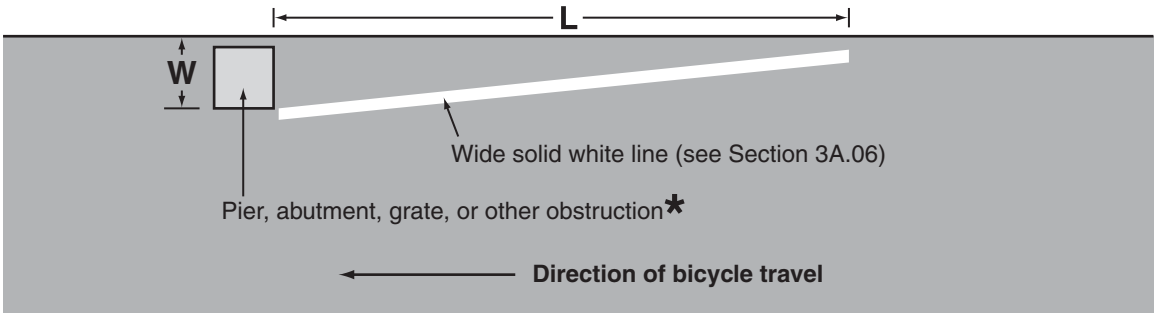
Guidance:

08 *When the right through lane is dropped to become a right turn only lane, the bicycle lane markings should stop at least 100 feet before the beginning of the right-turn lane. Through bicycle lane markings should resume to the left of the right turn only lane.*

Figure 9C-8. Examples of Obstruction Pavement Markings



A - Obstruction within the path

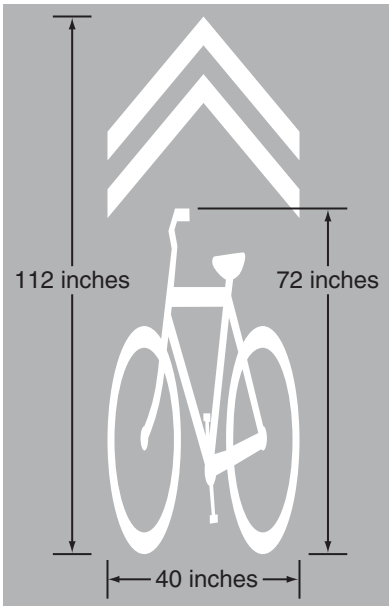


B - Obstruction at edge of path or roadway

L = WS, where W is the offset in feet and S is bicycle approach speed in mph

* Provide an additional foot of offset for a raised obstruction and use the formula L = (W+1) S for the taper length

Figure 9C-9. Shared Lane Marking



Appendix f: Rail-With-Trail References

Two documents with extensive rail-with-trail (RWT) reference information will provide vaulable information during implementation of Phase 3 of this plan. To save on the length of this plan, their links have been included in this Appendix (see below).

The first is Rails-with-Trails: Design, Management, and Operating Characteristics of 61 Trails Along Active Rail Lines (Rails-to-Trails Conservancy) and the second is Rails-with-Trails: Lessons Learned (Alta Planning + Design and the U.S. Department of Transportation).

The entire documents should be consulted for a more detailed understadning of the benefits of this type of facility, as well as understading lessons-learned from other RWT's.

Both documents are available on-line courtesy of the Rails To Trails Conservancy:

- http://www.railstotrails.org/ourWork/trailBuilding/toolbox/informationSummaries/rails-with-trails.html
- http://www.railstotrails.org/resources/documents/resource_docs/Rails-with-Trails%20Report%20reprint_1-06_lr.pdf
- http://www.fhwa.dot.gov/environment/rectrails/rwt/index.htm

Appendix G: Trail Construction and Maintenance Notebook: Trails in Wet Areas

This is a U.S. Department of Transportation Federal Highway Administraion document detailing the recommended options for constructing trails in wet areas. While there are other alternatives not detailed in this document, it is an excellent reference document that should be consulted during implementation.

Trail Construction and Maintenance Notebook

Trails in Wet Areas

Very few critters like to get their feet wet. There are a few exceptions, of course. Otters, beavers, goofy retriever dogs, motorcyclists, and most young children like to jump right in. But the rest of us--horses, llamas, and stodgy adult hikers--will often go to great lengths to avoid getting our feet wet or going for an unplanned swim. This section deals with a range of options for getting trail traffic from one side of wet ground to the other.

Because nearly every technique for fixing trails in boggy areas is expensive and needs to be repeated periodically, ***relocating*** the problem section of trail should be considered first. Scouting for suitable places to relocate trails and reviewing soil maps will be time well spent. The alternative route should bypass extensive boggy areas, be on a slope for better drainage, and have mineral rather than organic soil for its tread. Don't reroute a problem section of trail to another boggy piece of ground. If you do, the result will be two problem sections instead of one.

Sometimes, ***improved drainage*** will cure the problem. If so, this is a much less costly solution than other alternatives. Placing ***stepping stones*** is another technique for crossing bogs and streams. Stepping stones should be large, fairly flat on top, and partially buried in the streambed. Space the stones for the average stride, remembering that trails are for kids, too. It shouldn't be necessary to jump from stone to stone.

Moving up in cost and complexity, two types of structures--***turnpike and puncheon***--are commonly constructed to provide dry trails through wet or boggy areas. Using ***geosynthetics*** in combination with these techniques can often result in a better tread with less fill. Rock and fill ***causeways*** are popular in some areas where hardened trails are needed to cross fragile alpine meadows.

In situations where long spans are needed high above the ground, or for crossing streams, a ***trail bridge*** is usually needed instead of puncheon. Bridges require special designs fitted to each application. Engineering approval is needed before constructing either a standard or special design bridge.

Boardwalks are common in some parts of the country, particularly parts of Alaska and in the Southeast. These can range from fairly simple structures placed on boggy surfaces, to elevated boardwalks over marshes or lake shores, as are sometimes found at interpretive centers (Figure 25).

Figure 25--This boardwalk relies on pilings for support. Helical earth anchors can also support the structure.

Let's look at some of these alternatives in more detail.

Improving Drainage

Although an area may appear perfectly flat, often it will have a slight gradient and flow of water. Drainage ditches and culverts can help ensure that water drains off the trail.

Generally, ***ditches*** are at least 300 mm (12 in) deep, have flat bottoms, and side slopes of 1:1. In many cases, the ditch can be extended beyond the wet area to capture water that might flow onto the trail (Figure 26).

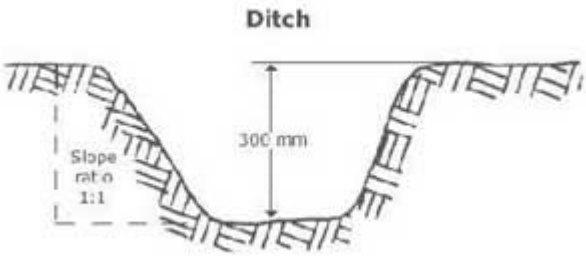


Figure 26--Ditches are a simple and effective way to drain wet areas. Slope angle and depth vary with soil and water conditions.

The simplest way to get water across a trail is to cut a trench across it. These ***open-top cross drains*** (Figure 27) can be reinforced with rocks or treated timbers to help keep them from caving in. These structures are not usually a good alternative because people and stock stumble on them. One way to reduce this risk is to make the ditch wide enough, at least 600 mm (2 ft), so stock will step in it rather than over it (Figure 28).

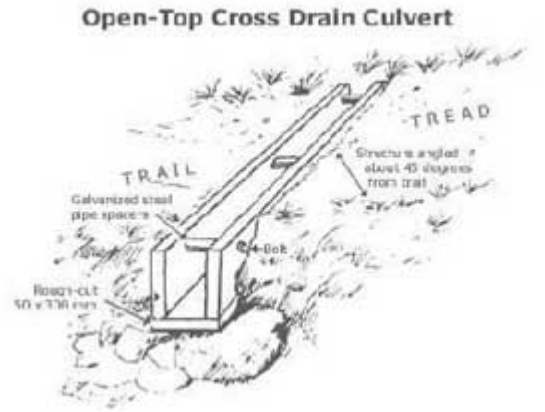


Figure 27--Open-top cross drains of culverts are not

often chosen because they are a hazard to livestock, hikers, and bikers.

Figure 28--Wide cross drain and causeway

An open drain can be filled with gravel. This is called a French drain. Start with larger pieces of rock and gravel at the bottom, topping off with smaller aggregate (Figure 29). French drains are often used to drain a spring or seep from under a trail bed.

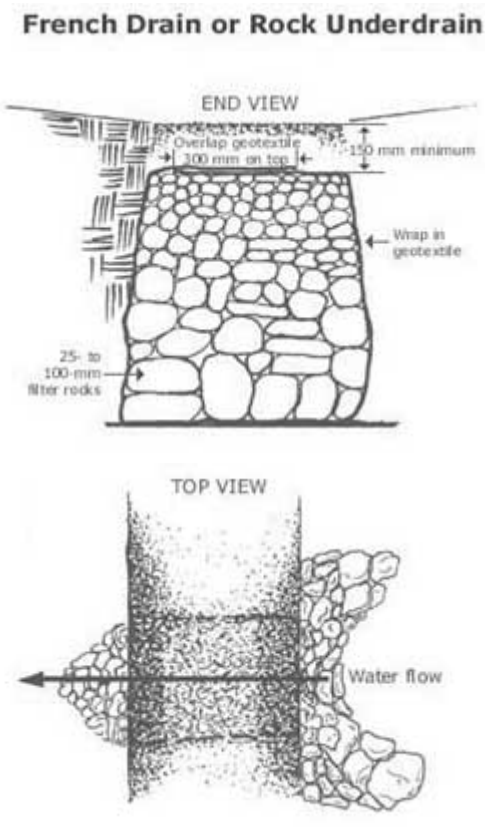


Figure 29--Wrapping French drains with geotextile helps prevent clogging. These are used to drain low-flow springs and seeps.

Culverts are probably the best way to move small volumes of water across a trail. They have a big advantage over open top cross ditches because the tread extends over the culvert without interruption (Figure 30). Metal or plastic culverts can be installed easily, or the culverts can be constructed out of rock. Dig a ditch across the trail as wide as the culvert and somewhat deeper.

Figure 30--Culverts need to be installed at a sharp enough angle to prevent sediment from being deposited.

Bed the culvert in native soil shaped to fit the culvert. There also needs to be sufficient drop, about 3 percent, from one side to the other so water will flow through the culvert without dropping sediment. The culvert needs to be covered with 150 mm (6 in) or more of fill. Cut the culvert a little longer than the trail width, and build a rock facing around each end to shield it from view and prevent it from washing loose. Often a rock-reinforced spillway will reduce headcutting and washouts.

The local trail manager may have definite preferences for metal, plastic, wood, or rock culverts. Synthetic materials may be taboo in wilderness. Plastic is often preferable to metal because it is lightweight, easy to cut, and less noticeable. Painting the ends of aluminum or steel culverts helps camouflage them. Use a culvert with a diameter large enough to handle maximum storm runoff and to be accessible for cleaning with a shovel or combination tool. Usually this means at least a 260-mm (9-in) diameter culvert.

Rock culverts offer a chance to display some real trail skills. Begin by laying large, flat stones in a deep trench to form the bottom of the culvert. In some installations, these bottom rocks may not be necessary. Then install large, well-matched stones along either side of the trench. Finally, span the side rocks with more large, flat rocks placed tightly together, enough to withstand the expected trail use. Cover the top rocks with tread material to hide and protect the culvert. These culverts, too, need to be large enough to clean out easily. The rocks should not wiggle (Figure 31).

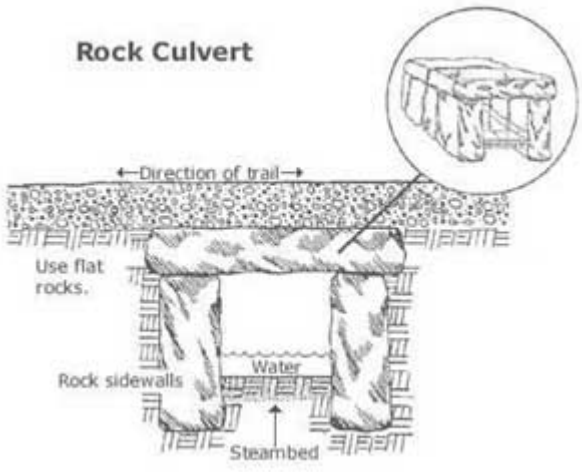


Figure 31--Rock culverts may also have stones laid along the bottom of the culvert. The perfect rocks shown here are seldom found in nature, except reportedly in Southwestern sandstone.

Water flowing toward a culvert often carries a lot of silt. If the water slows as it goes under the trail, the silt may settle out and clog the culvert. A good way to help prevent this from happening is to construct a ***settling basin*** at the inlet to the culvert (Figure 32). This is a pit at least 300 mm (1 ft) deeper than the base of the culvert. It can be lined with rocks as desired. The idea is that sediment will settle out here, where it is much easier to shovel away, rather than inside the culvert.

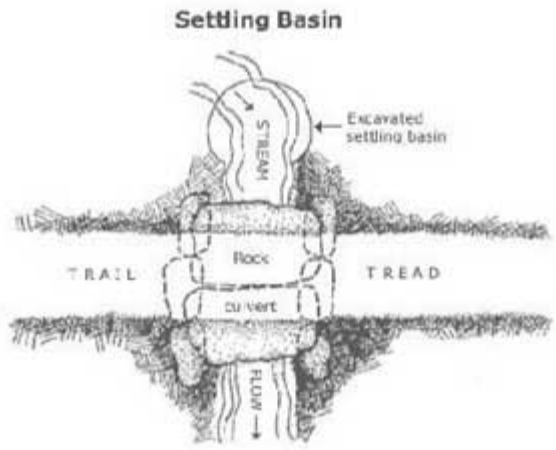


Figure 32--Settling basins help prevent culvert clogging.

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This page last modified on September 28, 2004

Appendix H: Draft Plan Feedback

This Appendix includes the sign-up sheet and comment sheets from the public open house held at Carlyle City Hall on June 23rd, 2010 along with information contributed to the planning team by various Illinois Department of Natural Resource staff. If possible, all of the suggestions, comments and revisions suggested in the following pages were incorporated into the plan document.

CARLYLE LAKE TRAIL PLAN: Open House
June 23rd 6:30pm
Carlyle City Hall

PLEASE SIGN IN:

	NAME	E-MAIL
1.	Robert S Wilkins	Robert.Wilkins@usace.army.mil
2.	Christi Persinc	cpersinc@charterinternet.com
3.	Bonnie Huels	bhuels@kaskaskia.edu
4.	Denise Lueking	dclueking@yahoo.com
5.	Deanne Schroeder	dlschroeder51@hotmail.com
6.	Don Vogel	
7.	Gary Knollhoff	gknollhoff@ezeeweb.com
8.	Dave Amos McCoy	dkmccoy96@yahoo.com
9.	[illegible]	Highway@Clintonco.Illinois.gov
10.	Daniel Ruppel	
11.	Bees Jaegera	
12.	Craig Roper	craig59@frontiernet.net
13.	Tim Bruening	brueningr3@aol.com
14.	BRIAN ARENTSEN	lini_89@yahoo.com
15.	Joe Smothers	Joseph.Smothers@usace.army.mil
16.	MARLA GURSH	marlagursh@illinois.gov
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22.	Mary Grappendorf	mgrapper@hotmail.com
23.	Dave Doetsch	dhdoetsch@yahoo.com
24.	Ric Golding	westaccess@charter.net
25.	Kim Hammel	Kim.Hammel@USACE.Army.Mil
26.	Linda Showers	lindamariem@msn.com
27.	Scott Rakers	srakers@hmgengineers.com
28.	Larry Tate	ltate[illegible]@yahoo.com
29	Pamela Campbell	irunpc@frontiernet.net

Carlyle Lake Trail Plan - DRAFT

Public Open House - June 23, 2010
6:30 pm Carlyle City Hall

Comment Sheet

Please take a few moments to fill out this comment sheet and include your feedback on the draft of the Carlyle Lake Trail Plan. Your assitance is vital in the creation of a truly comprehensive plan for the Carlyle Lake region.

You may also mail this comment form to:
Bill Gruen, City Administrator
City of Carlyle
850 Franklin Street
Carlyle, IL 62231

Great - Idea - Long Term will in process
It would be helpful to prioritize among all agencies / municipalities, etc signage for the Trail Map as it is being shared at the Visitor Center currently.
Some road signs and intersections do not match map or are not present
Corner of 000 E / 700 N in Fayette Co
300 E / 400 E / 900 N also confusing - Fayette, I think.

Bond ?. 200 N - 2000 E / Twentieth

Cedl Ave is spotty in some areas
Road tar / chip rock a problem on hot days

But I like the plan.

Wednesday's meeting was the first time I had seen the plan and I was very excited. I am a cycling enthusiast and I look forward to riding these routes.

I believe your plan is excellent and if I can help in any way please let me know.

Some of my favorite parts are these :

> Sections of the route that will provide views of the lake and other areas that are scenic and remote. I believe lack of access to these areas has been a major obstacle in building tourism to Carlyle Lake.
>
> Shortening the trip around the lake to 30-40 miles from the 60 it takes now.
> 60 is a bit much, especially when considering the fact that there is no good rest stop between Boulder and Keyesport.

I believe that this will be wildly popular. I say that because I believe it will be superior to many paths in the metro east. Air quality for example, the river routes around Madison county take you near refineries and other industrial polluters. Traffic, even the bike paths north of Alton are so close to fast moving traffic that it greatly reduces the enjoyment. Also, it's circular nature is preferred to a trip down a path then turning around and returning on the same path.

Thank you,
Tim Bruening
525 N 7th
Breese, IL
bruenings3@aol.com

As a resident of Carlyle (and as an avid cyclist), I am excited and grateful for the possibilities here. I have ridden nearly all of the areas that you have mapped and I think you've really made some great decisions.

Draft Likes:

- Your use of existing roads. (They are good roads for cycling & should keep the cost down).
- Putting chip & seal on the levee at South Shore Park.
- Going out the backside (the North side) of Hazlet State Park.
- All the bridges. (Cyclists ride for the view. The place that I see cyclists most often in Carlyle is on the dam. These bridges could be a draw for cycling-tourism—e.g Tunnel Hill State Trail & the Chain of Rocks Bikeway).
- The trails on both sides of the spillway.
- The crossing of the lake @ Keyesport & Boulder!!!
- Your attempt to keep it close to the lake.
- The idea of a loop. (Most trails don't do this. Loops are much more preferable than just going "Out & Back" or parking cars in two locations).
- The possibility of my property value increasing. (I think people want to live where amenities like these exist).
- Are you going through the culvert under U.S. 50 @ General Dean Bridge? (Pretty cool idea).
- The crossing of the wetlands @ Cox Bridge Access Area. (This gives multiple options for routes).
- The development of trails on the west-side of the lake/south of Keyesport. This is a pretty area most people don't get a chance to see.

Draft Concerns:

- There is no water availability from Keyesport to Boulder. (When I circumnavigated the lake a few years ago, I got a Coke at the Boulder marina & some water at Dean's in Keyesport. In between... I suffered because I ran out of water).
- A sufficient way to inform riders when routes might be covered with high water.
- Getting lost on the north side of the lake. This course will have to be clearly marked there. (It's the boondocks). LOTS OF DEAD ENDS THERE, TOO.
- Road surfaces: *The roads on the Northeast portion of the route (from Shobonier to Cox Bridge Access Area) are rough.
  *There's a metal-grate bridge on the North-South road near the Patoka Boat Access Area. (That might be tough on road tires).
  *The rocks on the Keyesport levee are very rough.

You guys have really done a great job. I like what's already been constructed and I love the ultimate plan. I'm not only excited for my own benefits, I think that this might be a boon for Carlyle and I think it can be a "feather in the cap" for the region. I have travelled to ride on other bike trails—if completed as planned, this trail would top all I've been on (and other cyclists would surely mark Carlyle Lake as a destination).

P.S. A crossing @ Steve Creek would be a nice touch if you did not want to go all the way north to Shobonier. (It looks like some roads are already there, but I realize that a bridge might be needed over the Kaskaskia).

Thanks for your efforts. If I can help you in any fashion, please let me know...

Brian Arentsen
594-8452

Brian J Arentsen

Megan Riechmann

Subject: FW: Carlyle Lake Bike Trail Meeting - EMR Issues

From: Mike Dreslik [mailto:dreslikmj@gmail.com]
Sent: Tuesday, June 29, 2010 4:16 PM
To: admin@playandstaycarlyle.com; Megan Riechmann; Joseph.Smothers@usace.army.mil; robert.Wilkins@usace.army.mil; Gary.Tatham@Illinois.gov; ed.weilbacher@il.usda.gov; Rich.Lewis@Illinois.gov; Joe.Kath@Illinois.gov
Subject: Carlyle Lake Bike Trail Meeting - EMR Issues

Hello all,

Thanks for letting me sit in. I only really have concerns with three parts in the Phase I plan. The remainder of the plan seems to be outside and away from EMR populations and habitat. I have attached an image where I have outlined three alternate corridors that should avoid EMR impacts.

Area 1:
This area is approaching the largest known hibernacula in the state. Our studies of movement on the species have found some individuals will leave the South Shore site and travel along the roadway in the restored area between the agricultural fields and to the south of the road. With that in mind, I would recommend not disturbing this stretch of habitat along the south of the road. Instead I would recommend the corridor be shifted to the north of the South Shore Road alignment.

Area 2:
The proposed alignment will cause issues with the Dam East Old Channel hibernacula. I would recommend the path be shifted on more of an angle to the east rather than cut straight north. I have drawn a recommenced alignment on the map. The COE has restored some of the habitat already by clearing autumn olive. Here the path would travel through that woodland and enter around the entrance to McNair Recreation Area.

Area 3:
In the north part of Hawn we have had EMR activity with individuals on air and individuals turned in from the subdivision. I can see the proposed alignment follows the existing roadway around the fish hatchery pond. To avoid issues with the EMR I would recommend the path cuts out farther to the east then follows the wooded shoreline northward. Then the path can cut back to meet up with the proposed corridor in the subdivision.

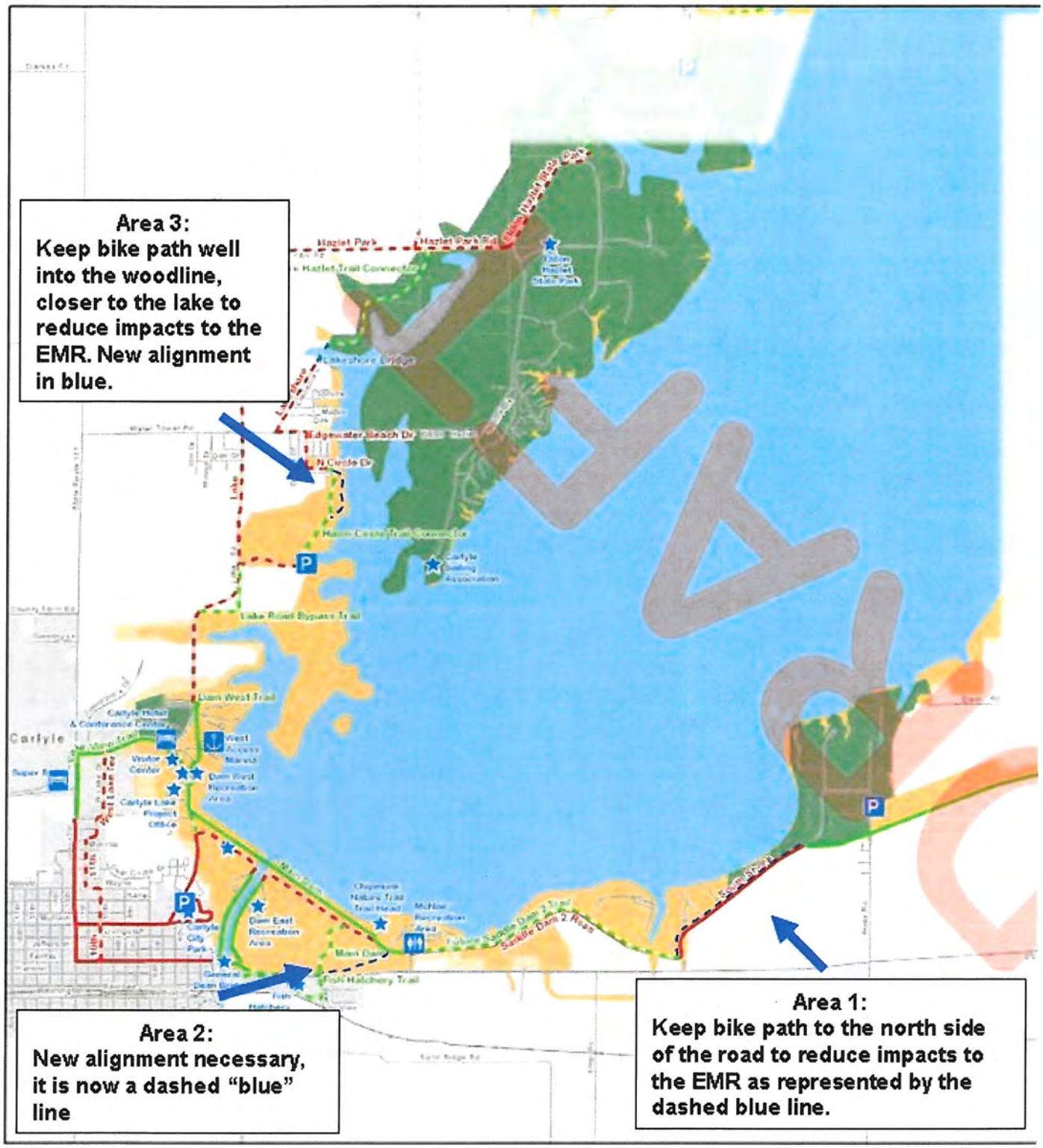
Hope this helps.

Sincerely,

Michael Dreslik

Megan Riechmann

Subject: FW: Carlyle Lake Bike Trail Meeting - EMR Issues



JOE

Comments on the Carlyle Lake Bike Trail

Phase 1:

Fish Hatchery Trail: Part of trail runs though the McNair Hills Area. Conflicting use of the area because hunting is permitted.

Hawn Circle Trail Connector: Conflicting use of the area because hunting is permitted. Cultural resource issues, subject to seasonal flooding, EMR concerns, and conflicting use of the area because hunting is permitted. 404 permits needed.

Lakeshore Bridge: 404 permits needed. Cultural resources issues.

Lakeshore Hazlet Trail Connector: Hunting permitted in this area and conflicts with Bike Trail. Cultural resource issues, subject to seasonal flooding, EMR concerns, and conflicting use of the area because hunting is permitted. 404 permits needed.

Phase2:

Allen Branch Trail South: Cultural resource issues, subject to seasonal flooding, EMR concerns, and conflicting use of the area because hunting is permitted. 404 permits needed.

Allen Branch Bridge: 404 permits needed. Cultural resources issues.

Allen Branch-Hopewell Connector Trail: Hunting permitted in this area and conflicts with Bike Trail. Cultural resource issues, subject to seasonal flooding, EMR concerns, and conflicting use of the area because hunting is permitted. 404 permits needed.

Hopewell-Emerald Connector Trail: Hunting permitted in this area and conflicts with Bike Trail. Cultural resource issues, subject to seasonal flooding, EMR concerns, and conflicting use of the area because hunting is permitted. 404 permits needed. Heavy residential area close to Bike Trail system.

Oak Grove Bridge: 404 permits needed. Cultural resources issues.

Muskrat Flats-Keyesport Connector Trail: Hunting permitted in this area and conflicts with Bike Trail. Cultural resource issues, subject to seasonal flooding, EMR concerns, and conflicting use of the area because hunting is permitted. 404 permits needed.

Phase 3:

No comments until further construction information is provided.

Phase 4:

Cox Bridge: IDNR working on replacement bridge.

Hurricane Creek Bridge: 404 permits needed. Cultural resources issues.

Defer other comments to IDNR.

Phase 5:

Yardley Road-Lake Villa Connector: Hunting permitted in this area and conflicts with Bike Trail. Cultural resource issues, subject to seasonal flooding, EMR concerns, and conflicting use of the area because hunting is permitted. 404 permits needed.

Phase 6:

Defer comments to IDNR.

General Comments:

Eastern Massasauga Rattlesnake (EMR)

EMR's are known to inhabitat several areas along the proposed bike trail route. The snakes may inhabit wetland areas during the fall/winter months and use upland sites for summer foraging and gestation sites during the spring/summer season. EMR wetland habitat shallbe surveyed according to protocol to provide for an adequate hibernacula search. If hibernacula are encountered, then the trail shall avoid that area. These searches are best conducted during the spring emergence from hibernacula or during the mid-August to mid-September timeframe.

Prior to commencing construction silt fencing shall be erected and a search for EMR's shall be conducted throughout the construction area. If EMR's are encountered, they shall be removed from the site and relocated by Corps personnel.

Indiana Bat

Indiana bats are known to use Corps areas during the summer timeframe. All tree clearing shall be limited to 01 October to 1 April as to avoid conflicts with Indiana bat maternal roost sites.