2016 GREENWAY FEASIBILITY STUDY

FFLAG
Fitness For Life Around Grant County

PREPARED FOR FITNESS FOR LIFE AROUND GRANT COUNTY

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CHAPTER 1

EXECUTIVE SUMMARY

As shown in subsequent chapters of this report, the KLC Team concludes that a trail route is feasible in Grant County to connect the northern and southern border of the county with existing infrastructure and future pathways.

A public engagement process enabled the crafting of a vision for the trail in Grant County:

"A 48-mile Greenway that builds health and connects communities."

The concept of a greenway was chosen instead of a trail as a "greenway" is more than just a path on the ground. Greenways incorporate art, education, community building, and much more to become linear parks. This vision, created by residents of Grant County, is intended to build human and environmental health, be a connector of people to each other, their place and the larger region, and a thing of beauty and learning.

This study concludes that there are two essential keys to achieving this vision:

1. Build broad constituencies and partnerships to give as many people as possible an opportunity to get on the Greenway; and
2. Ensure all community actions support the Greenway: the community must work to find ways to connect public and private actions, plans, and investments, to growing the Greenway. This will require community-wide consistency and perseverance.

This study also identifies several obstacles that must be overcome to ensure successful creation of the Greenway. Chief among those is self-perception: the citizens of Grant County must see themselves as living in a "Greenway Community."

This Multi-Surface, Multi-Use Evaluation and Feasibility Study is intended to assist Fitness For Life Around Grant County (FFLAG) as they continue to respond to the ongoing critical need of addressing physical activity. The feasibility study seeks to identify routes and pathways so residents can increase their physical activity and communities can be more connected.

To create the feasibility study, the following steps were employed:

- Developed and distributed a random sample survey entitled "Grant County Multi-Use, Regional Trail Survey."
- Contracted with the Kentucky League of Cities (KLC) who offered a team of experts in public engagement, community planning, and trail development to create this feasibility plan.
- Promoted and hosted three community listening sessions to obtain public input. Specifically asked who possible user groups might be and what type of character the trails should have. Residents were asked to identify potential trail routes and what types of programming would be of most interest.

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- Prepared potential trail and ancillary connecting routes noting amenities and facilities
- Presented the proposed route and answered questions for local elected and community leaders prior to completing the plan.
- Created an implementation plan to address phasing, acquisition, permitting, general operations, maintenance, and funding.
- Provided cost estimates for each phase of the plan.
- Upon entering into a contract with FFLAG, the Kentucky League of Cities, Hicks and Mann Engineers, and Steve Austin and Associates Land Planning undertook a public process to aid in determining the feasibility of such a trail project.
- By December 2016, a complete evaluation and feasibility study for two potential routes for a multi-surface, multi-use pathway were developed. It includes conceptual drawings, a preliminary implementation plan and a budget cost estimate for implementation and sustainment of the pathway.

In Grant County, Kentucky, there is a dire need for safe and efficient pathways. The fact is approximately 5,000 local children start out their school career healthy, and by 10th grade more than 35% are considered clinically obese.[1]

This astounding statistic spurred FFLAG, a community nonprofit organization, to take action. FFLAG is organized as a nonprofit and provides programs, special events and training to improve nutrition and physical fitness for the residents of Grant County.

In partnership with the Northern Kentucky Health Department, FFLAG was awarded funding in 2014 from the Foundation for Healthy Kentucky under the *Investing in Kentucky's Future* initiative. With this funding FFLAG volunteers created a program of work called FFLAG – Starting With Children and developed a business plan to guide their actions. The plan was informed through public forums, classroom discussion with children, key informant interviews and a survey of 2,519 Grant County residents.

One major component of the FFLAG – Starting With Children initiative is to increase the amount of physical activity Grant County children get every day. The plan specifically seeks to increase play spaces and walking routes in order to reduce childhood obesity. By mid-2017 FFLAG and its partners will have implemented all of the objectives in their business plan.

To continue their work beyond the Starting With Children initiative, in early 2016, FFLAG requested proposals[2] for a multi-surface multi-use pathway feasibility study. The scope of work that was requested to be sent in response to the RFP provided the necessary details for the development of a multi-surface, multi-use pathway for Grant County that would connect the northern and southern border of the county with existing infrastructure and future pathways.

In developing a multi-surface, multi-use pathway, a wide range of users – cyclists, walkers, joggers, equestrian riders, and other non-motorized vehicles – will be served. And, the community will derive further health benefits by increasing physical activity via use of the county spanning pathway.

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[1] FFLAG – Starting With Children 2014 Business Plan

[2] FFLAG Pathway Feasibility Study Request for Proposal

CHAPTER 2

BACKGROUND

A. Fitness For Life Around Grant County

A movement to curb childhood obesity began in Grant County when a school teacher noticed a rising trend of obesity with her students. She soon joined with other concerned employees of local schools, various health care professionals, and employees from other social organizations. The core group that came together around this concern established a formal committee of interested people to meet on a regular basis and work to combat the troubling signs of obesity in children.

As they worked together they realized the need for structure and funding, so Fitness for Life Around Grant County (FFLAG) was founded in 2002 as a 501(c)(3) nonprofit organization. The sole mission of FFLAG is to "educate and bring awareness to Grant Countians about physical fitness and healthy lifestyles."

FFLAG began its work by coordinating with the Williamstown Head Start program to increase awareness regarding correct nutrition techniques and the importance of physical activity for residents across the county. By 2004, the Grant County Local Board of Health and the Northern Kentucky Health Department recognized FFLAG as a primary partner. This recognition led to funding dollars to kick-off some early FFLAG programming that continues today.

Another opportunity presented itself to FFLAG when it was selected as a representative for one of 10 Kentucky communities invited to apply for the *Investing in Kentucky's Future* program offered by the Foundation for a Heathy Kentucky. Over an intensive 20-month period, FFLAG developed a business plan to address obesity in children with the assistance of the Kentucky League of Cities and the Northern Kentucky Health Department.

The resultant program, Starting With Children (SWC) Initiative, is a three-year program designed to combat childhood obesity in Grant County by increasing the amount of physical activity opportunities and improve access to nutritious foods to the whole community. FFLAG is currently implementing the program with the final implementation scheduled for mid-2017.

To augment the physical fitness components of the SWC Initiative, FFLAG has now turned its attention to the idea of a multi-surface multi-use pathway traversing the entire county.

The primary role of FFLAG during this new trail initiative is the same as it has been in the SWC work – to generate community involvement, garner local input, and encourage citizens to support and buy into the pathway study. Working alongside FFLAG the Kentucky League of Cities reprised its role as a consulting partner, contracting with Steve Austin, Land Planner and Designer, and Logan Murphy, an Engineer with Hicks and Mann, Inc. Collectively, this Team of partners brings 105+ years of experience in community engagement, land use, and trail development.

"A 48-mile Greenway that builds health and connects communities."

FFLAG was responsible to procure a consistent and safe space for all meetings, set up equipment with A/V technology, follow all legal regulations in regards to notifications for public/open meetings, and to provide snacks and refreshments for participants. The responsibility of advertising and promoting the meetings and generating the need for community involvement also fell to FFLAG.

With previous contacts in place and a desire to connect with residents of the community, FFLAG volunteers distributed more than 9,000 flyers in advance of the first public meeting. In addition to the flyers, FFLAG provided the KLC Team with local contact information and other pertinent documents and information for the facilitation of a successful outcome for FFLAG, Grant County, and its citizens.

FFLAG also developed and conducted a community/user-group survey (details below) that was vital to the efforts of this feasibility study.

B. Survey

Community involvement was paramount to the creation of this feasibility study. The first effort to engage residents in a discussion about trails was through a random sample survey entitled "Grant County Multi-Use, Regional Trail Survey." The survey was created and distributed by FFLAG in the spring of 2016.

The survey was distributed in print and made available online to reach as many Grant County citizens as possible. FFLAG applied three survey methodologies to increase the total survey participation.

1. A central drop location: The Grant County Public Library served as the drop location for the surveys via a survey collection box, and blank surveys were made available for citizens to fill out and leave behind.
2. Personal intercepts: The Northern Kentucky Health Department staff and FFLAG volunteers were trained to administer the survey at special events across Grant County. Volunteers approached residents during back-to-school events, health fairs, school activities, and Chamber of Commerce meetings. Volunteers were trained to randomly ask for survey participation and either walk participants through the survey or fill the survey out for the participants by asking the questions aloud and recording the participant's response.
3. Online survey: FFLAG created an online survey instrument through Survey Monkey, a software tool that is specifically built for surveys and customized for enterprise level options. Out of the 557 total survey respondents, 94% of them supported the idea of a Grant County multi-use regional trail. In addition, 75% of respondents stated that they would use a multi-use regional trail if it was built.

C. Community Overview and Profile

Grant County is located along the I-75 corridor nestled between the City of Lexington and the populous Northern Kentucky area. This advantageous location situates the county in the middle of nearly one million people, while also keeping its distinct rural identity alive. Grant County is currently estimated by the U.S. Census Bureau to have a population of 24,757 according to their most recent 2015 measure, which shows that the county has seen steady population growth since the 1980s. Future estimates also paint a picture of a population that will continue to grow at a robust pace for many years to come with a projected 2050 population of 31,069.

Four incorporated cities are in Grant County: Corinth, Crittenden, Dry Ridge, and the county seat, Williamstown. According to the most recent population statistics released by the U.S. Census Bureau regarding incorporated cities in 2016, Corinth has a population of 232, Crittenden has 3,848, Dry Ridge has 2,205, and Williamstown has a population of 3,943. The recommended trail route connecting these four cities provides an opportunity to encourage continued growth of the cities and provide increased mobility between each community.

The total land area of Grant County is 261 square miles according to the U.S. Census Bureau. In addition to the cities noted previously, the county has several smaller, unincorporated communities scattered throughout the county including Folsom, Holbrook, Jonesville, Mason, and Mt. Zion. The recommended trail spine traversing the north-south route throughout the county, and the future development of ancillary trails, will make much of the county more traversable.

It is important to note that the recommended pathway spine and the future ancillary pathways will foster the continued development of a fit and healthy life for the citizens of the county – one of the primary goals of FFLAG. These efforts are made in order to support local system, environment and policy changes that prevent children from developing chronic diseases later in life.

With the FFLAG programs initiated over recent years such as the Get Up, Get Out, Get Fit program, the Biggest Winner Challenge, and the Starting With Children Initiative, Grant County is currently ranked 39th in the state for health factors. This reflects a significant improvement (20+ spots) from previous years.

Additionally, Grant County has seen positive growth in the overall quality of life for citizens over the last two years due to the multiple programs implemented by FFLAG. As with all programs offered by FFLAG, the Starting With Children Initiative used evidence-based strategies to reduce obesity and these strategies are strongly supported by the local community.

Research has shown that this proposed multi-surface, multi-use pathway will continue to improve the obesity rankings and their associated measures. These include:

- reducing the percentage of obesity and diabetes in the county;
- decreasing the average number of poor physical health days;
- decreasing the percentage of physical inactivity; and
- increasing the percentage of the population that have access to exercise opportunities.

Further, the American Heart Association notes that for every $1 spent on walking paths and bike trails that an estimated $3 is saved in health care.

Residents and local elected officials have been clear that they are investing in the future of their county. This Evaluation and Feasibility Study continues a long tradition of the community planning for the future by involving the

citizens of Grant County. Previous planning efforts include the 2012 Williamstown Master Plan, the 2012 Williamstown Strategic Plan, the 2013 Crittenden Beautification Strategic Plan, the 2014 FFLAG Business Plan for Investing in Kentucky's Future Program, and the 2014 FFLAG Starting With Children (SWC) Initiative.

What began with one teacher sharing her concerns about childhood obesity with others in the community has set a course of transformation for the residents of Grant County, Kentucky.

D. The Process

On January 27, 2016, Fitness for Life Around Grant County (FFLAG) released a Request for Proposal (RFP) for professional services soliciting prospective firms to comprehensively analyze the feasibility of a multi-surface, multi-use pathway in Grant County. Further, the study should assess ways in which the southern and northern borders of the county might connect via existing infrastructure and prospective future pathways. The comprehensive analysis provides the basis for this final report to FFLAG in the form of an Evaluation and Feasibility Study, due at the end of 2016.

The Kentucky League of Cities Community Consulting Services (KLC CCS) submitted a proposal to satisfy the requirements of the Request for Proposal (RFP) on February 26, 2016. Subsequently, FFLAG engaged KLC CCS under contract to complete all tasks requested in the RFP, including identifying the recommended pathway through Grant County, providing conceptual drawings of the pathway, creating a preliminary implementation plan, and presenting a cost estimate for the pathway.

KLC CCS immediately began confirming a detailed scope of work for the entire project. KLC CCS contracted with Logan Murphy, a Grant County resident who is also a principal and senior engineer for Hicks and Mann, Inc., to provide engineering, mapping, and site-surveying services. Steve Austin was added to the KLC Team as lead planner for analysis and assessment of existing conditions, data analysis, proposed path identification and assessment, maps, diagrams, and visual aids, drafting of reports and design plans.

With the KLC Team complete, an analysis and assessment of the existing conditions in Grant County were undertaken. Surveys were collected and an effort to engage the public began in earnest. A schedule of public meetings and Listening and Design Sessions was developed which allowed the Team to hear the feedback of county citizens.

On May 3, 2016, the first meeting of FFLAG and the KLC Team convened at the Williamstown City Hall to review the entire feasibility process with FFLAG in greater detail. The discussion also established the desired outcomes for the first public meeting in June, the format for that meeting, and the questions that would be asked of the attendees.

During the meeting, Logan Murphy provided a large-scale map which showed locations of interest such as existing schools, parks and historic sites. KLC CCS also provided a prepared media kit that FFLAG could use to generate community involvement.

On June 2, 2016, a Listening and Design Session for the community was held at Williamstown High School. Residents were tasked with guiding the design process for the pathway, including what the character of the trail should be, who the users of the trail might be, and where the trail should go - noting specific routes and destinations. They did this envisioning with maps, markers, photos, Post-it notes, and note pads.

Through the input of residents attending the meeting, an overall vision was cast for the trail system:

"A 48-mile Greenway that builds health and connects communities."

The Greenway will be built to appeal to a variety of groups that will most likely use the trails, including walkers, hikers, and bicyclists. There is also a focus on developing trail features which will appeal to families, running and athletic groups, and making sure the trails are accessible for everyone.

The results from participant comments defined who the primary user groups will be as walkers, hikers, and bikers. Desirable traits

of the initial trail development are that they will be accessible and welcoming to families with strollers and wagons, and for those in the community who enjoy running and other athletic activities.

In describing the character of the trail, citizens want safe and clearly marked paths with possible fitness stops along the routes. Trailheads should be located where there is ample parking for both cars and horse trailers, and should provide restroom facilities.

Connecting to existing parks and recreational areas is important as well as linking local communities where possible. Citizens also desire a way to link historic landmarks and tie in natural areas for wildlife viewing. Picnic areas, phone recharging stations, park benches, and opportunities for local schools and conservation efforts were mentioned by citizens as well.

Another aspect residents mentioned was the possible creation of edible trails and perhaps connecting pathways to local and area farmers markets. Residents encouraged utilization of existing infrastructure such as shared lanes on the road or other protected pathways.

These concepts would provide a connection to FFLAG's second primary area of focus, making healthy eating options easily available for the children of Grant County.

In terms of where the trails should be located, some very specific routes were identified. Creating a trail between Highway 25 and I-75 would connect the smaller communities to one another. Also, a trail on the west side of I-75 would connect residents and visitors to the Ark and Cowtown as well as to locations such as schools, the Grant County Park, the public library and farmers markets.

Other routes which were identified specifically were to start at or near the Three Springs Campground in Corinth, then to Cordova along Lincoln Ridge Road and to include Veterans Cemetery.

A mobile tour was conducted on August 11, 2016 for members of the FFLAG Committee to see the initial trails being considered by the KLC Team.

The second public meeting, a "Heard Ya" session, was held on August 11, 2016 at the Williamstown High School cafeteria. Citizens viewed preliminary drawings and maps of where trails were proposed, based upon input from the first Community Listening and Design Session. During the meeting other amenities and facilities recommendations were discussed allowing for residents to weigh in on the conversation with their ideas.

It was during this second public engagement that members of the Saddle Club suggested that ancillary trails be recommended for equestrian use as part of the overall plan. Even though much of the trail area is outside of the scope of this Feasibility Study, it is important to local residents that horse trails be evident in the overall plan.

Elected officials and community leaders who were unable to attend the first two public meetings were invited to a follow-up meeting on September 21, 2016. The same information was shared on the proposed trail route allowing those attending to ask questions and provide feedback.

For each of the public meetings FFLAG members worked diligently to alert the public and encourage attendance. In addition to more than 5,000 flyers which were printed and hand delivered to multiple locations before each meeting, printed notices were placed in utility bills mailed to each home. The meeting announcements were posted on the FFLAG Facebook page and reminders were sent via email to FFLAG volunteers. After each meeting, persons in attendance were added to the contacts list so these trail meeting participants are now receiving notices each time the trail is to be discussed publicly.

The KLC Team conducted the third and final public meeting on October 6, 2016 presenting the final plan which included all trail route recommendations, cost estimates, as well as management and implementation strategies. The ensuing pages include the proposed maps, a proposed implementation plan and a cost estimate for implementation and sustainment of the Greenway system.

Final adjustments were made to the Greenway Feasibility Study and it was presented to FFLAG at their board meeting on November 17, 2016.

CHAPTER 3

MULTI-USE PATH FEASIBILITY

A. Scope of the Study

The Kentucky League of Cities, Hicks and Mann Engineers, and Steve Austin and Associates, were selected by Fitness For Life Around Grant County to perform a feasibility study for "A Multi-Surface Multi-Use Pathway for Grant County which should at a minimum connect the northern and southern border of the county with other existing or future pathways."

FFLAG defines the project as "A Multi-Surface Multi-Use Pathway {that} serves a wide range of users – cyclists, walkers, joggers, equestrians, and other non-motorized vehicles (unless for individuals using mobility devices) and should provide health benefits by increasing physical activity."

FFLAG desires that this study provide the following results:

- Analyze proposed routes and existing sources of relevant data (terrain, utilities, rights-of-way, property ownership, etc.);
- Prioritize route options, include "key" destinations (Ark Encounter, downtowns, parks, schools); and
- Identify potential obstacles and perform gap analysis for any data which is not available, but needed for a complete report.

As the following will show, this report concludes that such a project is feasible in Grant County.

B. Context

Physical Context: Grant County, Kentucky is located in the Outer Bluegrass region. This region is characterized by rugged topography with numerous deep valleys and steep hillsides. There is very little flat land in the county, and what little there is has been developed for urban and agricultural uses. The primary transportation routes through the county also are found here, including Interstate 75, U.S. Highway 25, a significant railroad line, and numerous smaller roads.

Trail Implications: The rugged topography of the majority of the county, combined with the limited remaining availability of less rugged land, will pose challenges for trail development. Steep slopes will limit types of trail construction and users and the numerous stream crossings required will increase costs of all but the most primitive of trail types. The presence of significant transportation infrastructure may offer the possibility of trail development occurring within or adjacent to established rights of way.

Community Context: Grant County contains four incorporated cities located along the primary north-south transportation route of the county. These cities are, from north to south, Crittenden, Dry Ridge, Williamstown, and Corinth. Each city has historically been independent despite their close proximity. There is little evidence, from an "outsider's" perspective, of physical distinction between Crittenden, Dry Ridge and Williamstown.

Trail Implications: The multiple jurisdictions in the county will make devoted coordination for planning and development of trails of prime importance. Trail development may provide a method for revealing and enforcing each city's unique identity.

Key Destinations: There are many key destinations within the central "spine" of the county that could be connected via a trail. These are:

- Downtown Areas of each City
- Government Offices
- Schools
- Library
- Grant County Park
- Lloyd Wildlife Management Area
- Sherman Tavern
- Boltz Lake
- Piddle Park
- Grant County Fair Grounds
- Mullins Field
- J.B. Miller Park
- Williamstown Lake
- Arnold Lake
- Northern Kentucky University Grant County Center
- WT Family Fun Park
- Ark Encounter
- Memorial Athletic Fields
- Kentucky Veterans Cemetery
- Kentucky Cowtown Arena
- Corinth Lake
- Several Private Campgrounds

Trail Implications: Connecting each of these destinations will require many spurs off the main "spine" of a centrally located trail system. Given topographic conditions and existing infrastructure and urbanization in the central "spine," it is unlikely that each destination would be served with a universally accessible trail.

C. Project Approach

This is a community-driven project. The Planning Team has worked closely with FFLAG leadership to ensure significant community involvement in the planning process. Three community listening sessions were held in 2016 where citizens were invited to determine the character of the trail system. The role of the Planning Team has been to act as "translator" of these community desires by applying professional design and engineering techniques to ensure the ultimate feasibility of those desires. Additionally, the Planning Team has established significant relationships with the appropriate governmental agencies whose participation and support will be crucial to the success of trail development in the county.

Trail Implications: Through the community listening sessions, a clear vision of the trail emerged. Citizens desire the trail to become a "48-mile Greenway that builds health and connects communities." A greenway is a linear park that includes a trail but also much more. A greenway facilities' movement is safe and convenient, and is also a place for learning, artistic expression, and gathering. A greenway is environmentally friendly and promotes economic development as well.

During the planning process it was determined that the primary use of the trail should be for walkers, runners and general bicycle use (as opposed to mountain bikers). While equestrian uses are supported, it is understood that equestrian uses are not compatible with the majority of trails that support walking, running, and bikes within the context of Grant County. However, it was suggested during the August 2016 community meeting that horses and hikers would be appropriate in the rugged southern part of the county. See the discussion below. All-terrain vehicles (ATVs) and mountain

biking are in separate categories as well, given the very dynamic nature of their use and their impacts on the environment. Finally, connections of the main trail to certain water trails should be explored.

Safety was a significant issue, both in terms of crime but also physical safety in trail use. Relative to crime, a study by the Rail to Trails Conservancy found that only three percent of trails studied experienced any type of major crime. Further, it was found that crime prevention through environmental design techniques could reduce both the actual threat of crime as well as the perception of danger. Physical safety can be enhanced by safely designing the places where vehicles and trail users intersect and by designing to reduce user conflicts such as too narrow trails in urban areas with a board variety of users and skill levels. Physical safety can also be improved through appropriate construction and maintenance.

Community members expressed a desire for amenities such as restrooms and water stations at trailheads as well as benches and picnic tables at strategic locations. Trailheads should contain adequate parking. There is a desire to incorporate art and education along the trail as well as to explore the idea of incorporating "edible" trail concepts. Along with conservation and restoration, these are excellent ways to get local schools involved with the trail as well.

The community well understands the rural/urban distinction that the trail will contain. Connectivity to urban and semi-urban neighborhoods is important. A desire for "families with strollers" was expressed as a vision of urban sections, while rural sections can be considered as more like "nature" trails. These more rural sections might even afford an opportunity for primitive camping, similar, as one community member put it, to the "Appalachian Trail."

The community desires that the trail be well marked so that residents and visitors alike will have no trouble locating the trail. Further, the trail should contain wayfinding signs so that getting lost is not a possibility. Mile markers should be placed along the trail so that people may track their progress.

D. Inventory and Assessment

The Planning Team collected existing information relative to the study area including: current aerial photography, topography, property ownership, utilities, proposed development plans and road improvements. Plans for the proposed improvements to the roads adjacent to the Ark Encounter were reviewed. Several site visits were made to gain a detailed understanding of the existing physical conditions, site constraints and opportunities. Views, soils, floodways, accessibility, drainage, land use, land availability, street crossings, right-of-way widths and potential connectivity opportunities were also identified.

In addition to the input received at the listening sessions and through meetings with stakeholders and officials, the Team reviewed material relative to the natural environment of the corridor and history of Grant County to begin assembling ideas for theming and design.

Trail Implications: The inventory revealed what most already know - there is really only one prime location for a north-south trail through the county. This "spine" is located near the geographic center of the county. This corridor is where the vast majority of people in the county live, and is the location of most of the services. The length of this spine is approximately 48 miles north to south - including loops and meanders. The width of the area including the spine is approximately two miles.

Unfortunately, this brings with it several major challenges.

First, the sheer amount of existing transportation infrastructure in the corridor creates barriers to lateral (east-west) movement. That is, getting access across I-75, U.S. 25 and the railroad will be difficult to accomplish safely and in an economical manner.

Second, this infrastructure is unsightly, loud, and generally unpleasant, not the attributes generally associated with recreational trail development.

Third, the small size of the central corridor combined with the extensive urban development existing in the northern half of the trail segment leave very little options for trail development. Most

rights-of-way in this area are narrow and cannot contain additional off road trails; very little room for expansion of rights-of-way in this area exist.

Forth, the central spine contains numerous and diverse property owners. While many share the goals of FFLAG for the creation of the trail, a few do not. The availability to develop routes around unsupportive landowners is limited given the confined and developed nature of most of the "spine."

Fifth, the rugged nature of much of the route does not lend itself to a "one-size-fits-all" approach to trail design. Thus, the trail will likely differ in its design across its length.

Finally, the multiple governmental jurisdictions in the central corridor will demand close planning coordination to ensure the trail actually is continuous for the length of the county.

Greenway Planning Concept

E. Planning Concepts

In order to maximize the opportunities for Greenway development and to address the challenges, the following concepts should be used to guide the development of the Greenway.

The first key concept involves two important assumptions:

1. Money is not unlimited – savvy, flexible and sensitive planning will be required to ensure that the Greenway can be developed within realistic financial parameters.
2. Private property rights will be respected – development of the Greenway will not utilize eminent domain. Rather, all land needed for the Greenway will be purchased or leased from property owners, or donated by property owners.

Next, the Greenway should be understood as serving as a "spine" as described above. The Greenway should primarily follow the route of I-75 and U.S. 25 from Williamstown to the north and I-75 primarily from Williamstown to the south. Additionally, the spine should be so configured that it creates a loop around the communities of Crittenden, Dry Ridge, and Williamstown. Corinth will be connected to the spine by a direct route. Detailed descriptions of each section are provided below.

The goal of the Greenway development should be to keep this spine intact across the county from north to south. Gaps should be avoided.

To minimize conflicts with private property, the Greenway should adjoin public rights-of-way wherever possible. Further, fencing and buffering should be planned where needed to help to minimize conflicts.

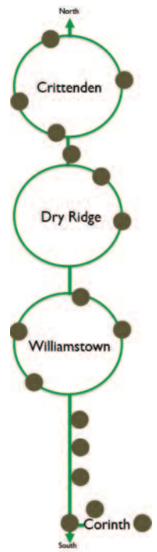
MULTI-USE PATH FEASIBILITY

As described above, the Greenway between Crittenden and Williamstown should be planned to allow for a wide variety of users. This includes walkers of all ages, joggers, street bikers, strollers, and roller-bladers. Dogs should be welcomed. The more rugged portions of the Greenway between Williamstown and Corinth should be geared more toward hikers and horseback riders. Handicapped accessibility should be achieved everywhere that topography allows. ATVs are not recommended to be included anywhere within the central spine.

Convenient access is an important concept. The feasibility maps show trailhead access at approximately one trailhead for every two miles along the trail route. In urban areas, this trailhead spacing may be increased, while in the more rugged areas in the southern part of the county, trailhead spacing by necessity will be increased.

As described above, it is imperative that the detailed Greenway design includes connections to the key attractions, and as many neighborhoods as possible, within the county.

Connections to Ancillary Trails: These ancillary trails that link areas of the county to the west and east, are planned at appropriate points. These ancillary trails are geared toward on-road biking and horseback riding. Trailheads at those connection points should include appropriate parking facilities.

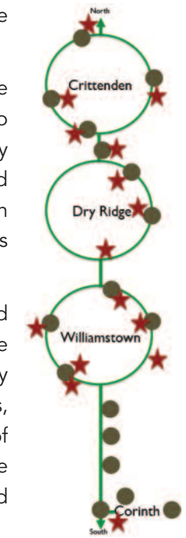


Greenway and Trailhead Concept

The southern part of Grant County along the main Greenway spine has large areas of very rugged and wooded landscapes. The community may want to consider the idea of working to convert much of this land into a new county park system. This area is well suited to horseback riding and hiking and could even offer primitive overnight camping. This idea could work to strengthen the use of the main Greenway spine as well as to attract even more visitors into the county.

As described in more detail below, the Greenway should be conceptualized as a linked series of different types of trail conditions. For example, in more urban areas, the trail itself should be planned for high use by a wide variety of users. This demands wide, paved surfaces. These could be new routes, widened sidewalks, and even on street trails. In the more rugged areas of the southern part of the county, the trail itself may be best thought of as one of limited improvement, similar to trails found in state and national parks and forests.

The specific recommended trail types are described in Chapter 6.



Greenway and Attractions Concept

Greenway Route Descriptions

The following describes the general route of the Greenway as well as ancillary trail connector options.

NOTES:

- See accompanying maps for locations.
- Route descriptions are from north to south for each section.

Section 1 "Crittenden Section"

The terminus of the Greenway is the county line at the boundary with Mullins Wildlife Management Area. From there, a short-paved section of the Greenway connects to Milo Court and then to Barley Circle at the Harvesters Subdivision. The Greenway is contained both on-street and along the sidewalks. Looping westward, the Greenway connects to Waller Drive. Once to the south of the lake, the route turns eastward with a wide, paved multi-use path parallel to the lake, and then turns southward toward Violet Road. A trailhead needs to be developed in this area.

Section 1 "Crittenden Section" West Side

The Greenway should cross Violet Road at the intersection with Lebanon Road. A significant urban street crossing must be developed that could include signalization activated by Greenway users. The route then runs southward and parallel and adjacent to the I-75 right-of-way until the junction with Duncan Road. At this junction, Duncan Road itself could serve as the Greenway to its intersection with Crittenden-Mt. Zion Road. The Greenway crosses Crittenden-Mt. Zion Road and moves to run parallel and adjacent to the I-75 right-of-way toward the south. A trailhead should be developed at Crittenden-Mt. Zion Elementary School.

At Crittenden-Mt. Zion Road, the Greenway also runs eastward over the I-75 bridge and along the north side of the road to the intersection with U.S. 25. The connection is described in detail below.

Section 1 "Crittenden Section" East Side

The Greenway runs eastward along Violet Road on improved and widened sidewalks, for use by both pedestrians and bicycles.

Once on the east side of I-75, the Greenway continues along the north side of Violet Road to the intersection of Spears Lane. Here, a significant urban street crossing must be developed that could include signalization activated by Greenway users. Once on the south side of Violet Road, the route should follow the stub street between the gas station and the bank. There is an existing alleyway ±200' east of the Spears Lane intersection currently owned by the city, which should be used for the pathway. The pathway also runs along I-75 through the McNay Subdivision and the Pin Hook Place subdivision.

From there, a wide, multi-use paved path will run toward the I-75 right-of-way and follow it parallel and adjacent to the northern boundary of the Grant County Park.

Once inside the park, the Greenway can take one of several directions, with an overall goal being that it should be accessible without interfering with other park activities. Trailhead enhancements beyond existing parking should be developed within the park.

At the southern boundary of the park, the Greenway will rejoin the I-75 right-of-way and head southward until it reaches the large grove of trees between I-75 and U.S. 25. This wooded area is part of the Lloyd Wildlife Management Area (WMA). Inside the grove, the Greenway will veer southeast toward the intersection of U.S. 25 and Crittenden-Mt. Zion Road.

A significant crossing is needed at this intersection if the Greenway will be allowed to cross the railroad in this area. Fortunately, a traffic signal already exists. Detailed research beyond the scope of this report will be needed to determine the possibility of a crossing in this area.

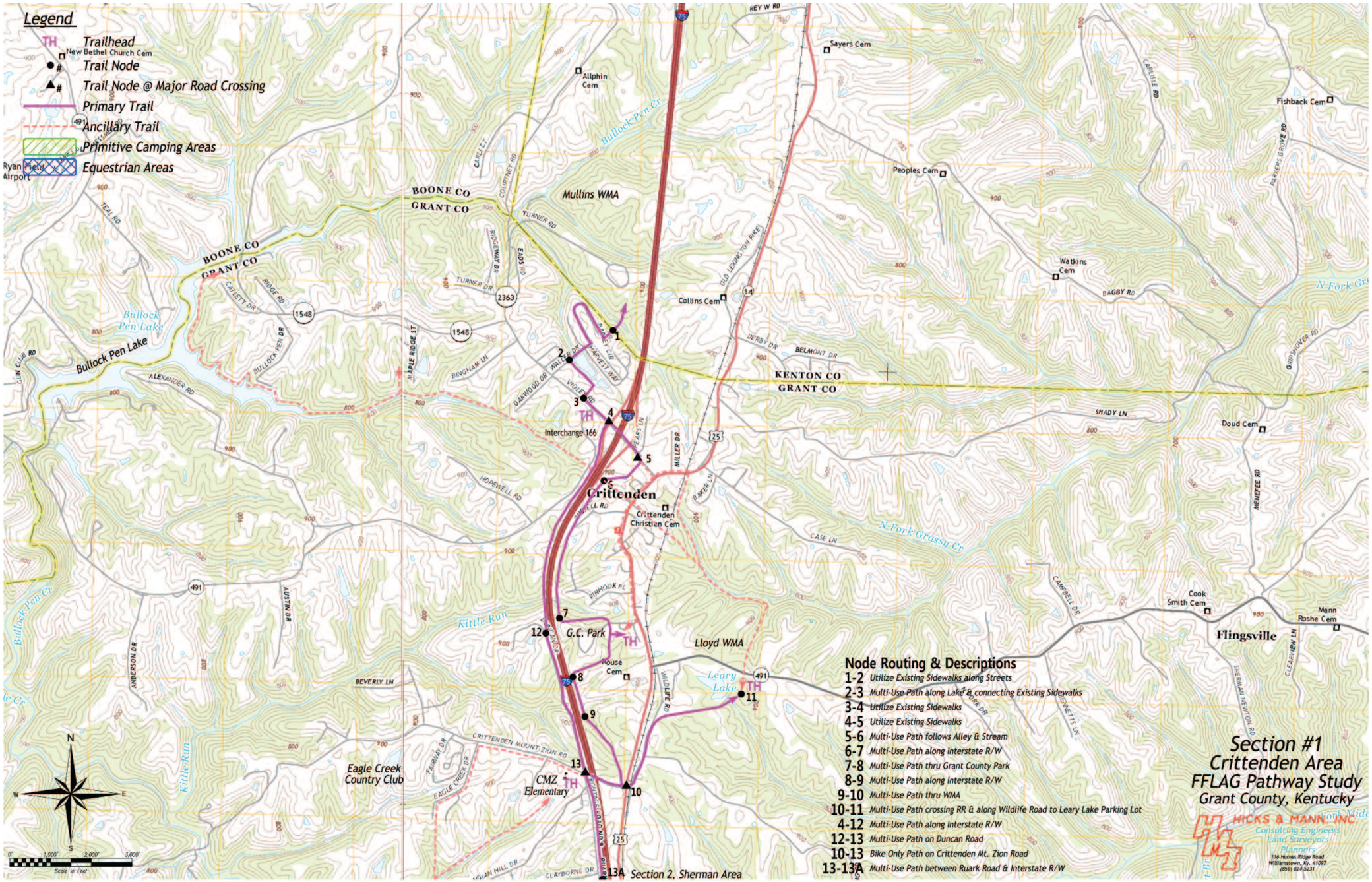
Once east of the railroad, the Greenway will then run along Wildlife Road until it reaches property within the Lloyd Wildlife Management Area. Connecting to exiting facilities within the WMA, the Greenway will connect to the existing parking lot, where additional trailhead enhancements should be made.

Ancillary Trail Connections in this Section

The community may consider connecting a loop Greenway section back to Crittenden from the Lloyd WMA. This could be accomplished via a route that heads north from the WMA trailhead and potentially crosses the railroad via a new pedestrian bridge in the vicinity of the Crittenden Christian Cemetery. This would allow a strong connection to be made back into the heart of Crittenden.

Sidewalks along Dixie Highway in Crittenden could be improved and enhanced to link the core of the town to the Grant County Park and its connection with the main Greenway spine.

An ancillary trail could be developed heading west from the main Greenway spine on the west side of I-75 at Lebanon Road toward Bullock Pen Lake along the upper reaches of its watershed valley. Another ancillary trail could be developed heading west from the Crittenden-Mt. Zion Elementary School that would connect Country Club Estates, Eagle Creek Estates, and Fairview Estates.


Legend
TH Trailhead
Trail Node
Trail Node @ Major Road Crossing
Primary Trail
Ancillary Trail
Primitive Camping Areas
Equestrian Areas
Ryan Field Airport
New Bethel Church Cem
Allphin Cem
Sayers Cem
Fishback Cem
Peoples Cem
Watkins Cem
Collins Cem
Doud Cem
Cook Smith Cem
Mann Roshe Cem
Flingsville
Crittenden
Crittenden Christian Cem
Interchange 166
Mullins WMA
Bullock Pen Lake
Bullock Pen Cr
N Fork Grassy Cr
Kittle Run
G.C. Park
Lloyd WMA
Leary Lake
Rouse Cem
Eagle Creek Country Club
CMZ Elementary
BOONE CO
GRANT CO
KENTON CO
GRANT CO
Section 2, Sherman Area
Node Routing & Descriptions
1-2 Utilize Existing Sidewalks along Streets
2-3 Multi-Use Path along Lake & connecting Existing Sidewalks
3-4 Utilize Existing Sidewalks
4-5 Utilize Existing Sidewalks
5-6 Multi-Use Path follows Alley & Stream
6-7 Multi-Use Path along Interstate R/W
7-8 Multi-Use Path thru Grant County Park
8-9 Multi-Use Path along Interstate R/W
9-10 Multi-Use Path thru WMA
10-11 Multi-Use Path crossing RR & along Wildlife Road to Leary Lake Parking Lot
4-12 Multi-Use Path along Interstate R/W
12-13 Multi-Use Path on Duncan Road
10-13 Bike Only Path on Crittenden Mt. Zion Road
13-13A Multi-Use Path between Ruark Road & Interstate R/W
Section #1
Crittenden Area
FFLAG Pathway Study
Grant County, Kentucky
HICKS & MANN INC.
Consulting Engineers
Land Surveyors
Planners
116 Haines Ridge Road
Williamstown, Ky. 41097
(859) 824-5231

Section 2 "Sherman Section"

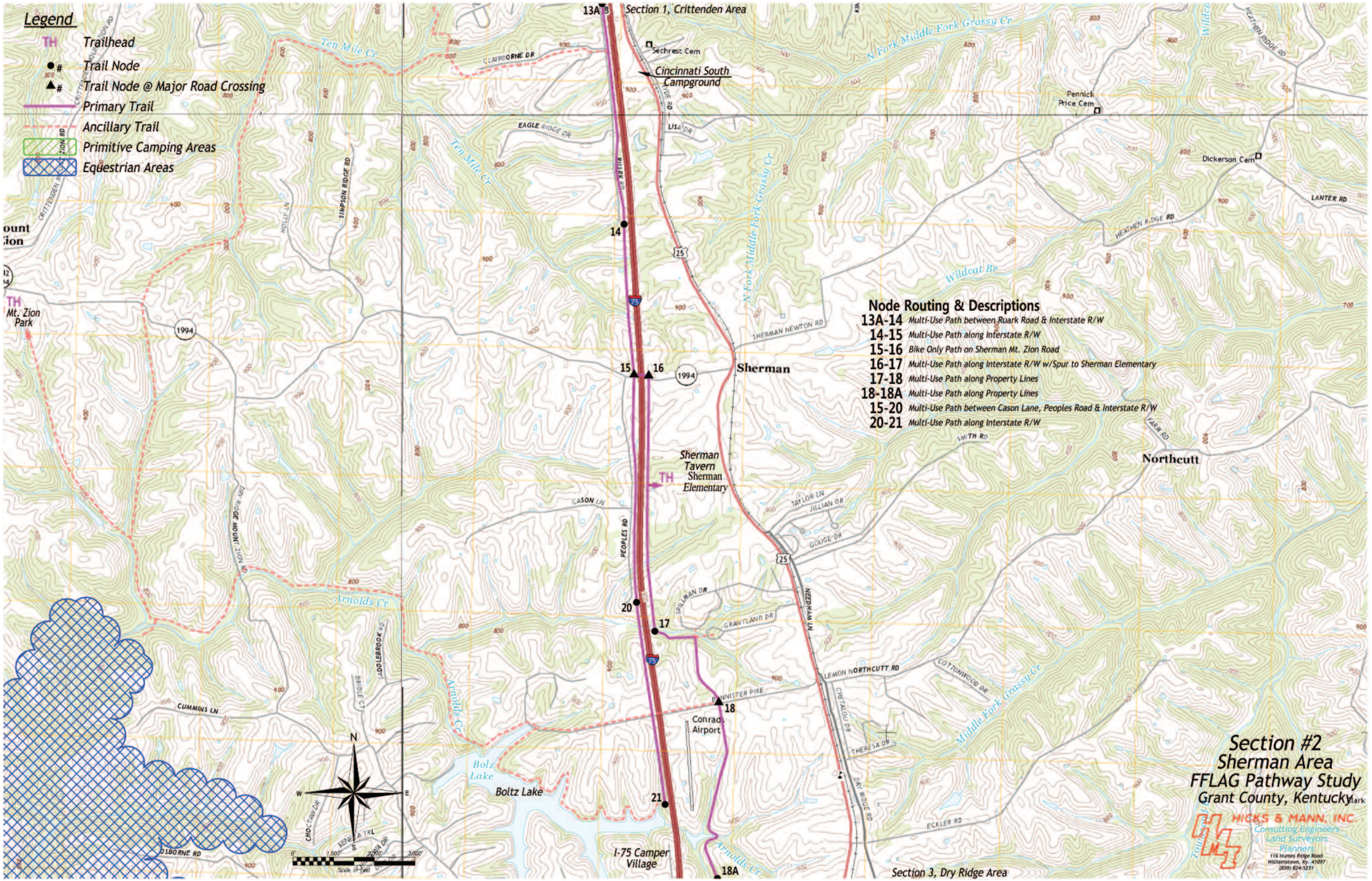
The Greenway through this section begins in the north on the west side of I-75, on a wide, multi-use paved path between Ruark Road and the right-of-way of I-75. This route continues southward until it reaches Sherman-Mt. Zion Road. From there, the Greenway turns east and crosses I-75 on the bridge. Immediately on the east side of I-75, the route turns southward and runs parallel and adjacent to the I-75 right-of-way.

A spur should connect the Greenway to a trailhead at the Sherman Elementary School.

The Greenway will veer east in the vicinity of Spillman Drive, where the Grantland Subdivision, the school property and the Summerfield and Ashley Estates developments are located. From there, the Greenway should follow existing tree lines to avoid crossing fields and to stay away from existing houses. The route will cross Bannister Pike at an appropriate location and continue southward, again utilizing existing tree lines to avoid crossing fields. The wide, multi-use paved path continues toward the southwest to create a junction with McCoy Road.

Ancillary Trail Connections in this Section

A long ancillary trail, primarily geared to horseback riders, could be developed heading west from the Greenway spine on the west side of I-75. This trail could wind through the valleys of Ten Mile Creek and Arnold Creek and connect to a trailhead that could be developed at Mt. Zion Park. These paths could also connect Boltz Lake with the main Greenway spine.


Legend
TH Trailhead
Trail Node
Trail Node @ Major Road Crossing
Primary Trail
Ancillary Trail
Primitive Camping Areas
Equestrian Areas
Section 1, Crittenden Area
Section 3, Dry Ridge Area
Sechrest Cem
Cincinnati South Campground
Pennick Price Cem
Dickerson Cem
Mt. Zion Park
Sherman
Sherman Tavern
Sherman Elementary
Northcutt
Conrad Airport
Boltz Lake
I-75 Camper Village
Ten Mile Cr
N Fork Middle Fork Grassy Cr
Middle Fork Grassy Cr
Wildcat Br
Arnolds Cr
Bolz Lake
CLAIBORNE DR
EAGLE RIDGE DR
LISA DR
RUARK RD
SIMPSON RIDGE RD
HOLLY LN
CRITTENDEN MT ZION RD
HEATHEN RIDGE RD
LANTER RD
SHERMAN NEWTON RD
SMITH RD
FARM RD
CASON LN
PEOPLES RD
TAYLOR LN
JILLIAN DR
GOUGE DR
SPILLMAN DR
GRANTLAND DR
NEEDHAM LN
LEMON NORTHCUTT RD
COTTONWOOD DR
BANNISTER PIKE
CHETALOU DR
THERESA DR
DRY RIDGE RD
ECKLER RD
DRY RIDGE MOUNT ZION RD
SADDLEBROOK RD
BRIDLE CT
CUMMINS LN
CHOCTAW DR
SENECA TRL
OSBORNE RD
13A
14
15
16
17
18
18A
20
21
Node Routing & Descriptions
13A-14 Multi-Use Path between Ruark Road & Interstate R/W
14-15 Multi-Use Path along Interstate R/W
15-16 Bike Only Path on Sherman Mt. Zion Road
16-17 Multi-Use Path along Interstate R/W w/Spur to Sherman Elementary
17-18 Multi-Use Path along Property Lines
18-18A Multi-Use Path along Property Lines
15-20 Multi-Use Path between Cason Lane, Peoples Road & Interstate R/W
20-21 Multi-Use Path along Interstate R/W
Section #2
Sherman Area
FFLAG Pathway Study
Grant County, Kentucky
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Section 3 "Dry Ridge Section"

The Greenway in this area has multiple characteristics: urban, suburban, and rural sections. The Greenway in this section also connects to significant attractions such as Piddle Park, Dry Ridge Elementary School, Grant County Middle School, the Grant County Fairgrounds, and Williamstown High School.

Coming into this section from the north, the Greenway should contain a wide, multi-use paved path until it intersects with McCoy Road. At that point, the Greenway can be contained within the right-of-way of McCoy Road. Veering off of McCoy, the Greenway moves through small woodland toward the intersection of Warsaw Avenue and the Dry Ridge Bypass. The primary spine moves south across Broadway at a major urban street crossing and then onto both Ferguson Boulevard and an adjacent improved sidewalk. At the south end of Ferguson Boulevard, the path diverges, with one spur heading east into Piddle Park, another spur heading west toward I-75, and one heading east toward School Road.

Section 3 "Dry Ridge Section" West Side

The west side of this loop runs parallel to, and adjacent with, the I-75 right-of-way until it reaches the Grant County Fairgrounds. The Greenway should be designed to skirt the eastern side of the Fairgrounds and then reach the U.K. County Extension Office, where a trailhead should be located.

A spur off this alignment heads toward the elementary and middle schools, where a trailhead should be located. This spur connects with a main portion of the Greenway that runs along School Road.

A connection from the U.K. County Extension Office to the east can be made along Baton Rouge Road. Future planning should determine the possibilities of a shared-use road in this area as well as a path parallel to the road.

From the U.K. County Extension Office, the western portion of the Greenway in this section heads westward and again runs parallel to, and adjacent with, the I-75 right-of-way until it reaches Barnes Road in Williamstown. Again, the path here splits, with one spur heading to the west side of I-75, whence it turns south heading toward the Ark Encounter. An eastward spur runs along an improved sidewalk along Barnes Road to the intersection with Arnie Risen Boulvard/Helton Road/U.S. 25. One spur also heads south and then east toward Williamstown High School.

Section 3 "Dry Ridge Section" East Side

At the intersection of Warsaw Avenue and the Dry Ridge Bypass, bike lanes could be created on the shoulders of the bypass leading around to the intersection with the connector street leading from the bypass to the School Road. This connector, KY 2501, and known as the Dry Ridge Bypass, is vital as it connects the Greenway across the railroad to parallel tracks running north side on either side of the railroad, along School Road on the west side of the tracks and along U.S. 25 on the east side of the tracks. The shoulders along this connector should be paved to accommodate Greenway users. Safety improvements will be needed at the railroad crossing.

The Greenway along School Road should be located on the west side of the road and designed as a wide multi-use path parallel with and adjacent to the right-of-way of School Road. This path continues along School Road/Arnie Risen Boulevard until it reaches the intersection with Barnes Road/Helton Road/U.S. 25.

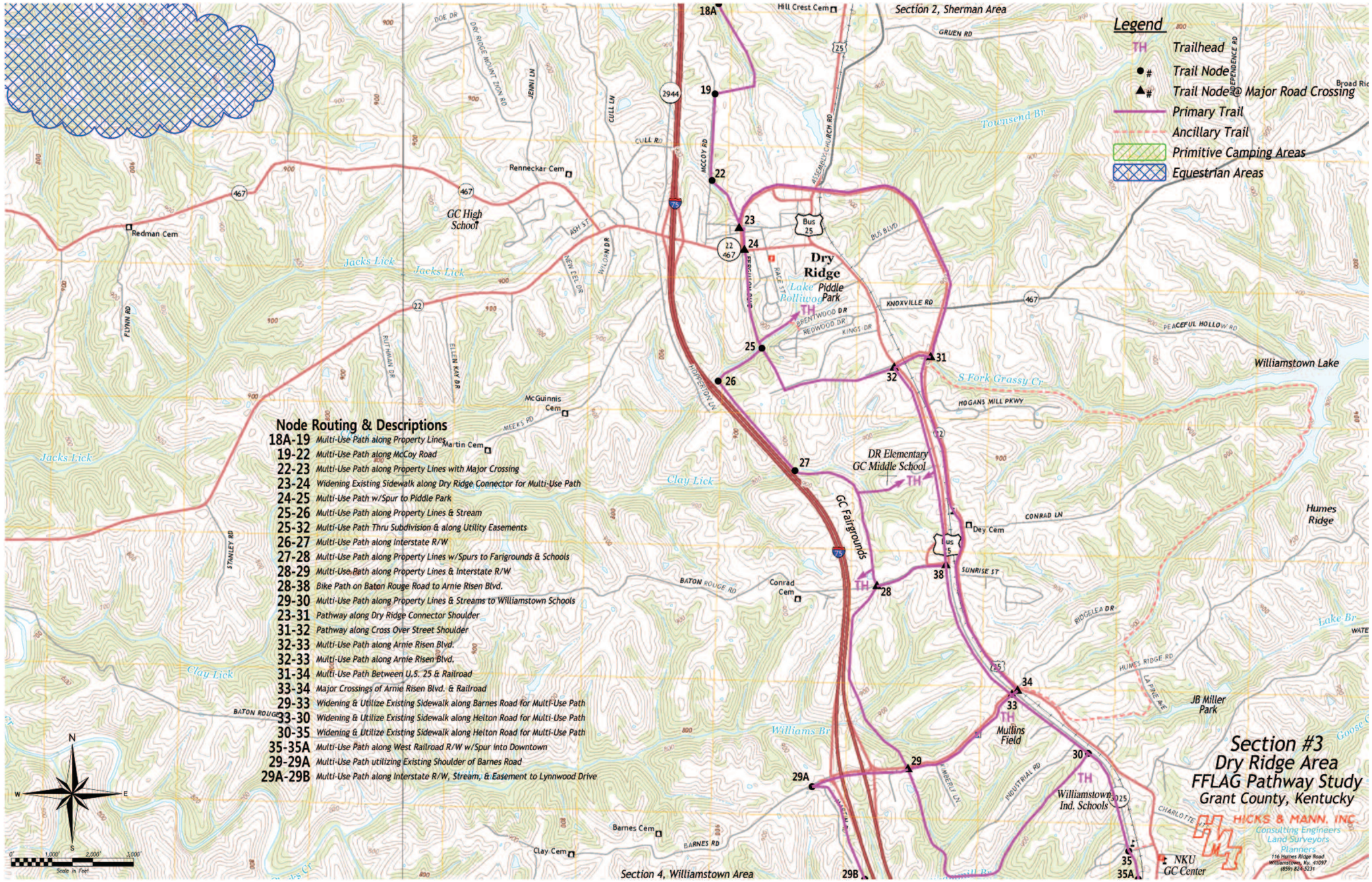
The Greenway along U.S. 25 east of the railroad should be located on the west side of U.S. 25, between the road and the railroad. This should be a paved path separated as much as possible from the roadway. This portion of the Greenway continues to the intersection of Barnes Road/Helton Road/Arnie Risen Boulevard.

From that intersection, the Greenway moves south along an improved sidewalk along Helton Road.

Ancillary Trail Connections in this Section

An ancillary trail could be developed that departs the main Greenway spine to connect it with Williamstown Lake. The northern connection could occur at the intersection of the Dry Ridge Bypass with the South Fork of the Grassy Creek. This trail could wind around the western end of the lake and then head south to a connection at the intersection of Barnes Road and U.S. 25. This trail could be utilized by both hikers and horseback riders.

MULTI-USE PATH FEASIBILITY



Section 4 "Williamstown Section"

The Greenway in this area has multiple characteristics: urban, suburban, and rural sections. The Greenway in this section also connects to significant attractions such as downtown Williamstown, the Ark Encounter, the Eibeck Lane Sports Facility, the Kentucky Veteran's Cemetery, and Kentucky Cowtown.

Section 4 "Williamstown Section" East Side

East of I-75, the primary route – a large width, multi-use path – follows the west side of the railroad until it intersects Sunset Drive. At this point, bike riders will be accommodated on streets and sidewalks will be added for pedestrians in this area. At the intersection of Sunset and Main Street, bikers will be accommodated on Main Street, while the existing sidewalks south to the intersection will be widened for pedestrians.

The Greenway turns east-west along KY 36. The north shoulder of KY 36 should be improved for bike and pedestrian users. Planned improvements of the KY 36 bridge over I-75 will accommodate both users. The Greenway then follows the north side of KY 36 to its intersection with the west loop just west of the gas station. At this point a significant highway crossing is needed, as described below.

Arnold Cabin: There is an existing driveway crossing the railroad at Node #36, from there, the path will either need to cross U.S. 25 and follow the existing sidewalk to the Arnold Cabin or a new sidewalk on the West Side of U.S. 25 to the cabin.

Webb Park: The Greenway connects to and follows along Sunset Drive/James Street, crossing U.S. 25 at the Sunset Drive intersection, then utilize the existing sidewalk to Park Road. Then proceed either on Park Road or a new pathway parallel to Park Road to the Webb Park parking lot.

Section 4 "Williamstown Section" West Side

West of I-75, the Greenway – a large-width, multi-use path – moves south parallel to I-75 coming from its departure off of Barnes Road at I-75 as shown and described in Section 3 above. The Greenway currently leaves the I-75 right-of-way and follows Steammill Branch to a 100' East Ky. Power easement, to the north end of Stoneleigh. The trail can either go on the street or along one side, and it could also follow the EKP easement out to KY 36 then follow KY 36 to Grandview Heights.

The Greenway will then move toward KY 36 adjacent to the north property lines of the motel and the gas station. A significant crossing will need to be developed to connect to the west side of KY 36. The Ark Encounter generates considerable traffic and the potential exists for serious conflicts between that traffic and Greenway users. It may be that on-demand signalization for Greenway users could be considered or that the actual crossing is coordinated with the entry into the Ark Encounter itself. While the Ark Encounter is a valuable attraction for the community, maintaining a viable connection of the spine in this area should be a key goal for the community.

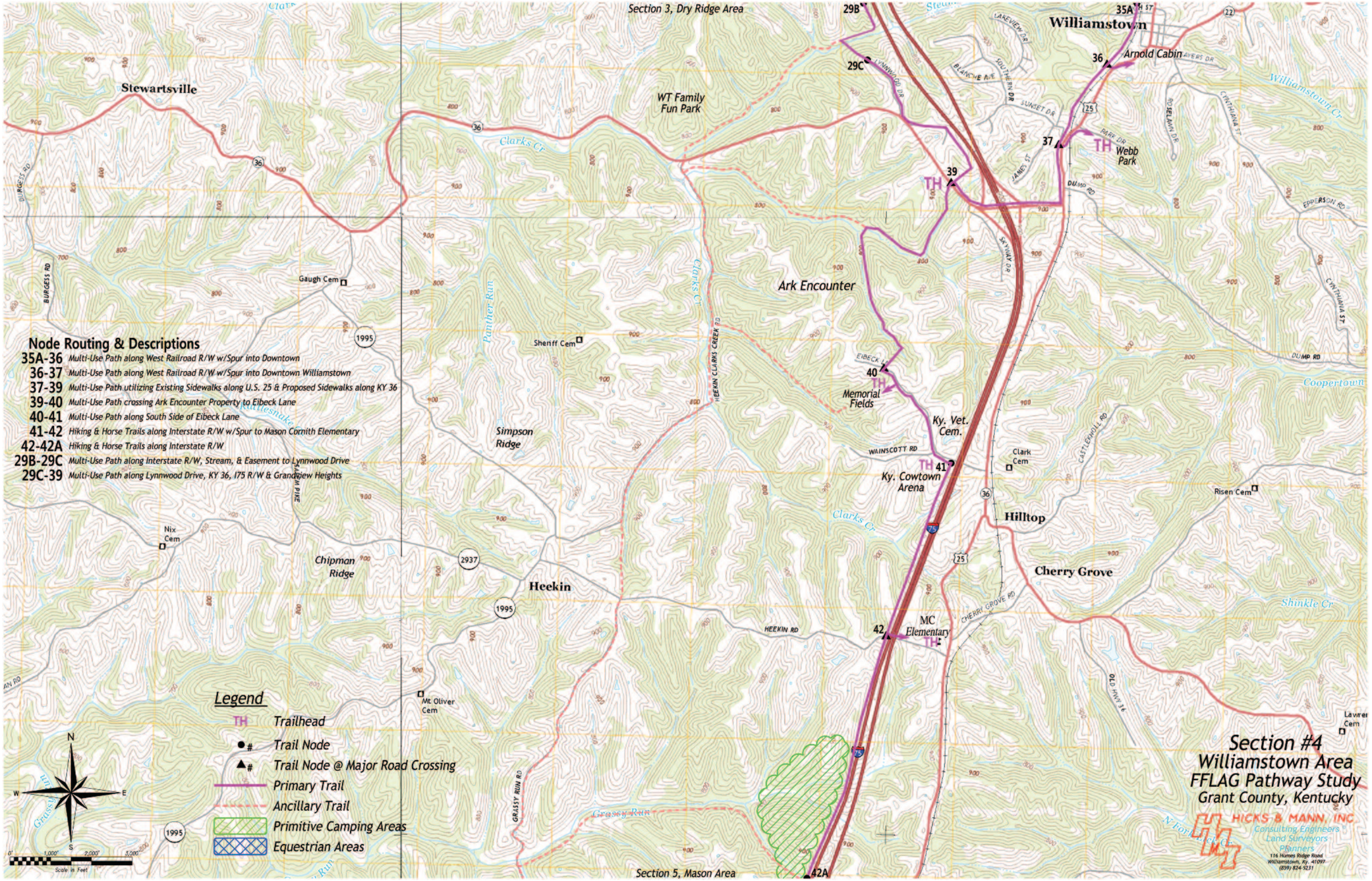
Once on the west side of KY 36, a trailhead could be developed either on the existing Ark Encounter parking lot or immediately adjacent to it. Discussions should be held with the Ark Encounter on how best to accommodate the need for a trailhead in this area. Further, the Greenway then moves generally south along the eastern and southern boundaries of the Ark Encounter property. Ideally, the Greenway right-of-way will be within property owned by the Ark Encounter. Discussions should also be held with them for the purposes of determining the feasibility of this.

The Greenway intersects with Eibeck Lane near the southern property boundary with the Ark Encounter. Once at Eibeck Lane, bike riders will use Eibeck Lane itself, while a new adjacent sidewalk will accommodate pedestrians. A trailhead should be developed at the sports facility in this area. The Greenway follows Eibeck Lane to Kentucky Cowtown.

At Kentucky Cowtown, the trail turns south and follows, adjacent to I-75. The Greenway from this area south to its intersection with KY 330 is rugged in nature. The trail itself in this area should be considered as a type of rudimentary improvement similar to state and national parks and forest trails. This part of this section should be considered as appropriate for hikers and horseback riders primarily. A trailhead could be developed at Mason-Corinth Elementary School and connected to the spine via Hickory Road.

Ancillary Trail Connections in this Section

A long route ancillary trail could be developed off the main Greenway spine on the west side of I-75 that would connect both the Clarks Creek and Grassy Run watersheds with the main Greenway spine. This section would be primarily oriented to horseback riders.

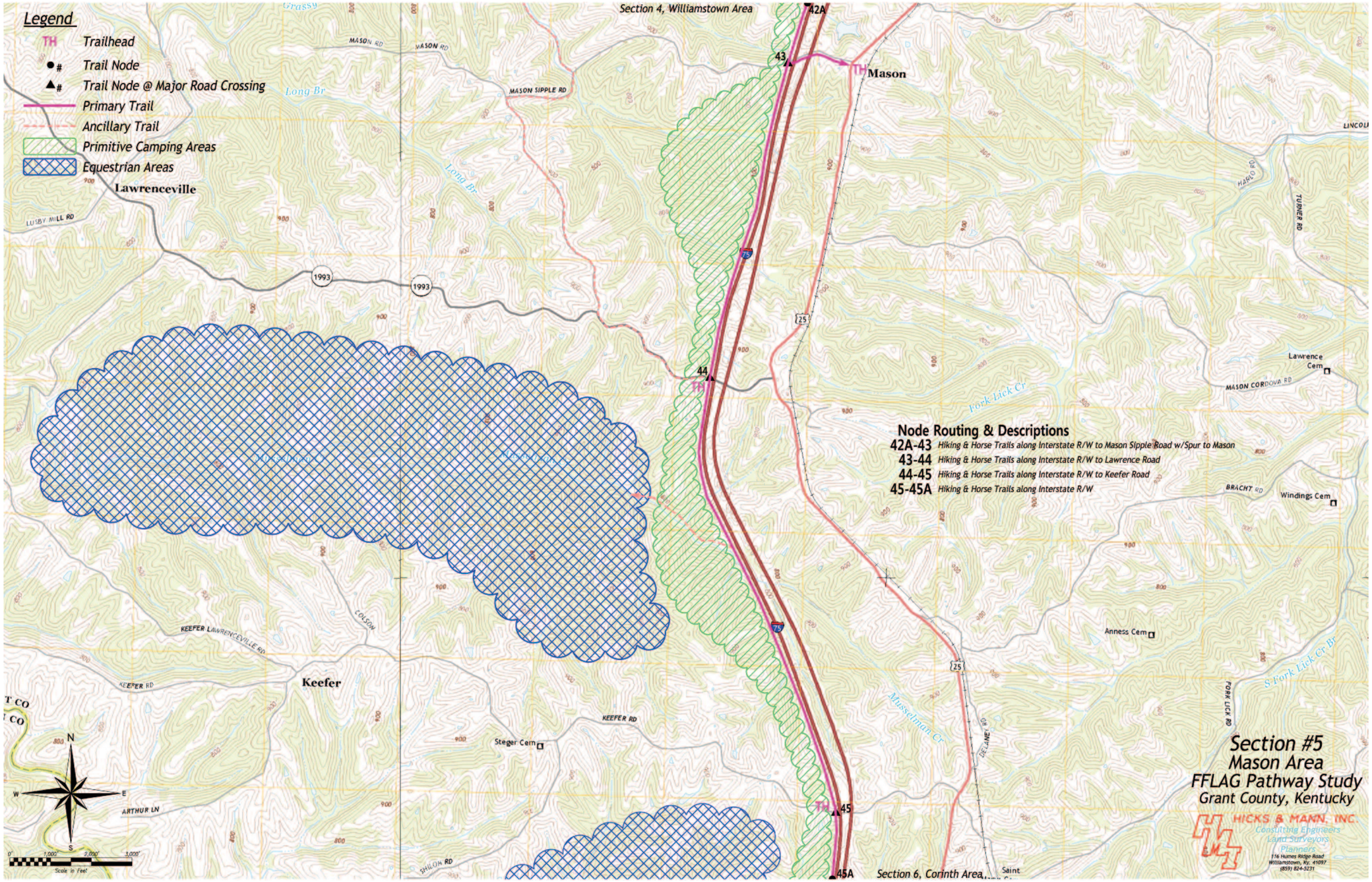

Section 3, Dry Ridge Area
Section 5, Mason Area
Stewartsville
Williamstown
Arnold Cabin
WT Family Fun Park
Webb Park
Ark Encounter
Memorial Fields
Ky. Vet. Cem.
Ky. Cowtown Arena
Clark Cem
Hilltop
Cherry Grove
MC Elementary
Heekin
Simpson Ridge
Chipman Ridge
Gaugh Cem
Sheriff Cem
Nix Cem
Mt Oliver Cem
Risen Cem
Coopertown
Clarks Cr
Panther Run
Grassy Run
Shinkle Cr
Williamstown Cr
29B
29C
35A
36
37
39
40
41
42
42A
Node Routing & Descriptions
35A-36 Multi-Use Path along West Railroad R/W w/Spur into Downtown
36-37 Multi-Use Path along West Railroad R/W w/Spur into Downtown Williamstown
37-39 Multi-Use Path utilizing Existing Sidewalks along U.S. 25 & Proposed Sidewalks along KY 36
39-40 Multi-Use Path crossing Ark Encounter Property to Eibeck Lane
40-41 Multi-Use Path along South Side of Eibeck Lane
41-42 Hiking & Horse Trails along Interstate R/W w/Spur to Mason Cornith Elementary
42-42A Hiking & Horse Trails along Interstate R/W
29B-29C Multi-Use Path along Interstate R/W, Stream, & Easement to Lynnwood Drive
29C-39 Multi-Use Path along Lynnwood Drive, KY 36, I75 R/W & Grandview Heights
Legend
TH Trailhead
Trail Node
Trail Node @ Major Road Crossing
Primary Trail
Ancillary Trail
Primitive Camping Areas
Equestrian Areas
Section #4
Williamstown Area
FFLAG Pathway Study
Grant County, Kentucky
HICKS & MANN, INC.
Consulting Engineers
Land Surveyors
Planners

Section 5 "Mason Section"

The Greenway in this area begins just north of Mason Sipple Pike and runs parallel to the western right-of-way of I-75 to meet the section described below. A trailhead could be developed adjacent to the old Mason Post Office and connected to the main trail spine via Mason Sipple Pike. This section is rugged and the trail in this area should be considered as a type of rudimentary improvement similar to state and national parks and forest trails. This section should be considered as appropriate for hikers and horseback riders primarily. A trailhead with facilities for parking horse and bike trailers could be created on the Lawrenceville and/or Keefer Roads on the west side of the I-75 underpass. This would allow connection with ancillary trails in the western part of the county. The landscape in this area is suitable for the community to consider purchasing additional land beyond the Greenway corridor for use as parkland that could have additional hiking trails and possible primitive camping as well.

Ancillary Trail Connections in this Section

An ancillary trail could be developed in this section that connects the upper reaches of the Grassy Run watershed with the main Greenway spine. This section would be primarily oriented to horseback riders.


Legend
TH Trailhead
Trail Node
Trail Node @ Major Road Crossing
Primary Trail
Ancillary Trail
Primitive Camping Areas
Equestrian Areas
Section 4, Williamstown Area
Section 6, Corinth Area
42A
43
44
45
45A
Mason
Lawrenceville
Keefer
Node Routing & Descriptions
42A-43 Hiking & Horse Trails along Interstate R/W to Mason Sipple Road w/Spur to Mason
43-44 Hiking & Horse Trails along Interstate R/W to Lawrence Road
44-45 Hiking & Horse Trails along Interstate R/W to Keefer Road
45-45A Hiking & Horse Trails along Interstate R/W
Section #5
Mason Area
FFLAG Pathway Study
Grant County, Kentucky
HICKS & MANN, INC.
Consulting Engineers
Land Surveyors
Planners
116 Humes Ridge Road
Williamstown, Ky. 41097
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Section 6 "Corinth Section"

The Greenway in this section begins just south of Lawrenceville Road and runs parallel to the western right-of-way of I-75 to its intersection with KY 330. This section is rugged and the trail in this area should be considered as a type of rudimentary improvement similar to state and national parks and forest trails. The rural parts of this section should be considered as appropriate for hikers and horseback riders primarily. A primary trailhead could be developed on state-owned land on the north side of KY 330 at the intersection with the I-75 southbound off-ramp. A trailhead with facilities for parking horse and bike trailers could be created on Ragtown Road on the west side of the I-75 underpass. This would allow connection with ancillary trails in the western part of the county.

From the primary trailhead on KY 330, the trail would be located on the south side of KY 330 on the bridge over I-75 and then be located on the south side of the improved shoulder of KY 330 to the intersection of Old Corinth-Owenton Road. The trail then would utilize Old Corinth-Owenton Road as an on-street connection to downtown Corinth.

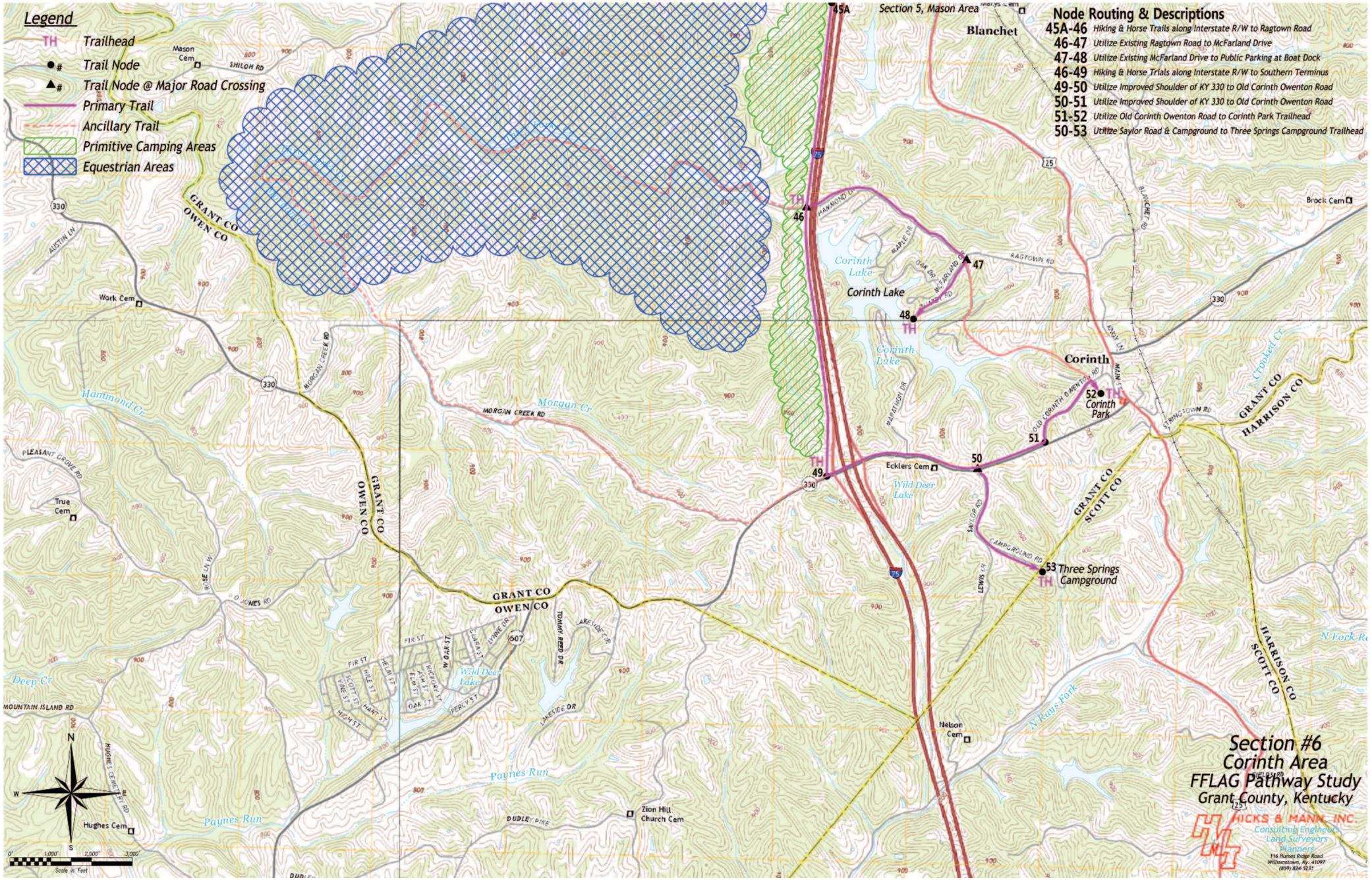
Saylor Road would be utilized as an on-street connection to the Three Springs Campground and to future trail development in Scott County.

A spur off the main spine of this route would connect to the public boat dock facilities off McFarland Drive on Corinth Lake utilizing the I-75 underpass on Ragtown Road.

This southern portion of the spine is tenuous. Significant issues exist in terms of ensuring a safe, versatile connection along KY 330. Detailed design work should be examined carefully to ensure that the connection is functional and safe.

Ancillary Trail Connections in this Section

A large loop through the heavily woodland west of the main Greenway spine could be developed in this section. The trails could connect the Three Forks Creek and the Morgan Creek watersheds. This section would be primarily oriented to horseback riders.


Legend
TH Trailhead
Trail Node
Trail Node @ Major Road Crossing
Primary Trail
Ancillary Trail
Primitive Camping Areas
Equestrian Areas
Node Routing & Descriptions
45A-46 Hiking & Horse Trails along Interstate R/W to Ragtown Road
46-47 Utilize Existing Ragtown Road to McFarland Drive
47-48 Utilize Existing McFarland Drive to Public Parking at Boat Dock
46-49 Hiking & Horse Trials along Interstate R/W to Southern Terminus
49-50 Utilize Improved Shoulder of KY 330 to Old Corinth Owenton Road
50-51 Utilize Improved Shoulder of KY 330 to Old Corinth Owenton Road
51-52 Utilize Old Corinth Owenton Road to Corinth Park Trailhead
50-53 Utilize Saylor Road & Campground to Three Springs Campground Trailhead
Section 5, Mason Area
Blanchet
Corinth Lake
Corinth
Corinth Park
Three Springs Campground
Ecklers Cem
Wild Deer Lake
Nelson Cem
Zion Hill Church Cem
Hughes Cem
True Cem
Work Cem
Mason Cem
Brock Cem
GRANT CO
OWEN CO
SCOTT CO
HARRISON CO
Section #6
Corinth Area
FFLAG Pathway Study
Grant County, Kentucky
HICKS & MANN, INC.
Consulting Engineers
Land Surveyors
Planners

F. Alternative Options

The original Request For Proposals from FFLAG identified two routes to be studied. The primary route was along U.S. 25 from north to south in the county and the other route was along Kentucky highways 36 and 330 in the southeastern part of the county. The Planning Team has determined that these routes are not feasible for trail development for the following reasons:

- The roads are too narrow to safely accommodate large numbers of on-road users;
- The existing highway road rights-of-way are too narrow to accommodate off road, but adjacent, trail development;
- In many locations, existing houses and other structures are very near to the highways, meaning that expanding rights-of-way to accommodate off-road trail development would put the trails unacceptably close to those houses and structures; and
- Decoupling trail development from the highway alignments in these areas would mean going "cross-country," thus impacting large numbers of property owners and putting trail users in what most landowners would consider to be private areas of their property. This would increase greatly the time needed for property negotiations. Further, this would increase costs significantly without increasing trail value.

G. Regional Context

Grant County is ideally situated to become part of a larger trail system within both northern and central Kentucky. This study's preferred alternative could easily become linked with trails in Scott and Kenton counties. Having this trail in the central spine of the county, would ensure that it becomes a heavily used portion of a trail system that starts at the Ohio River and leads to the Kentucky River. Being a part of such a system would be an additional economic generator as well.

Many people in Scott County are advocating a connection of the Legacy Trail to downtown Georgetown. This 12.5-mile trail begins in the east end of Lexington at the Isaac Murphy Memorial Art Garden and runs on streets and then off-road to the Kentucky Horse Park. Once that trail is connected to Georgetown, plans are being discussed to continue it in some form to Sadieville. Sadieville has an existing horse trail network and is currently pursuing the "Trail Town" designation. The trail in Grant County could potentially connect to trails in Scott County via the Three Springs Campground.

During the third and final public meeting, a representative from Green Umbrella attended and shared the organizations excitement that greenway trails are being considered to the south of the greater Cincinnati area.

Rugged horse and nature trails could be connected along an east-west axis into Owen and Pendleton counties. While this is outside the scope of this study, interested parties should begin exploring those options.

think like a stream

CHAPTER 4

GREENWAY CHARACTER RECOMMENDA-TIONS

Background

While the initial FFLAG Request for Proposal requested the study of a shared-use path, it became clear during the study that additional trail types would be needed as well. These include on-road trails that cater only to bicycles, and walking paths that will cater to pedestrians and horseback riders. This section will discuss basic design guidelines of these three primary types.

Note – this section provides a general overview of design techniques and is not intended to be used as a design and specification reference. Detailed trail cross sections are not provided with this study.

A. Basic Trail Design Standards

Shared-Use Path Design

A shared-use path functions as its name implies: multiple user types are accommodated on this kind of path. These users include walkers, bicyclists, runners, and roller-bladers, to name a few. This type of path is also deigned to accommodate the broadest age range possible as well as those with mobility issues.

The biggest issue with shared-use paths comes in the conflict between different types of mobility. Bikes, for instance, are heavy, fast moving machines – meaning they can be dangerous. A parent pushing a baby stroller or an elderly person out for a morning walk move at much slower pace. These folks are also often not overly aware of other traffic on the path. Fast moving bikers and slow moving pedestrians can result in injuries. Therefore accommodating both bikes and pedestrians is at the heart of good shared-use path design. Runners, while they may be frustrated at times, can easily avoid pedestrians, thus there is not as much potential conflict.

Shared-Use Path Before

Shared-Use Path After

Wide paths are a key design element; paths should be a minimum of 10 feet wide plus two feet of unpaved shoulders on each side, while paths with 12 feet plus shoulders are most desirable. A paved width of more than 12 feet, excluding the shoulders on either side, may be appropriate when substantial use by both pedestrians and bicyclists is expected or maintenance vehicles are anticipated. On bridges or culverts, it is common to pave the entire shared-use path, including shoulders. This usable width can be advantageous for emergency, patrol, and maintenance vehicles and allows for maneuvering around pedestrians and bicyclists who may have stopped. It also keeps the structure uncluttered of any loose gravel shoulder material.

There are some exceptions to minimum path widths. A reduced path width of eight feet may be designed at spot locations that present a physical constraint such as an environmental feature or other obstacle. And in rare and limited circumstances, a reduced width of eight feet may be used where the following conditions prevail:

- Bicycle traffic is expected to be low at all times.
- Pedestrian use of the facility is light.
- The narrower path will not be regularly subjected to maintenance vehicle use conditions that would cause pavement edge damage.
- The shared-use path is for a short distance such as a spur connection to a neighborhood.

Another key guideline is to geometrically design the shared-use path to encourage bicyclists to operate at speeds compatible with other users. Higher speeds are discouraged in a mixed-use setting. If horses are considered as part of a shared-use path, it is desirable to provide a separate bridle trail along the shared-use path to minimize conflicts with horses.

In terms of constructing a shared-use path, the maximum slope should be less than or equal to five percent (5%). When the path is within the highway right-of-way, its running slope can match the general grade established for the adjacent roadway. The maximum cross slope on a paved shared-use path should be no more than two percent (2%). Sloping the pavement surface to one side is desirable and usually simplifies drainage design and surface construction. Generally, surface drainage from the path is dissipated as it flows down the side slope.

The minimum horizontal clearance from the edge of pavement to an obstruction (such as bridge piers or guardrail) is two feet. The path should have a minimum vertical clearance of 10 feet from the pavement surface to overhead obstructions to accommodate maintenance vehicles, bicyclists, and equestrians, if any.

Shared-use paths should have landings to provide users a level place to rest on extended grades. These landings should be in line and as wide as the shared-use path. Landings are to be at least five feet long.

Intersection and crossing designs should clearly define who has the right-of-way and provide sight distance for all users at shared-use paths and roadway intersections. Design shared-use paths and roadway intersections with level grades, and provide safe, sight distances. Do not use speed bumps or other similar surface obstructions intended to cause bicyclists to slow down. Consider some slowing features such as tight horizontal curves instead. Provide advance warning signs and pavement markings that alert and direct path users that there is a crossing. It is best to avoid locating a crossing where there is a steep downgrade where bike speeds could be high.

Crossing Before

Crossing After

Stop signs on the path should be placed as close to the intended stopping point as feasible. No shared-use path signs should be placed where they may confuse motorists or place roadway signs where they may confuse shared-use path users.

Design curb ramps with a width equal to the shared-use path. Curb ramps and barrier-free passageways are to provide a smooth transition between the shared-use path and the roadway or sidewalk (for pedestrians). Path designers may consider refuge islands where a shared-use path crosses a roadway when one or more of the following applies:

- High motor vehicle traffic volumes and speeds
- Especially wide roadways
- Heavy use by the elderly, children, the disabled, or other slow-moving users

For paths that cross railroads at grade, wherever possible, design the crossing at right angles to the rails.

Shared-use paths often need some form of physical barrier at roadway intersections to prevent unauthorized motor vehicles from entering. Bollards are typically used to prevent unauthorized vehicle access. Typically, one highly visible bollard located in the center of the path is sufficient to control motor vehicle access to the path. If more than one bollard is needed, the additional bollards should be placed at the edge of the shared-use path. The width between bollards should be a minimum of five feet. Design all bollards along a corridor to be uniform in appearance in order to allow path users and vehicle traffic to become familiar with the posts. Use removable bollards to permit access by emergency and service vehicles where necessary.

There are other equally effective methods of preventing unwanted vehicle access. One method is to split the entryway into two sections separated by low landscaping, thereby splitting a path into two channels at roadway intersections. This method essentially creates an island in the middle of the path rather than installing a bollard. Such an island could be planted with low-growing, hardy vegetation capable of withstanding the occasional authorized vehicle traveling over it.

Single-Use Path Design

In many locations along the Greenway's spine, sidewalks will play an important part of the connectivity of the Greenway. Where the right-of-way permits, sidewalks in these areas should be widened to a minimum of five feet. This would allow more comfortable walking conditions but will not allow bike riding. In certain areas, the sidewalk may be even wider to accommodate both bikes and pedestrians. In areas where the right-of-way width will not permit widening sidewalks, the sidewalks should be repaired where necessary to provide a comfortable walking experience.

Conventional On-Road Shared Bike Lane

A shared lane is a combined motor vehicle and bicycle lane. These will be located in both rural and urban parts of the Greenway spine. Shared lanes are appropriate for lower-speed and lower-volume streets. Shared lanes employ pavement markings and signage to indicate the combined use. Shared lane markings (a.k.a. "sharrows") are pavement markings specifically used to indicate a shared lane or intersection space. The location of the marking on the actual pavement can encourage a desired position within the lane for cyclists, as well as alerting motor vehicle users.

Conventionally, wide lanes have been encouraged for shared-lane applications, to allow for motor vehicles to pass cyclists, or for cyclists to pass motor vehicles in a queue. However, wider lanes may also encourage motor vehicle drivers to travel at higher speeds and a detriment for a shared-lane application. Therefore, it is not always advisable to utilize such facilities for shared bike lanes.

Single-Use Path Before

Single-Use Path After

Accommodating Bikes on Shoulders

With this plan it is anticipated that a portion of the trail network may be located on the shoulder of the Dry Ridge Bypass and on KY 36/Stewartsville Road between Williamstown and the Ark Encounter. It should be verified by a field survey that these shoulders allow a minimum of four feet of useable shoulder outside of a rumble strip area and a minimum of five feet of useable shoulder where there is a guardrail or other barrier. Other commitments needed to use these as part of the network include improving roadside maintenance (including periodic sweeping), and removing surface obstacles such as drain grates that are not compatible with bicycle tires.

On Shoulder Before

On Shoulder After

Hiking and Horseback Riding Paths

Due to the rugged topography of the southern portion of Grant County, the Greenway spine between the Kentucky Cowtown at Eibeck Lane and a trailhead at KY 330 near Corinth is designated to be used primarily by hikers and horseback riders.

Detailed site analysis in this area will be needed to determine the appropriate grades and clearances needed. Generally, the design should ensure that slopes are moderate to promote a stable, maintainable tread and a more pleasant hike or ride. The path should be designed to traverse a hilly area with gentle changes in grade. A path should undulate gently to provide natural drainage and to eliminate monotonous level stretches and long, steep grades that are tiring to trail users. Design should be informed by standards such as the National Park Service Trail Guidelines.

Horse and Hikers Before

Horse and Hikers After

B. Trailheads

Trailheads are important points because they set the stage and provide some of the needs to trail users. Trailheads establish the visitor experience, provide for a good first and last impression of the trail system, and provide a sense of the quality and ideals of the trail and those responsible for it.

For this Greenway network, two types of trailheads are recommended. Primary trailheads should be employed in high-use areas. These trailheads should be placed at the primary Greenway entrance points. Secondary trailheads should be located in areas with less usage. These trailheads should be placed at secondary entry points.

This study recommends utilizing existing public facilities such as schools, parks, and other governmentally or community-owned locations to accommodate primary trailheads. Secondary trailheads could utilize community facilities but may also need to be located on property not currently owned by the community.

See maps in Chapter 5 for general locations of trailheads.

A Primary Trailhead Should Contain:

- parking for between 10 and 20 cars and horse and bike trailers where appropriate
- seating and shade
- permanent maps and information signage
- water and restroom facilities
- prominent trail signage
- emergency information
- bike parking
- lighting

A Secondary Trailhead Should Contain:

- parking for between five and 10 cars and horse and bike trailers where appropriate
- permanent maps and information signage
- no other facilities will be provided

C. Greenway Amenities

It is vital for the formal design of the Greenway to include those items which will enhance the user experience along the route. The design plans should include rest areas at appropriate intervals located adjacent to the main path. These rest areas should include benches, picnic tables, and bike racks. Neither water stations nor trash cans should be located at such rest areas due to need for ongoing maintenance

D. Greenway Signage

Ensuring a cohesive and stress free experience is vital for Greenway users. Signage is one key way to achieve that. A signage plan should be developed as part of the detailed design for the Greenway. This plan should incorporate utilizing signs as a sort of advertising to heighten awareness of the Greenway to the general public, as well as presenting attractive and inviting entrances into the Greenway network. Along the Greenway network itself, signs are critical for informing users where they are in relation to the context of the entire Greenway as well as to specific locations. Signage should be thought of as pieces of art that are complimentary to the overall design vocabulary of the entire Greenway.

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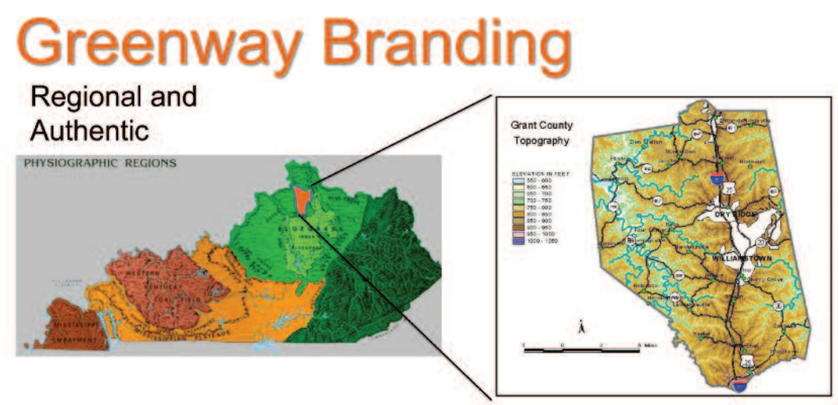


BRG = Bluegrass REGIONAL Greenway

Branding

The long term success of the Greenway depends on the recognition of it as a valuable community brand. This brand will have both inward and outward effects. Inwardly, the Greenway brand can strengthen community bonds by fostering civic engagement and sense of pride that arise from shared values and identity. Outwardly, the Greenway's brand will shape how the community is perceived.

This study encourages the community to think big when developing the identity of the trail. The potential user base for this Greenway is larger than just Grant County. In fact,

within a two-hour drive, there are as many as four million potential trail users. Thus establishing a brand identity that can attract this user base is critical.

This report suggests the brand identity of "BRG: Bluegrass Regional Greenway." While this study does not formally recommend this as the basis of building a brand identity, it does provide an example of how thinking big in terms of branding could work. The BRG sends a signal to the millions of potential users what it is (greenway), where it is (geographically rooted in a unique landscape), and has the potential as a symbol (BRG) to be developed into a myriad of marketing opportunities.

Design Vocabulary

When the community begins the process of a detailed Greenway design, it will be important to establish a design vocabulary to guide that process. A design vocabulary will give the Greenway a distinctive identity that will enhance the experience for the users. This design vocabulary will inform the selection of materials and the form of many design elements. The selected design consultants should work with the community to develop a set of design guidelines that are unique to Grant County's physical environment and cultural history.

E. Programming Ideas

Public Art

The arts are an important component of healthy communities. Development of the Greenway is an opportunity to highlight the community's belief in the value of a culturally rich place that embraces all the arts, infuses artistic creativity into all aspects of civic life including the built and natural environments and celebrates and preserves local history and diverse heritage in meaningful ways. Concurrent with the development of a detailed design plan for the Greenway, a public art plan should be created. This plan could encompass a variety of artistic expression along the Greenway including visual art (like sculptures and murals) as well as exploring the possibilities of dramatic arts (dance, song, and storytelling). This focus on the arts has the potential of drawing even more people to use the Greenway as well as increasing potential funding sources.

Vegetation

The detailed design plan should accommodate appropriate plantings along the Greenway. This study suggests that Greenway plantings should be mostly native perennial plants to reduce maintenance costs and enhance the existing landscape.

Areas of the Greenway will require screening due to privacy and safety issues. The goal of the detailed design should be to recommend plants that create thick screens through use of coniferous trees and shrubs. Deciduous trees should be considered for trailheads and along the trail route for many reasons. The use of trees strengthens certain sightlines and blocks unfavorable views. Trees also create intimate spaces with a pleasant microclimate during warm summer months. Plants should be selected for their attractiveness to insect, avian, and mammal pollinator species.

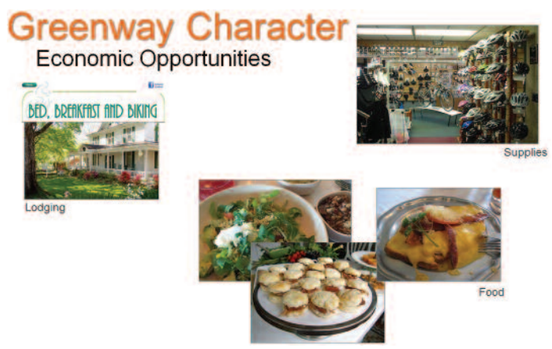
Additionally, keeping the importance of health for citizens in mind, the community may want to explore the creation of food forests in appropriate locations along the Greenway. A food forest has been defined as: "a gardening technique or land management system, which mimics a woodland ecosystem by substituting edible trees, shrubs, perennials and annuals. Fruit and nut trees make up the upper level, while berry shrubs, edible perennials and annuals make up

the lower levels." The goal of such a plan could be to plant and grow an edible urban forest garden that inspires the community to gather together, grow food and rehabilitate the local ecosystem.

Environment

Detailed design plans should take careful consideration of the impact of constructing and maintaining the Greenway on the environment. Further, plans should provide methods of improving environmental quality. One way to do this is through the incorporation of rain gardens into the Greenway. A rain garden is defined as a "planted depression that allows rainwater runoff from impervious urban areas, like roofs, driveways, walkways, parking lots, and compacted lawn areas, the opportunity to be absorbed." This will ensure that the Greenway itself does not add to environmental degradation.

Economic Development



Concurrent with the development of detailed design plans for the Greenway, an economic development plan should be created to help the community to take advantage of the economic opportunities presented by the Greenway. Greenway users typically want an authentic experience, which could translate into accommodations, local food, music, and art economic opportunities for local entrepreneurs to build upon. Further, the economic development study should also consider the development of locally based suppliers of Greenway user's needs, such as apparel, bikes and associated supplies and repair, horse-related needs, as well as general supplies such as snacks and drinks.

Education

The development of the Greenway should be accompanied by the creation of an interpretive plan. This interpretive plan should result in signage that tells the story of place and community along the Greenway. A core committee of scientists, historians, storytellers, and artists should be convened to create the narrative that will be displayed at kiosks and markers along the Greenway. These kiosks and markers should be considered as part of the design vocabulary of the trail.

Programing

In addition to casual users, the Greenway should be programmed for specific groups and activities. For example, local schools should be encouraged to engage students with the Greenway. Local charitable groups should be encouraged to use the Greenway for fund-raising activities. Athletic events such as 5k runs, bike rides, family walks, and horseback rides should all utilize the Greenway. Further, community events such as "Friday fun days" or local music concerts should be considered for the Greenway. Programing as wide a variety of events as possible is critical to ensuring that the Greenway is used by the largest segment of the community as possible. It will also help with fund-raising for developing and maintaining the Greenway.

CHAPTER 5

IMPLEMENTATION

Implementing this Greenway will be a large and complicated task that should be expected to take several years. Therefore it is critical to undertake this process in manageable tasks. This Chapter examines a set of strategies for the community to consider.

At the beginning it is very important to keep what the KLC Team believes to be two keys to achieve the Greenway Vision of a 48-mile route that builds health and connects communities:

1. Build broad constituencies and partnerships – give as many people as possible a reason to support development of the Greenway; and,
2. Ensure community actions support the Greenway – continually find ways to connect local decisions and actions to support growing the Greenway. Long-term consistency is vital.

A. Immediate Action: Build Community Support

Building community support for the Greenway should begin now. FFLAG members and other community leaders can begin giving presentations about the status of the Greenway to local groups. Tours can be given of the proposed Greenway routing. FFLAG organizers and others can begin using portions of the proposed Greenway route as if it was already constructed by having outdoor meetings and events along the corridor, for example. The community could host concerts and perhaps even festivals along the proposed corridor. The overall goal is that the community soon begins to perceive this as something that is happening.

The above work should also coincide with a marketing and promotional campaign. It is recommended that a branding plan and logo be developed soon, and that this is rolled out into the community in 2017. The Greenway brand could be incorporated into "swag" such as T-shirts, bumper stickers, coffee mugs, and tote bags, all in an effort to build awareness of the Greenway in the community.

Greenway boosters should also begin a media awareness campaign soon as well. It is important to have messages about the Greenway generally, and activities related to it specifically, appear often in local and regional media. Social media strategies should be employed as well: Facebook, YouTube, and Twitter accounts specifically related to the Greenway should be developed for the purpose of growing awareness and sharing information and then managed actively to gain supporters.

Growing trail awareness to local youth is also vital. It is recommended that a strong effort be made to reach all school children in the county with the message of the Greenway. And ideally, lesson plans could be developed that link education to the Greenway.

B. Implementation Structure

In order to begin to move forward, this study recommends that Fitness for Life Around Grant County explore and decide upon a Greenway implementation and management structure. There are two primary alternatives for those structures: governmental and nonprofit. While these are complimentary in some respects, FFLAG should determine which best suits the realities of the community and pursue one or the other as the primary implementation structure.

Governmental Structure

One possible strategy is for the Greenway implementation and management process to be governmentally based. One opportunity could be the creation of a "Grant County Greenway Commission," whose role would be to oversee all aspects of greenway planning, funding, development, management, programming and maintenance. This Greenway Commission could be comprised of representatives from all four governmental areas in Grant County and staffed by existing or new government employees.

There appears to be several drawbacks to this scheme. A significant one might be working out an acceptable pro rata share of funding between governments to support such a Greenway Commission's activities. Another significant drawback might be related to staffing such a Commission: is there fiscal capacity to bring on new employees whose only jobs would be devoted to the implementation and management of the Greenway? Adding one new employee to staff the Greenway Commission may require up to $75,000 a year in salary an benefits. If not, there may be concerns over the ability of existing employees to undertake such a task, given the already stretched nature of many current employees.

Another option for a governmental structure would be to leave implementation and management of the Greenway to each of the four governmental agencies through which it passes. The obvious drawback to this scheme would be the possibilities of uncoordinated actions or even a lack of interest or ability among one or more of the governmental agencies.

Nonprofit Structure

The other Greenway implementation and management strategy would involve the creation of a new nonprofit, 501(c)(3) and/or 501(c)(4) organization devoted solely to those tasks. Briefly, a 501(c)(3) organization is charitable in nature and donations are tax deductible. A 501(c)(4) organization has many of the same purposes as a 501(c)(3) but can actively lobby governments related to their social purpose, which may be needed for Greenway development. Either can hold title to real estate. Legal counsel must be obtained before embarking on either or both alternatives.

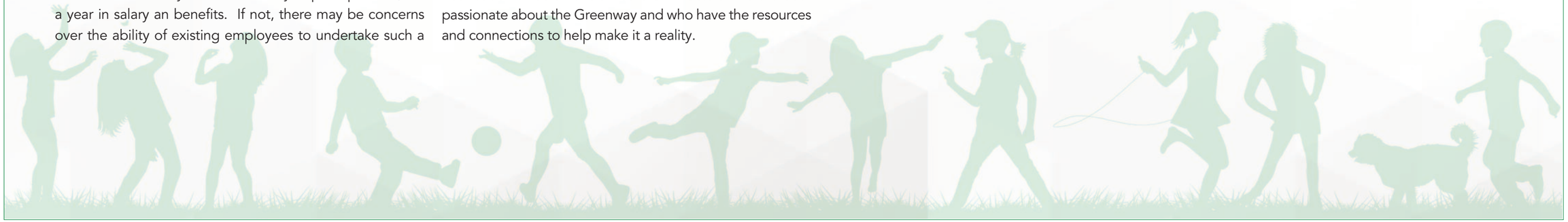
In this scenario, it is advisable to create an entity separate from FFLAG, whose mission includes other activities beyond the creation of the Greenway. This "Greenway Foundation" could be funded by private and public sector grants, local corporations, local businesses, and individuals on a tax deductible basis. Local governments may also contribute a portion of operating funds as well as contributing to the overall maintenance of the Greenway. This "Greenway Foundation" would have a Board of Directors who are both passionate about the Greenway and who have the resources and connections to help make it a reality.

The "Greenway Foundation" would hire staff to implement and manage the Greenway. This professional staff would be responsible to the "Greenway Foundation" Board of Directors for producing plans, securing funding and rights-of -way, management and programing, and for overseeing maintenance and operations.

There could be several drawbacks to this scheme. Funding such an operation for the long term would take significant financial inputs. For example, such an operation should be fully funded for appropriate staffing levels for at least three years, with five years being optimal. It would be wise to estimate needing between $300,000 - $500,000 for three to five years of staff salary and benefits (minimum of two people) and office operations. Funding for this start-up could come from foundations dedicated to health care, recreation, community building, and environmental protection among others. Developing this initial funding may be the task of either FFLAG or the nascent "Greenway Foundation" Board of Directors. Having this initial round of funding would allow staff to begin the process of planning, fund-raising, and property acquisition to begin in advance of actual construction and maintenance of the Greenway.

The time and expense needed to establish IRS approval of 501 status could also be a drawback.

Whichever implementation strategy is chosen, the community should begin the process of becoming a designated "Kentucky Trail Town." This effort will help ensure state-level support. Further, it is vital that the efforts be coordinated with regional partners to ensure proper planning to create the best trail system possible.



C. Planning and Phasing

Regardless which implementation and management structure is chosen, the initial steps afterward would be to begin the creation of detailed design plans for the Greenway. This will involve the community in helping to determine the final design character of the Greenway and working with the individual landowners impacted by the Greenway routes. It should go without saying that such planning will include gathering all required local, state, and federal permits.

Once these plans and community and landowner involvement are completed, the phasing of the Greenway should be clear. It is recommended that the initial phases of the Greenway construction be in highly visible and highly used locations in order to show the larger community that progress is being made.

Property Acquisition

This feasibility study has demonstrated that a significant portion of the Greenway route lies within government-owned rights-of-way, helping to reduce overall costs. The remainder of the Greenway route covers land that is currently privately owned. As has been stated earlier in this report, it is recommended that conversion of land under private ownership into Greenway right-of-way should be accomplished by either donation or purchase. The government's power of eminent domain is not recommended for property acquisition.

Ideally, much of the needed right-of-way for the Greenway would be gifted to whichever implementation structure is chosen. Landowners making such gifts may be eligible for tax benefits. If land purchases are necessary, hiring a skilled negotiator to conduct property deals may be a logical step. Landowners may be persuaded to offer the land in fee simple at below market rates in order to facilitate development of the Greenway or they may want certain incentives in return. If land is to be purchased in fee simple at fair market rates, viable, independent appraisals are vital. Acquiring land through an easement may appear to be a cheaper option, however many granting sources, both governmental and private, require either very long-term leases or won't grant on easements at all.

Several government programs may be available to help provide funds of land purchase. This study recommends working closely with the Kentucky League of Cities, the Kentucky Association of Counties, the Area Development District, and the Kentucky Department of Adventure Tourism. It would be wise to anticipate that all grants will require some amount of community match.

Greenway Development Funding

Once the initial phasing is determined, fund-raising should begin for construction of that portion. Funding for construction generally comes from three primary sources: government programs, foundation grants, and corporate/private sponsorships. Of these, the government programs should be expected to provide a majority of funds for actual constriction of the Greenway surfaces and facilities. Foundation grants may be most counted on for developing the character of the Greenway with such things as art, education, and other quality of life enhancements. Corporate/private sponsorships may be appropriate in high-visibility areas of the Greenway. If this route is chosen, it is vital that guidelines be developed to establish clear financial expectations for such sponsorships and how the sponsor will be recognized on the Greenway.

It is best perhaps to not worry too much on the front-end as to where the entire amount of funds will come from for the

entire Greenway. Approach the job in manageable phases and show dedication to quality and persistence and momentum will grow which will help ensure the Greenway's completion.

Ensure Safety and Security

The Greenway must be personally secure and physically safe. Ensuring physical safety is the responsibility of the final trail design plans as well as the proper long-term maintenance of the Greenway. Clear standards exist to guide the planning, construction, and maintenance of a safe trail. Education will also be important to help users minimize the risks of Greenway use.

In terms of security, crime rates are lower on trail networks than the overall crime rate for the region (Tracy and Morris, 1998). A key element of Greenway safety is to ensure that it is heavily used. More people on the Greenway will translate into an increase in safety. The keys to getting people on the trail are to create a pleasant experience, to program active usage of the Greenway at various times of the week and year, and to keep the Greenway well maintained. The Greenway's appearance in terms of maintenance, trash and graffiti control will affect a person's sense of safety. A negative appearance could translate into personal avoidance of the trail as it may seem "unsafe." The most significant places for criminal activities are trailheads (Americantrails.org). Fortunately, these are also the easiest to patrol. It will be important for law enforcement agencies in Grant County to clearly delineate areas of responsibility along the Greenway.

D. Overcoming Obstacles

This study identifies four key obstacles the community will face in the development of the Greenway: funding, rugged landscape, the hurdle of I-75, and building overwhelming and lasting community support. Of these, funding, while important, is not the largest obstacle to overcome. Nor is the rugged landscape in the southern part of the county. I-75 will present design challenges to connecting the western and eastern parts of the Greenway. Of these, however, building overwhelming and lasting community support is the most critical, and if the effort is successful, the most rewarding. The citizens of Grant County must begin to see themselves as living in a "Greenway Community." When they do, the other obstacles can be overcome.

This Greenway is a large and marvelous project. The development process will be neither quick nor trouble free. The community must create a support system for those involved in this process and ensure that new citizens are stepping in to help as others get weary. This effort should not fall only to a few dedicated volunteers; they will get burned out and the effort could falter, which could be viewed by both the rest of the community and potential funders as a sign of overall failure. Successful development of this Greenway will require the entire community to "think like a stream": everyone is carried along and committed to finding the way forward.

Working Together:

CHAPTER 6

COST ESTIMATE NARRATIVE

The Cost Estimates contained herein are based on past experience with similar construction in the Grant County and surrounding areas, and the Engineer's Knowledge of the Area & Proposed Routes within the different areas. The Estimates are Reasonable Estimate of Probable Construction Cost, including Design & Permitting Costs.

These Estimates are intended to be Order of Magnitude Estimates. However, the Final Design, Phasing, Market Conditions, and Project Schedule will impact the Final Costs.

Fitness For Life Around Grant County

Grant County Greenway, Summary

Preliminary Estimate of Probable Construction Costs

Section	Total Costs	Mileage	Cost per Mile
Section 1, Crittenden Area	$2,565,000	6.6	$388,636
Section 2, Sherman Area	$3,340,000	6.6	$506,061
Section 3, Dry Ridge Area	$6,500,000	16.2	$401,235
Section 4, Williamstown Area	$2,920,000	8.0	$365,000
Sections 5 & 6, Mason & Corinth Areas	$1,750,000	10.6	$165,094
Trailheads	$1,625,000	N/A	N/A
Total Estimated Costs	$18,700,000	48.0	$389,583

Fitness For Life Around Grant County
Trailheads
Preliminary Estimate of Probable Construction Costs

	Trailhead	Description of Improvements	Estimated Cost
1	Violet Road	Property Acquisition, Parking, & Signage	$175,000
2	Grant County Park	Signage	$10,000
3	Lloyd WMA	Signage	$10,000
4	Sherman Tavern	Parking & Signage	$80,000
5	Piddle Park	Signage	$10,000
6	DRE & GCMS	Parking & Signage	$80,000
7	Grant County Fairgrounds	Shelter, Parking, & Signage	$100,000
8	Mullins Field	Signage	$10,000
9	Williamstown Ind. Schools	Parking & Signage	$80,000
10	Ark Encounter	Parking, Signage, & Shelter	$100,000
11	Webb Park	Signage	$10,000
12	Memorial Fields	Signage & Shelter	$50,000
13	Cowtown (Horses)	Property Acquisition, Parking, & Signage	$120,000
14	Mason Corinth Elementary	Parking & Signage	$80,000
15	Mason	Parking & Signage	$80,000
16	Lawerenceville Road (Hikers)	Property Acquisition, Parking, & Signage	$100,000
17	Keefer Road (Hikers)	Property Acquisition, Parking, & Signage	$100,000
18	Ragtown Road (Hikers)	Property Acquisition, Parking, & Signage	$100,000
19	Corinth Lake	Signage	$10,000
20	Owenton Road (KY 330)	Property Acquisition, Parking, & Signage	$160,000
21	Corinth Park	Signage	$10,000
22	Three Springs Campground	Property, Acquisition, Shelter, Parking, & Signage	$150,000
	22	**Trailheads** **Total Estimated Costs**	**$1,625,000**

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Fitness For Life Around Grant County
Grant County Greenway, Section 1, Crittenden Area
Preliminary Estimate of Probable Construction Costs

Node - Node	Description	Total Costs
1 - 2	Multi-Use Trail; County Line to Milo	8,000
	Sidewalk Upgrade along Milo Court, Barley Circle, & Waller Drive	70,000
	Crosswalk Delineation	5,000
	Property Acquisition/Easement	10,000
2 - 3	Multi-Use Trail; Waller Drive to Violet Road	60,000
	Property Acquisition/Easements	30,000
3 - 4	Sidewalk Upgrade to Interchange 166	30,000
4 - 5	Sidewalk Upgrade to Public Alley East of Eagle Drive	39,000
	Highway Crossing Signalization & Delineation	50,000
5 - 6	Multi-Use Trail; Violet Road to South Side of BPWD Property	48,000
	Minor Stream Crossing	10,000
	Property Acquisition/Easements	15,000
6 - 7	Multi-Use Trail; Parallel to I-75 Right-of-Way	46,000
	Minor Stream Crossings	20,000
	Major Stream Crossings	30,000
	Property Acquisition/Easements	90,000
7 - 8	Multi-Use Trail; Through Grant County Park	136,000
	Minor Stream Crossings	30,000
8 - 9	Multi-Use Trail; Parallel to I-75 Right-of-Way (East Side)	60,000
	Major Stream Crossings	60,000
	Fencing	22,500
	Property Acquisition/Easements	30,000
9 - 10	Multi-Use Trail; Through Wildlife Management Area	100,000
	Property Acquisition/Easement	5,000
10 - 11	Multi-Use Trail; Through Wildlife Management Area	160,000
	Highway Crossing Signalization & Delineation	50,000
	Railroad Crossing Signalization & Delineation	60,000
	Property Acquisition/Easements	5,000
4 - 12	Multi-Use Trail; Parallel to I-75 Right-of-Way (Violet Road to Duncan Lane)	240,000
	Minor Stream Crossings	40,000
	Major Stream Crossings	30,000
	Property Acquisition/Easements	90,000
	Fencing	54,500
12 - 13	Multi-Use Trail; Between I-75 Right-of-Way & Duncan Lane	150,000
	Minor Stream Crossings	20,000
	Major Stream Crossings	30,000
10 - 13	Multi-Use Trail; Along Crittenden Mt. Zion Road	48,000
13 - 13A	Multi-Use Trail; Between I-75 Right-of-Way & Ruark Road	108,000
	Highway Crossing Signalization & Delineation	50,000
	Minor Stream Crossings	10,000
Other Associated Costs		
	Legal Fees	30,000
	Stream/Wetlands Delineation, T/E Species, Archaeological, & Permit Applications	15,000
	Field Topographic Surveys, Boundary/Easement Surveys, Plats, & Descriptions	86,000
	Design Engineering	129,000
	Construction Supervision	64,000
	Construction Staking & Layout	64,000
	Geotechnical (Compaction Testing)	17,000
	Permit & Application Fees	10,000
	Section 1, Crittenden Area, Total Costs	**$2,565,000**
	Total Length of Pathway/Trail (Miles)	**6.6**
	Average Cost per Mile	**$388,636**

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Fitness For Life Around Grant County
Grant County Greenway, Section 2, Sherman Area
Preliminary Estimate of Probable Construction Costs

Node - Node	Description	Total Costs
13A - 14	Multi-Use Trail; Between I-75 Right-of-Way & Ruark Road	226,000
	Minor Stream Crossings	20,000
	Major Stream Crossings	60,000
14 - 15	Multi-Use Trail; Parallel to I-75 Right-of-Way (Ruark Road to Sherman Mt. Zion Road)	152,000
	Minor Stream Crossings	20,000
	Major Stream Crossings	60,000
	Property Acquisition/Easements	90,000
	Fencing	57,000
15 - 16	Multi-Use Trail; Sherman Mt. Zion Road Crossing I-75 via. Bridge	12,000
	Bridge Pavement Delineation	5,000
16 - 17	Multi-Use Trail; Parallel to I-75 Right-of-Way (East Side)	260,000
	Crosswalk Delineation	5,000
	Minor Stream Crossings	30,000
	Major Stream Crossings	60,000
	Fencing	97,500
	Property Acquisition/Easements	210,000
17 - 18	Multi-Use Trail; Cross Country following Stream & Property Lines	120,000
	Minor Stream Crossings	10,000
	Fencing	27,000
	Property Acquisition/Easements	90,000
18 - 18A	Multi-Use Trail; Cross Country following Property Lines	200,000
	Crosswalk Delineation	5,000
	Minor Stream Crossings	10,000
	Major Stream Crossings	30,000
	Fencing	75,000
	Property Acquisition/Easements	90,000
15 - 20	Multi-Use Trail; Between I-75 Right-of-Way & Peoples Road	224,000
	Major Stream Crossings	30,000
	Crosswalk Delineation	5,000
	Fencing	28,000
	Property Acquisition/Easements	90,000
20 - 21	Multi-Use Trail; Parallel to I-75 Right-of-Way (West Side)	204,000
	Crosswalk Delineation	5,000
	Minor Stream Crossings	20,000
	Major Stream Crossings	30,000
	Fencing	76,500
	Property Acquisition/Easements	90,000
Other Associated Costs		
	Legal Fees	22,000
	Stream/Wetlands Delineation, T/E Species, Archaeological, & Permit Applications	15,000
	Field Topographic Surveys, Boundary/Easement Surveys, Plats, & Descriptions	113,000
	Design Engineering	169,000
	Construction Supervision	85,000
	Construction Staking & Layout	85,000
	Geotechnical (Compaction Testing)	17,000
	Permit & Application Fees	10,000
	Section 2, Sherman Area, Total Costs	**$3,340,000**
	Total Length of Pathway/Trail (Miles)	**6.6**
	Average Cost per Mile	**$506,061**

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Fitness For Life Around Grant County
Grant County Greenway, Section 3, Dry Ridge Area
Preliminary Estimate of Probable Construction Costs

Node - Node	Description	Total Costs
18A - 19	Multi-Use Trail; Cross Country following Stream & Property Lines	132,000
	Minor Stream Crossings	40,000
	Fencing	49,500
	Property Acquisition/Easements	90,000
19 - 22	Multi-Use Trail; Parallel to McCoy Road	90,000
	Minor Stream Crossings	10,000
	Major Stream Crossings	30,000
	Fencing	33,750
	Property Acquisition/Easements	30,000
22 - 23	Multi-Use Trail; Cross Country following Stream & Property Lines	60,000
	Minor Stream Crossings	20,000
	Fencing	22,500
	Property Acquisition/Easements	60,000
23 - 24	Sidewalk Upgrade along Dry Ridge Connector to Taft Highway (KY 22)	24,000
	Highway Crossing Signalization & Delineation	50,000
	Crosswalk Delineation	5,000
24 - 25	Multi-Use Trail; Along Ferguson Blvd. & Property Line	100,000
	Multi-Use Trail; Spur Trail to Piddle Park Trailhead	80,000
	Major Stream Crossings	60,000
	Minor Stream Crossings	20,000
	Property Acquisition/Easements	90,000
25 - 26	Multi-Use Trail; Along Stream to Interstate Right-of-Way	60,000
	Minor Stream Crossings	20,000
	Property Acquisition/Easements	30,000
26 - 27	Multi-Use Trail; Along Interstate Right-of-Way to Grant County Fairgrounds	120,000
	Minor Stream Crossings	20,000
	Major Stream Crossings	30,000
	Fencing	37,500
	Property Acquisition/Easements	90,000
27 - 28	Multi-Use Trail; Along Stream & Fairgrounds Property Line	172,000
	Multi-Use Trail; Spur Trail to Dry Ridge Elementary & Grant Middle School	44,000
	Minor Stream Crossings	30,000
	Property Acquisition/Easements	90,000
28 - 29	Multi-Use Trail; Cross Country following Stream & Property Lines to Barnes Road	212,000
	Highway Crossing Signalization & Delineation	50,000
	Minor Stream Crossings	20,000
	Major Stream Crossings	60,000
	Fencing	79,500
	Property Acquisition/Easements	90,000
29 - 29A	Multi-Use Trail; Along Barnes Road Crossing I-75 via. Bridge	100,000
	Bridge Pavement Delineation	5,000
29A - 29B	Multi-Use Trail; Along Interstate Right-of-Way	116,000
	Minor Stream Crossings	10,000
	Fencing	43,500
	Property Acquisition/Easements	90,000
23 - 31	Multi-Use Trail; Shoulder Improvements along Dry Ridge Connector	100,000
	Highway Crossing Signalization & Delineation	100,000
31 - 32	Multi-Use Trail; Shoulder Improvements Dry Ridge Connector to South Main Street	10,000
	Highway Crossing Signalization & Delineation	100,000

Fitness For Life Around Grant County
Grant County Greenway, Section 3, Dry Ridge Area
Preliminary Estimate of Probable Construction Costs

Node - Node	Description	Total Costs
25 - 32	Multi-Use Trail; Cross Country following Stream & Property Lines to South Main Street	168,000
	Minor Stream Crossings	10,000
	Fencing	63,000
	Property Acquisition/Easements	150,000
32 - 38	Multi-Use Trail; Along Arnie Risen Blvd. to Baton Rouge Road.	212,000
	Crosswalk Delineation	45,000
28 - 38	Multi-Use Trail; Parallel to Baton Rouge Road	80,000
	Minor Stream Crossings	10,000
	Fencing	30,000
	Property Acquisition/Easements	15,000
38 - 33	Multi-Use Trail; Along Arnie Risen Blvd. to Baton Rouge Road.	152,000
	Crosswalk Delineation	15,000
29 - 33	Sidewalk Upgrade along Barnes Road	68,000
	Crosswalk Delineation	20,000
31 - 34	Multi-Use Trail; Along Main Street (US 25)	361,000
	Crosswalk Delineation	5,000
33 - 34	Railroad Crossing at Barnes Road	60,000
30 - 33	Sidewalk Upgrade along Helton Road	50,000
	Crosswalk Delineation	30,000
29 - 30	Multi-Use Trail; Cross Country following Stream & Property Lines to Williamstown Ind. Schools	320,000
	Minor Stream Crossings	20,000
	Major Stream Crossings	60,000
	Fencing	120,000
	Property Acquisition/Easements	210,000
30 - 35	Sidewalk Upgrade along Helton Road	55,000
	Crosswalk Delineation	10,000
35 - 35A	Multi-Use Trail; Cross Country following the West Right-of-Way of the Railroad	34,000
	Minor Stream Crossings	10,000
	Major Stream Crossings	30,000
	Fencing	12,750
	Property Acquisition/Easements	60,000
Other Associated Costs		
	Legal Fees	39,000
	Stream/Wetlands Delineation, T/E Species, Archaeological, & Permit Applications	15,000
	Field Topographic Surveys, Boundary/Easement Surveys, Plats, & Descriptions	220,000
	Design Engineering	331,000
	Construction Supervision	165,000
	Construction Staking & Layout	165,000
	Geotechnical (Compaction Testing)	43,000
	Permit & Application Fees	10,000
	Section 3, Dry Ridge Area, Total Costs	**$6,500,000**
	Total Length of Pathway/Trail (Miles)	**16.2**
	Average Cost per Mile	**$401,235**

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Fitness For Life Around Grant County
Grant County Greenway, Section 4, Williamstown Area
Preliminary Estimate of Probable Construction Costs

Node - Node	Description	Total Costs
35A - 36	Multi-Use Trail; Cross Country following the West Right-of-Way of the Railroad	72,000
	Minor Stream Crossings	20,000
	Crosswalk Delineation	5,000
	Railroad Crossing with Spur to Arnold Cabin	60,000
	Fencing	27,000
	Property Acquisition/Easements	180,000
36 - 37	Multi-Use Trail; Cross Country following the West Right-of-Way of the Railroad	96,000
	Multi-Use Trail; Spur to Webb Park Trailhead	60,000
	Minor Stream Crossings	20,000
	Crosswalk Delineation	5,000
	Fencing	30,000
	Property Acquisition/Easements	120,000
37 - 39	Sidewalk Upgrade along South Main Street (US 25) & KY 36 to Ark Parking Lot	135,000
	Highway Crossing Signalization & Delineation	50,000
	Crosswalk Delineation	10,000
29B - 29C	Multi-Use Trail; Along I-75 Right-of-Way, Streams, & Easement to Lynnwood Drive	100,000
	Minor Stream Crossings	20,000
	Major Stream Crossings	30,000
	Fencing	15,000
	Property Acquisition/Easements	90,000
29C - 39	Multi-Use Trail; Along Lynnwood Drive, Grand View Heights, I-75 Right-of-Way & Property Lines	188,000
	Property Acquisition/Easements	90,000
39 - 40	Multi-Use Trail; Along Streams & Property Lines across the Ark Ecounter Property	320,000
	Minor Stream Crossings	100,000
	Major Stream Crossings	60,000
	Property Acquisition/Easements	30,000
40 - 41	Multi-Use Trail; Along Eibeck Lane to Cowtown	124,800
	Crosswalk Delineation	10,000
41 - 42	Hiking/Horse Trails; Along Interstate Right-of-Way to Heekin Road	24,300
	Spur; Shoulder Improvements on Heekin Road to Mason Corinth Elementary Trailhead	16,000
	Crosswalk Delineation	5,000
	Fencing	72,900
	Property Acquisition/Easements	60,000
42 - 42A	Hiking/Horse Trails; Along I-75 Right-of-Way	32,500
	Fencing	97,500
	Property Acquisition/Easements	90,000
Other Associated Costs		
	Legal Fees	19,000
	Stream/Wetlands Delineation, T/E Species, Archaeological, & Permit Applications	15,000
	Field Topographic Surveys, Boundary/Easement Surveys, Plats, & Descriptions	99,000
	Design Engineering	148,000
	Construction Supervision	74,000
	Construction Staking & Layout	74,000
	Geotechnical (Compaction Testing)	15,000
	Permit & Application Fees	10,000
	Section 4, Williamstown Area, Total Costs	**$2,920,000**
	Total Length of Pathway/Trail (Miles)	**8.0**
	Average Cost per Mile	**$365,000**

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Fitness For Life Around Grant County
Grant County Greenway, Sections 5 & 6, Mason & Corinth Areas
Preliminary Estimate of Probable Construction Costs

Node - Node	Description	Total Costs
Section 5, Mason Area		
42A - 43	Hiking/Horse Trails; Along Interstate Right-of-Way to Mason Sipple Road	9,000
	Spur; Shoulder Improvements on Mason Sipple Road to Mason Trailhead	17,300
	Crosswalk Delineation	10,000
	Fencing	27,000
	Property Acquisition/Easements	30,000
43 - 44	Hiking/Horse Trails; Along Interstate Right-of-Way to Lawrenceville Road	40,000
	Crosswalk Delineation	5,000
	Fencing	120,000
	Property Acquisition/Easements	120,000
44 - 45	Hiking/Horse Trails; Along Interstate Right-of-Way to Keefer Road	57,500
	Crosswalk Delineation	5,000
	Fencing	172,500
	Property Acquisition/Easements	240,000
44 - 45	Hiking/Horse Trails; Along Interstate Right-of-Way	8,500
	Fencing	25,500
	Property Acquisition/Easements	30,000
Section 6, Corinth Area		
45A - 46	Hiking/Horse Trails; Along Interstate Right-of-Way to Ragtown Road	26,000
	Crosswalk Delineation	5,000
	Fencing	78,000
	Property Acquisition/Easements	90,000
46 - 47	Ragtown Road; On Road Delineation & Signage	5,000
47 - 48	McFarland Drive; On Road Delineation & Signage	2,200
46 - 49	Hiking/Horse Trails; Along Interstate Right-of-Way to Owenton Road (KY 330)	34,000
	Fencing	102,000
	Property Acquisition/Easements	90,000
49 - 50	Multi-Use Trail; Shoulder Improvements along KY 330 to Saylor Road	40,000
	Crosswalk Delineation	20,000
50 - 51	Multi-Use Trail; Shoulder Improvements along KY 330 to Old Owenton Road	20,000
	Crosswalk Delineation	10,000
51 - 52	Old Owenton Road; On Road Delineation & Signage	2,500
50 - 53	Saylor Road & Campground Road; On Road Delineation, Signage, & Shoulder Improvements	18,000
Other Associated Costs		
	Legal Fees	20,000
	Stream/Wetlands Delineation, T/E Species, Archaeological, & Permit Applications	15,000
	Field Topographic Surveys, Boundary/Easement Surveys, Plats, & Descriptions	58,000
	Design Engineering	88,000
	Construction Supervision	44,000
	Construction Staking & Layout	44,000
	Geotechnical (Compaction Testing)	11,000
	Permit & Application Fees	10,000
	Sections 5 & 6, Mason & Corinth Areas, Total Costs	**$1,750,000**
	Total Length of Pathway/Trail (Miles)	**10.6**
	Average Cost per Mile	**$165,094**

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Fitness For Life Around Grant County

Average Unit Prices

Preliminary Estimate of Probable Construction Costs

Multi-Use Trail	40.00 LF
Local Street SW Upgrade	20.00 LF
Local Street Crosswalk Delineation	5,000 LS
Highway SW Upgrade	30.00 LF
Major Highway Crossing	50,000 LS
Shoulder Improvements	10 LF
Minor Stream Crossing	10,000 LS
Major Stream Crossing	30,000 LS
Fencing Along Interstate or Property Line	15.00 LF
Railroad Crossing	60,000 LS
Property Acquisition/Easement Small Tract	5,000 LS/Parcel
Property Acquisition/Easement Large Tract	30,000 LS/Parcel
Hiking/Horse Trail	5.00 LF
Legal Fees/Easement or Purchase	1,000 LS
On Road Delineation & Signage	1.00 LF

CHAPTER 7

RESOURCES

Reference Materials and Resources

Active Living Research, *Power of Trails for Promoting Physical Activity in Communities* (San Diego, CA: San Diego State University, 2011)

American Heart Association, Value of primordial and primary prevention for cardiovascular disease. Available online at http://circ.ahajournals.org/content/124/8/967.

American Trails

2013 Crittenden Beautification Strategic Plan

FFLAG, *Starting With Children* 2014 Business Plan for Investing in Kentucky's Future

FFLAG Pathway Feasibility Study Request for Proposal

FFLAG Pathway Feasibility Study Regional Trail Survey Instrument

FFLAG Pathway Feasibility Study 3 Public Meeting Presentations

- June, August and October presentations by Steve Austin, JD, ASLA

Kentucky Trail Town Program

Rails to Trails Conservancy, 1998 *Rails – Trails and Safe Communities* by Tracy and Morris, 2015 *Maintenance Practices and Costs of Rail-Trails* and 2012 *Urban Pathways to Healthy Neighborhoods: Personal Safety*.

Williamstown 2012 Master Plan

Williamstown 2012 Comprehensive Plan Update