
Appendix A:

Glossary

AASHTO: American Association of State Highway and Transportation Officials.

ADA: Americans with Disabilities Act. Refers to a law which mandates that a site, building, facility, or trail complies with the ADA Accessibility Guidelines and can be approached, entered, and used by people with disabilities.

Alternative Transportation: modes of transportation, such as public transit, bicycle, or walking; alternative to automobile travel.

Bikeway: any road, path or way which in some manner is specifically designated as open to bicycle travel, regardless of whether such facility is designated for the exclusive use of bicycles, or is shared with other transportation modes.

Bike Facilities: a general term denoting improvements and provisions made to accommodate or encourage bicycling, including bikeways, parking and storage facilities, lockers, showers and signage.

Bike Lane: one-way facility adjacent to the travel lane that is striped a minimum of 4 feet and designated for bicycle use only.

Bike Route: roadways that are identified by signing as preferred bike routes.

Bio-diversity: species diversity; changes in species composition, species richness and/or functional type affect the efficiency with which resources are processed within an ecosystem.

Buffer: any type of natural or constructed barrier (trees, shrubs, berms or fences) used between the greenway and adjacent lands to minimize impacts (physical or visual). Buffers also provide a transition between adjacent land uses.

Cultural and Historic Resources: as defined by the Secretary of Interior's definition or per Article 13 of the Zoning Ordinance.

Destination Point: location of interest that attracts people to it.

Easement: grants the right to use a specific portion of land for a specific purpose or purposes. Easements may be limited to a specific period of time, granted in perpetuity or predicated upon the occurrence of a specific event. An easement agreement survives transfer of landownership and is generally binding upon future owners until it expires on its own terms.

Facility: general term denoting improvements and provisions made to a greenway.

Fee Simple (Fee Simple Absolute): an interest in land in which the owner is entitled to the entire property without limitation or restriction, and with unconditional power of disposition.

FEMA Floodplain: floodplains and flood hazard areas that have been shown on maps developed by National Flood Insurance Program (NFIP). A soils floodplain consists of the alluvial soils as defined by the U.S. Department of Agriculture Natural Resources Conservation Service.

Green Infrastructure: an interconnected network of waterways, wetlands, woodlands, forests, wildlife habitats, and other natural areas, greenways, parks and other conservation lands. Wilderness and other open spaces that support native species, maintain natural ecological processes, sustain air and water resources, and contribute to the health and quality of life for communities and people.

Greenspace: natural areas, open spaces, trails, and greenways that function for both wildlife and people. From the Greenspace Plan, a greenspace is defined as the essential natural and cultural characteristics that give the Bluegrass its special identity and quality of life.

Greenway: a linear open space established along a natural corridor (such as a river, stream, ridgeline), rail-trail, utility corridor, scenic road, or other route for conservation, recreation, or alternative transportation purposes. Greenways can connect parks, nature preserves, cultural facilities, and historic sites with business and residential areas.

Greenway, Conservation: a greenway that protects bio-diversity and water resources by connecting natural features, such as streams, wetlands, forests, and steep slopes. It may also function for stormwater management.

Greenspace: natural areas, open spaces, parks, trails, and greenways that function for both wildlife and people.

Hard Surface: trails with surfaces that use paved materials or other firm and stable surfaces that are capable of supporting wheels and accessibility.

Natural Surface: trails with surfaces that are not necessarily ADA accessible, such as compacted dirt, wood chips or stones.

Off-Road Facilities: trails that are physically separated from motorized vehicular traffic by an open space or barrier; includes riparian corridors, abandoned roads, utility corridors and rail corridors.

On-Road Facilities: extensions of the existing street system right-of-way, offering users the choice of sidewalks or bike facilities.

Origin Point: site along greenway where people may gain access, such as a staging area or trailhead.

Paved Shoulder: an extension of the pavement generally found in rural areas. Paved shoulders are anywhere from 6 inches to 12 feet in size. The preferred minimum width is four (4) feet.

Post-Development Floodplain: portion of land adjacent to a stream covered by water during the 100-year, 24-hour storm. It shall be determined using the procedures outlined in the Stormwater Manual and shall be based on a fully developed watershed.

Primary System: trails that form the main framework for the county-wide system; and may be

located in Conservation Greenways, on-road or off-road locations.

Rail-to-Trail: a public shared use path (paved or natural) created along an inactive or abandoned rail corridor.

Rail-with-Trail: any shared use path that is located on or directly adjacent to an active railroad or fixed route transit corridor.

Railbank(ing): retaining a rail corridor for future railroad uses after service has been discontinued. The National Trails System Act, Sec. 8d, provides for interim public use of the corridor, allowing the establishment of recreational trails.

Riparian Zone: an area of vegetation that is strongly influenced by water and that occurs adjacent to streams, shorelines, and wetlands.

Rural Road Bike Route: rural roads in the Rural Service Area that have been selected because they are conducive to biking or could be with minimal improvements. These roads have low volume, low speeds and relatively wide shoulders.

Secondary System: links Primary Trails, forming an interconnected network system; may be found in Conservation Greenways, or utilize on-road or off-road facilities.

Shared Roadways: A roadway which is open to both bicycle and motor vehicle travel. This may be an existing roadway, street with wide curb lanes, or road with paved shoulders.

Shared Use Trail: Any corridor that is designed to accommodate various uses; including bicycling, walking, jogging, hiking, rollerblading, horseback riding; and should meet AASHTO standards.

Signed Shared Roadway: roads that have been identified by signing as preferred bike routes.

Staging Area: an area where users can congregate, park, and begin or end a trip.

Stream: includes intermittent and perennial streams represented on the USGS 7.5-minute topographic maps as either a solid or dashed blue line and channels that are not shown as a solid or dashed blue line but have a drainage area of at least 50 acres.

Tertiary System: trails that provide additional access to areas not reached by the designated Primary or Secondary Trails; may be found in Conservation Greenways, or utilize on-road or off-road facilities.

Trail: route on land or water with protected status and public access for recreation or transportation purposes, such as walking; jogging; hiking; bicycling; rollerblading; horseback riding; canoeing and kayaking.

Trailhead: an access point to a trail or trail system often accompanied by various public facilities, such as parking areas, loading areas, toilets; water, directional and informational signs, and a trail use register.

Walking Path: a linear route for general pedestrian use that is not a sidewalk and may not meet AASHTO standards; generally found in parks.

Wide Curb Lane: a lane where there is no designated bike lane and where the outside travel lane is wider than the usual lane width. This lane is meant to accommodate both cyclist and motorist. In many cases, the motorist will not need to change lanes in order to pass the cyclist.

Wildlife Habitat: a place that supports a plant or animal population because it supplies that organism's basic requirements of food, water, shelter, living space, and security.

Appendix B:

Supporting Documents

The several planning and operational documents utilized for the management and improvement of Lexington-Fayette County lands and resources offer rudimentary consideration of Greenways and indicate the need for a Greenway Master Plan. The Greenway Master Plan expands upon and integrates the functional elements of greenways with the purposes set forth in these documents. This Master Plan establishes a systematic physical framework and provides recommendations for policies and programs that address the concerns and opportunities that protection and utilization of green spaces present to the Community. Some of the long-term concerns of the Lexington-Fayette Urban County Government (LFUCG) include the protection of stream corridors and overall water and habitat quality, preservation and enhancement of our unique Bluegrass aesthetic environs, improvement of access to community resources via alternative transportation modes and provision of recreational and health enhancing amenities.

The 1991 Greenway Plan

In 1991, a Greenway Plan was produced via the LFUCG Division of Planning with input from the Greenspace Commission. This Plan was subsequently updated (1992), and functioned as a “general overview, with specific concept recommendations”. The Plan was not incorporated into the 1996 Comprehensive Plan; however, it served to define greenways as a planning component: identifying the resources of the Urban County, describing the benefits of greenways and suggesting strategies for acquisition, implementation and maintenance of improvements. Specific recommendations were incorporated into the 1994 Greenspace Plan.

The 1994 Greenspace Plan

A statement from the 1994 Greenspace Plan defines the perceived purpose of the existing documents at the time. “The primary goal is to prevent development in the 100-year floodplain and riparian forest in order to preserve the natural flood management capabilities of streams, with the

secondary goal of recreation and neighborhood enhancement. The Greenspace Plan is intended to satisfy a wider range of important natural and cultural values, such as protecting historic resources and scenic corridors as well as ecological systems.” “As the greenspace system is further detailed for each neighborhood, all designated greenways should be evaluated for incorporation. This evaluation should consider whether greenways that serve (solely in) flood management purpose(s) are appropriate for the greenspace system, or whether there are other implementation methods for floodplain protection that can be applied through the development approval process to protect greenways.” It states further that “... plans emphasize preserving the natural qualities of greenways. However, all greenways incorporated in the greenspace system should be considered for recreational access and trails development.” The new Greenway Master Plan moves beyond this philosophy. The new Plan is comprised of a natural corridors system component and a trails system component, wherein each system operates as both an independent system and as a system complementary to the other. Thus, the new Greenway Master Plan incorporates the goals, objectives and development concepts of the Greenspace Plan, adding in a systematic and comprehensive network.

The 1996 and 2001 Comprehensive Plans

The process for the development of the Greenway Master Plan began with the 1996 Comprehensive Plan as its basis. In December 2001, the 1996 Comprehensive Plan was updated and approved. Compatibility with the goals and objectives of the 1996 Comprehensive Plan and later 2001 Comprehensive Plan is evidenced throughout the Greenway Master Plan. All seek to promote land use that is sensitive to the natural and built environment; protect and preserve/enhance the Urban County’s significant historic and cultural heritage and existing neighborhoods; ensure the vitality of Downtown; establish and promote urban activity centers to provide services to multi-neighborhood areas; promote tourism and

employment opportunities; and generally enhance the quality of life. Within the 1996 Comprehensive Plan, "Greenways are proposed to preserve selected environmentally-sensitive areas, to add passive open space to residential developments and to add variety to the suburban neighborhood streetscape...". The Plan recommends that greenways be acquired in both developed and undeveloped areas. Both Comprehensive Plans refer to the importance of greenways in the linkage of parks, neighborhoods, and other community amenities, and refers in depth to the 1994 Greenspace Plan. Scattered greenways following 100-year floodplains were identified on the Land Use Map.

The 1996 Expansion Area Master Plan

The 1996 Expansion Area Master Plan organizes new development within several expansion areas with four elements: Future Land Use, Community Design, Infrastructure and Implementation. Future Land Use criteria include organization "according to the natural resources"... Community Design "establishes a physical framework...reflect(ing) the cultural heritage of the Bluegrass by organizing urban development around a series of 'greenways'" and linking areas with greenways, trails, paths and roads. Infrastructure criteria include "area-wide watershed management 'systems' using the designated greenways for storage, treatment and discharge of runoff" and new parks to be connected via the greenways system. Implementation includes general government actions, infrastructure finance programs and land development regulations consistent with the above criteria. This document is fully supportive of the greenways effort.

The 2000 Comprehensive Parks and Recreation Master Plan

The 2000 Comprehensive Parks and Recreation Master Plan names greenways as the second highest priority for facility development, behind only multi-use community centers. Public input during the Plan development process indicated greenways to be consistently rated one of the highest needs. The Parks Master Plan describes greenway development as a linkage system between community parks, neighborhoods, neighborhood parks and schools. Specific corridors are proposed for acquisition and easement, and recommendations are made for feasibility studies for each. The Parks Master Plan recommends that acquisition and management of greenways be an administrative function of the Division of Parks and Recreation. The Greenway

Master Plan recommends that the greenways system be implemented and managed through the Division of Public Works, with a greenway coordinator and Greenway Coordinating Committee as lead. The new Greenway Master Plan's dual system of conservation corridors and trail corridors expands beyond the Parks Master Plan philosophies of greenways makeup and purpose, administration and implementation. It is recommended that the Parks Master Plan be revised to reflect the Greenway Trail System in the Greenway Master Plan.

The 2001 Stormwater Manual

The 2001 Stormwater Manual supports the concept and implementation of greenways conservation corridors. Parameters and restrictions are established for the protection and mitigation of riparian corridors, including continual floodplain examination and building restrictions, riparian buffer guidelines, water quality criteria and stream restoration guidelines. It is recommended that specific references to the new Greenway Master Plan be added to this document to enhance coordination of efforts. The Procedures Manual for Infrastructure Development supports the tenets of the Stormwater Manual, and includes guidelines that refer directly to protection of greenways. It is recommended that this document be revised to contain additional, detailed references to greenways, in order to coordinate opportunities to 'piggyback' projects.

The Rural Service Area Land Management Plan

The Rural Service Area Land Management Plan was adopted in April of 1999. It includes a complete inventory of the natural and cultural resources in the Rural Service Area, including rural settlements, scenic roads and environmentally sensitive areas. It recognized that access to rural areas for urban residents of Lexington is limited to driving rural roads and visiting the Raven Run Nature Sanctuary. In order to provide more opportunities, the Plan recommended implementation of a rural greenway system that could be accomplished by planning connection systems between rural settlements, parks, subdivisions, and other developments. This system would have trailheads or staging areas that provide supportive features, such as parking, restrooms, concessions and rental of bikes, canoes and horses.

A rural greenway was defined as an area of relatively undisturbed floodplains passing through private farms and along roads. The emphasis of the

development of a rural greenway system was to preserve plant and animal species, protect existing streams, and to provide increased recreational opportunities. To meet these needs, the Plan recognized five focus areas, plus additional areas that were identified previously in the 1994 Greenspace Plan. The areas considered a priority for creating rural greenways were:

Five Focus Areas:

- North Elkhorn Drainageway (North Elkhorn Creek, Goose Creek, David Fork)
- Boone Creek Drainageway (Boone Creek, Jones Creek, Baughman Run, Boggs Fork)
- South Elkhorn Drainageway (South Elkhorn Creek, Cave Creek)
- Kentucky River Palisades
- Old Frankfort Pike Area

Three Additional Areas:

- Town Branch Drainageway (Town Branch Creek, Steeples Run)
- Cane Run Creek
- East Hickman Drainageway (East Hickman Creek, Shelby Branch)

It was suggested that each of these greenways could be implemented through public acquisition and scenic/conservation easements.

The Year 2025 Transportation Plan

The Year 2025 Transportation Plan was completed in April 2001. The pedestrian and bicycle portions of the Plan were written to be consistent with the draft Greenway Master Plan. The Transportation Plan includes goals and objectives specific to pedestrian and bicycle use, plus identifying road improvement projects with pedestrian or bicycle components.

The LFUCG Zoning Ordinance and Subdivision Regulations

Currently, the Zoning Ordinance and the Subdivision Regulations do not specifically address greenways. There are references in the Ordinance to traffic studies, including pedestrian and bicycle evaluations; historic preservation; floodplains and erosion control. The Regulations include language for environmentally sensitive areas and floodplains; design standards for sidewalks, shared-use paths, bike lanes, access, and provisions for reservations.

Appendix C:

Summary of Public Input

Preparation of the Lexington-Fayette County Greenway Master Plan involved working with the citizens of the Community in several ways. First, the consultant team worked closely with Lexington-Fayette Urban County Government (LFUCG) staff to define the history of the greenway effort and strategies for implementation of a greenway program. Second, the consultant conducted three public workshops. Third, the consultant met with a variety of stakeholder groups to discuss detailed aspects of the greenway plan.

C.1 Summary of Greenways Workshop **October 30, 2000**

On the evening of October 30, 2000, the first of three public workshops was conducted by the FMSM team at the Lexington Public Library. Approximately 120 people were in attendance. Mayor Miller opened the workshop by encouraging residents to keep an open mind and ask questions of the consultants and staff. The consultant began the workshop with a multi-media presentation on the benefits that greenways offer to communities. This was followed by a question and answer period in which residents, the consultant and LFUCG staff discussed a variety of issues. After a short break, workshop attendees were invited to participate in breakout sessions intended to define two principal outcomes:

- 1) Where would residents like to see Greenways protected in Lexington-Fayette County?
- 2) What are some of the issues that will influence the protection of Greenways in Lexington-Fayette County?

At the close of the evening, group facilitators presented the results of the breakout session. The consultant defined the next steps in the planning process and the location and time for the next public workshop. The input from this workshop was summarized by the consultant and used as the basis for preparing the first set of GIS-based maps for the project. Additionally, LFUCG staff published a community newsletter that described the workshop

and its outcomes. LFUCG also published results of the workshop along with photographs on a community web site www.lfucg.com/greenways.

C.2 Summary of Greenways Workshop **December 11, 2000**

Using the results of the first workshop and in-field investigations completed by the consultant, a second public workshop was conducted on the evening of December 11, 2000 at the Leestown Middle School. Approximately 75 people attended the workshop. The consultant opened the workshop by summarizing the planning efforts completed to date, and the results from the first workshop. The consultant presented the emerging network of greenways on a series of large format maps. Attendees were then asked to break into groups in order to more closely review and critique the preliminary greenway routes that resulted from the first public workshop. Participants were also asked to define priorities for future greenway facility development. The results of this workshop were once again summarized by the consultant and incorporated into the evolving greenway master plan. LFUCG staff published the results of the workshop in a second newsletter and incorporated comments of the attendees in the community web site.

C.3 Summary of Greenways Workshop **January 29, 2001**

A final community workshop occurred on the evening of January 29, 2001 at the Veterans Park Elementary School. An estimated 75 people were in attendance for this workshop. The principal goal of this workshop was the presentation of the draft Greenways Master Plan by the consultant. A detailed presentation by the consultant outlined the entire greenway system by its component parts. Additionally, implementation strategies, funding and future operations and management were featured in the consultant's presentation. After the presentation, workshop participants were asked to make one final critical examination of the draft maps. Results of the workshop were summarized by the consultant and incorporated into the Master Plan. LFUCG staff published the results of the workshop in a

community newsletter and on the community web site.

C.4 Stakeholder Meetings

In addition to the public workshops, the consultant conducted four (4) separate stakeholder meetings that focused on specialized matters with respect to the preparation of the Greenway Master Plan. On December 11, 2000, the consultant conducted a "governance" work session with approximately 40 LFUCG staff and department heads to discuss the future organization, operation and implementation of greenways. On December 12, 2000, the consultant facilitated three stakeholder meetings, the first with the Lexington Chamber of Commerce and area business leaders to discuss the relationship

between greenways and economic growth. The second was conducted with environmental and outdoor user groups to discuss issues related to outdoor access, water quality protection and design standards for trails. The third meeting was conducted before a work session of the Lexington-Fayette Urban County Council. On January 29, 2001, the consultant conducted two stakeholder meetings, the first with the Kentucky Thoroughbred Association to discuss the proper interface between greenway implementation and the horse industry; and the second with the Greenspace Commission to define the current status of the Greenway Master Plan. The results of these meetings were summarized by the consultant and incorporated into the final Greenway Master Plan recommendations.

Appendix D:

Returns on Greenway Investment

Many communities across the United States do not look upon greenway development as a cost, but more as an investment in the proper management of green infrastructure and native landscape resources. Communities like Denver, Minneapolis, Chicago and Portland, have realized that for every \$1 invested in greenway facility development, \$3 in income is derived from greenway-related or greenway-generated activities. Although most of the costs for future greenway facility development in Lexington-Fayette County will be borne by the Urban County, investing dollars in greenways should yield a substantial return to the community as a whole. This return could be in the form of reduced flooding costs, reduced costs of water quality improvement, increased tourism revenue, reduced transportation costs, increased property values and increased business attraction.

Increased Business Revenue:

- Orange County, Florida spent \$2 million to create the 16-mile West Orange Greenway, and expects to realize a complete return on its investment in the first year of operation through the economic revitalization of the small towns that lie along the trail's route.
- The Northern Central Rail Trail attracts 457,000 visitors every year and has led to the creation and support of 262 jobs in Baltimore County, Maryland. These positions range from trail construction and maintenance work, to jobs in local restaurants and hotels serving trail users, to added positions in regional sporting goods companies and supermarket chains due to increased business. A study found that the trail's cost to the public in 1993 was \$191,893, and it generated \$303,750 that same year in tax revenue—a result of increased sales, property and income taxes resulting from the Trail.
- East Grand Forks, Minnesota, population 5,000, suffered one of the worst flood disasters in U.S. history. Ninety-five percent of the town was under floodwaters in April 1997. With the flood recovery efforts in full swing in 1999, Cabelas

(one of the largest outdoor retailers in North America) opened a new store in the recently restored downtown, right on the banks of the Red River. Cabelas specifically chose the downtown over Interstate highway locations due to its proximity to the newly planned Red River Greenway, a 2,200-acre facility. Cabelas estimated that, in the first year of operation, approximately one million people would visit the store. They underestimated the popularity by one-half. Today, East Grand Forks boasts a thriving economy that it can thank, in large part, to the presence of the Greenway.

Increased Property Values:

- In Shephard's Vineyard, an Apex, North Carolina neighborhood, the neighborhood greenway is used as a selling point for nearby properties and has increased the value of adjacent properties. The developer of this community concluded that "property immediately adjacent to the trail is significantly easier to sell, and sells for an average of \$5,000 more, as a result of its proximity to the trail."

Decreased Transportation Costs:

- According to the Federal Highway Administration, the public saves from 5 to 22 cents for every automobile mile displaced by bicycling or walking. This savings comes from the reduced costs of air pollution (health costs), oil importation, and traffic congestion (such as lost wages and lost time on the job).
- A household can save \$3,000 a year by giving up one automobile and taking advantage of bicycling, walking, and transit.

Decreased Costs of Clean Water:

- Over the next decade, New York County plans to spend \$250 million on watershed protection, including the acquisition of greenway lands along riparian corridors, in order to avoid spending \$5 billion on a federally mandated water filtration system.

Decreased Health Costs:

- People who exercise regularly, including bicyclists and pedestrians, have 14 percent lower claims against their medical insurance and spend 30 percent fewer days in the hospital (National Park Service, "Economic Impacts of Protecting Rivers, Trails, and Greenway Corridors").

Decreased Criminal Activity:

- Evidence suggests that crime rates frequently drop dramatically when recreation opportunities are improved. To avoid spending \$30,000 to keep one teenager in detention for a year,

communities are investing money in greenways and other recreation facilities as crime prevention tools. According to recent research in Mecklenburg County, North Carolina, regarding crime in the Mallard Creek Greenway area, it has been found that the crime rates for the Mallard Creek Greenway and adjacent properties are significantly lower than both the overall Mallard Creek Police district and other parts of Mecklenburg County. People who live along the Mallard Creek Greenway are, in fact, at less risk for crime. Less money will be spent on crime prevention and patrol in this area.

Appendix E:

Greenway Program Lead Organization Options

DIVISION OF PARKS AND RECREATION AS LEAD AGENCY

The Division of Parks and Recreation may be a logical lead organization for the LFUCG Greenway Program. Oftentimes, greenways have trails, so the long, linear greenspaces are considered part of the recreational system that is extended beyond the community and neighborhood parks. The Division of Parks and Recreation has much to offer toward the successful implementation and management of a greenway system. Profiled below are some of the advantages and disadvantages that should be considered in designating the Division of Parks and Recreation as lead organization.

Advantages

- Parks and Recreation is familiar with greenway concepts and operating facilities that are open for public access and use.
- Parks and Recreation staff is trained in key disciplines that are essential to a successful Greenway Program, including landscape architecture, events programming and grounds maintenance.
- Parks and Recreation is accustomed to budgeting for park facility development and has successfully implemented a wide variety of park facility projects throughout the Community.

Disadvantages

- Greenway facilities may be viewed within the Division as competing with other park facility needs, and may not receive the funding or attention that is necessary to implement the Program.
- Parks and Recreation staff lacks the engineering services and technical background in multi-objective greenway implementation that is the hallmark of this Plan.

DEPARTMENT OF PUBLIC WORKS AS LEAD AGENCY

The Department of Public Works is another potential and logical LFUCG organization that can serve as lead agency for the Greenway Program. Public Works has been working on multi-objective greenway projects, both as a sole agency and in partnership with other agencies, landowners and non-profit organizations for several years. Several greenway projects completed by Public Works include: Wolf Run Neighborhood Improvement Project, Brighton East Rail-Trail, Squires Road Trail, and Reforest the Bluegrass. Profiled below are some of the advantages and disadvantages that should be considered in designating Public Works as lead organization.

Advantages

- Public Works has both the stature and the funding to support the immediate implementation of a county-wide Greenway Program.
- Public Works understands and is prepared to implement the concept of multi-objective greenways that is the hallmark of this Plan.
- Using water quality and floodplain management as the cornerstone for the Program, Public Works is best suited to lead the greenway effort.
- Public Works staff possesses the technical and professional background necessary to implement all aspects of the Greenway Program.
- Funding for the Greenway Program could come from a variety of sources that are related to infrastructure issues, such as stormwater management, transportation and environmental protection. For example, a stormwater user fee could be a potential source of funding.

Disadvantages

- Public Works is not as familiar with the operation and management of public access/use facilities as the Division of Parks and Recreation.

- Keeping with the recommendations of this Plan, Public Works would need to ensure an appropriate level of financial commitment to the Greenway Program.

NON-PROFIT ORGANIZATION AS LEAD AGENCY

A non-profit organization could be selected as “Champion” for the Greenway Program. Similar efforts have occurred in Cincinnati, Denver, Chicago and Chattanooga. One strong advantage of a non-profit organization is its ability to raise funds from private sector sources and granting organizations. Profiled below are some of the advantages and disadvantages that should be considered in designating a non-profit organization as lead organization.

Advantages

- A non-profit organization exists outside the framework of local government and is not burdened with the "government" label that can serve as a handicap for greenway implementation.
- A non-profit organization has the ability to solicit funds from private sources who may never consider giving money to a local government program.
- A non-profit organization may be able to work more efficiently than local government in implementing certain aspects of the Greenway Program and activities.

Disadvantages

- A non-profit organization exists outside the framework of local government and may have difficulty implementing a multi-objective Greenway Program throughout the County.
- A non-profit may not have the ability to employ staff with the technical backgrounds that are required to implement a multi-objective Greenway Program.

DEPARTMENT OF NATURAL RESOURCES AS A LEAD AGENCY

A long-term possibility for the administration of the Greenway Program is to create a Department of Natural Resources within the Lexington-Fayette Urban County Government. Establishing this type of agency would bring all issues and activities

involving natural resources under one department. No such agency currently exists, and the prospects for creating such an agency are not good. Profiled below are some of the advantages and disadvantages of a Department of Natural Resources acting as the lead agency.

Advantages

- All staff involved in natural resource protection and management would be working together.

Disadvantages

- There might be a duplication of services and the burden of coordinating services with other departments. Creating another Department competing for money may seem excessive to some.
- Reorganization of the current system would require a change in attitudes and procedures. Changes of this magnitude are frequently met with resistance from individuals and groups trying to protect their turf.

GREENWAY COORDINATING COMMITTEE AS LEAD AGENCY

The Greenway Coordinating Committee could act as lead agency. The Greenway Coordinating Committee currently exists and has the cumulative expertise to be an effective lead agency. However, the Coordinating Committee has neither authority nor a budget. Profiled below are some of the advantages and disadvantages of the Greenway Coordinating Committee acting as lead agency.

Advantages

- Committee already exists, with its members comprising LFUCG personnel who are involved with greenways, maintenance and acquisition. With the various departments represented, the Plan’s multi-objective approach can be achieved using the expertise of the various Divisions.

Disadvantages

- Currently does not have authority or a budget. The Committee is not under the auspices of a particular department, so its authority and a budget will have to be mandated by Council.

Appendix F:

Estimates of Facility Cost

The following defines opinions of typical costs for off-road, water-based and on-road greenway facility development and management. Greenway projects can be developed as an element of other capital improvement projects, such as transportation improvements to roads, public works improvements for sanitary sewers or stormwater projects, or park and recreation improvements that might include a trails component. In these cases, the costs for greenway facilities are incorporated into the overall project budget, usually at a lower rate than for a stand-alone project.

The costs provided in this Appendix are for greenway facility development not associated with a capital improvement project. They are based on dollar amounts that communities across the nation are spending on greenway program development, management, maintenance and. The cost opinions are followed by examples of how other communities are receiving a return on their investment in greenways, in terms of reduced flooding costs, reduced costs for water quality improvements, increased tourism revenue and increased business attraction.

It is important to identify partnership opportunities with public sector agencies and private sector

organizations, as well as individuals who can serve to reduce the cost of implementing and managing greenways.

Potential short- and long-term cost savings associated with greenway implementation should be identified then weighed against the prevailing circumstances. For example, certain materials may be cheaper in the short term, but they cost more for maintenance or replacement in the long run. Another example is the cost for the eradication of exotic species in the greenway. With every year's growth of vegetation, costs will increase dramatically. However, the cost saved by eradicating sooner than later has to be balanced with the feasibility and expense of maintaining the cleared area.

F.1 GREENWAY FACILITY DEVELOPMENT COSTS

Costs do not include those for land acquisition. Labor costs are included in facility estimates. Costs for engineering and design development are estimated at 10-15% of construction costs.

Greenways with No Facility Development (Type 1):

Vegetation	Unit Cost
Trees (1-3/4" caliper)	\$250 each
Shrubs (3 gallon)	\$25 each

*Costs include plant and installation.

Greenways with Limited Facility Development (Type 2):

Trail Treads	
6-Foot Bare Earth Hiking/Mtn. Bike Trail	\$5 per foot
8-Foot Bare Earth Equestrian Trail	\$8 per foot
14-Foot Wood Deck/Boardwalk Trail	\$150 per foot
(without rail)	

*Costs include site preparation, clearing, grading, and mobilization.

Signage	
Information Signs	\$1,000 each
Direction Signs	\$200 each
Warning Signs	\$200 each
Mile Marker Signs	\$250 each

Greenways with Shared Use, Natural Surface Trail Facility Development (Type 3):

Trail Treads	
10-Foot Aggregate/Stone Trail	\$12 per foot
14-Foot Wood Deck/Boardwalk Trail	\$150 per foot

Signage	
Information Signs	\$1,000 each
Direction Signs	\$200 each
Warning Signs	\$200 each
Mile Marker Signs	\$250 each

Furniture/Furnishings	
Benches	\$600 each
Trash Receptacles	\$400 each
Security Bollards	\$250 each
Bicycle Racks	\$500 each
Gates	\$750 each
911 Emergency Phones	\$1,000 each

Pre-Fabricated Steel Bridges	\$1,000 per foot
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**Greenways with Shared Use, Hard Surface Trail Facility Development
(Type 4)**

Trail Treads	
10-Foot Asphalt Shared Use Trail	\$35 per foot
10-Foot Concrete Shared Use Trail	\$50 per foot
14-Foot Wood Deck/Boardwalk Trail	\$150 per foot

Signage	
Information Signs	\$1,000 each
Direction Signs	\$200 each
Warning Signs	\$200 each
Mile Marker Signs	\$250 each

Furniture/Furnishings	
Benches	\$600 each
Trash Receptacles	\$400 each
Security Bollards	\$250 each
Bicycle Racks	\$500 each
Gates	\$750 each
911 Emergency Phones	\$1,000 each
Drinking Fountains	\$2,500 each

Pre-Fabricated Steel Bridges	\$1,000 per foot
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On-Road Greenway Facilities (Level 5):

Restriping

Conducted as part of a regularly scheduled roadway resurfacing project and does not include right-of-way acquisition and changes to signal actuation.

Bicycle Lanes	\$7,200/mile
Wide Outside Lanes	\$6,450/mile

Independent Projects

Listing is for development of facility type. Right-of-way cost estimates are provided as a general guide. Not all projects will require the acquisition of right-of-way. Real estate values fluctuate dramatically and will need to be adjusted on a parcel-by-parcel basis.

Share the Road Bike Route (signage)	\$15,000/mile
Urban Bike Lanes (5' wide, both sides)	\$250,000/mile
Paved Shoulders (4' wide, both sides)	\$150,000/mile
Wide Curb Lane (14' wide, both sides)	\$160,000/mile

Other Bicycle Facilities

Class I Bicycle Parking (Bicycle Lockers - per 2 bicycles)	\$500-\$1,500
Class II Bicycle Parking (Secure wheels and frame)	\$65 - \$150/bike
Class III Bicycle Parking (Inverted U's or rail racks)	\$65 - \$80/bike
Bike Route/"Share the Road" Sign	\$250/sign

Typical Costs for Pedestrian Facilities

Sidewalks (60" wide, 2 sides)	\$100,000/mile
Pedestrian Signal Heads	
For 2 Corners	\$1,800
For 4 Corners	\$3,700
Prefabricated Bridge Overpass	\$200/square foot
Constructed Bridge Overpass	\$125/square foot
Crosswalk Striping	\$250 each
Curb Extensions	\$4,500 each

F.2 FACILITY MAINTENANCE COSTS

The following maintenance costs are provided as a guide to establishing a budget for the operation, maintenance and management of each trail segment within the greenway system. These costs are derived from national industry averages and have not been adjusted to reflect unique labor, material and cost issues within Lexington-Fayette County, Kentucky.

It may be possible to lower the cost of maintaining one mile of paved trail through the development of an Adopt-a-Greenway Program. Volunteers have been proven effective in performing some of the routine maintenance activities that are listed below. Savings of 50% of the estimated cost per mile defined below are possible through a coordinated and well-run Adopt-a-Greenway Program, and some of these costs are already being covered along highways, roads, parks, and other areas.

Typical Maintenance Costs (For a One-Mile Paved Trail)

Drainage and Storm Channel Maintenance (4 x/year)	\$500
Sweeping/Blowing Debris Off Trail Tread (20 x/year)	\$1,200
Pick-up and Removal of Trash (20 x/year)	\$1,200
Weed Control and Vegetation Management (10 x/year)	\$1,000
Mowing of 3-Foot Grass Safe Zone Along Trail (20 x/year)	\$1,200
Minor Repairs to Trail Furniture/Safety Features	\$500
Maintenance Supplies for Work Crews	\$300
Equipment Fuel and Repairs	\$600
Total Maintenance Costs per Mile of Paved Trail	\$6,500
Re-Surfacing of Paved Trail Tread (20-year cycle)	\$50,000/mile

Appendix G:

Funding Sources

Funding a county-wide greenway system throughout Lexington-Fayette County will be one of the most challenging aspects of this Plan. To have a successful funding program, the Community must be committed to developing multi-objective greenways. Communities that have shown such a commitment have had very little trouble finding the financial resources necessary to implement a greenway program.

Successful greenway programs in other communities demonstrate that the most successful method of funding greenway implementation is to combine private sector funds with funds from local, state and federal sources. Many communities involved with greenway implementation leverage local dollars with other funding sources to increase the resources available for greenway acquisition, development and maintenance.

In order to successfully implement the LFUCG greenway system, the Urban County Government will need to partner with local greenway advocates, private businesses and other public sector agencies to pursue a variety of funding sources. The funding sources listed in this chapter represent some of the greenway funding opportunities that have typically been used by other communities.

G.1. FEDERAL FUNDING SOURCES

Several federal programs offer financial aid for projects that aim to improve community infrastructure, transportation, housing and recreation programs. Some of the federal programs that can be used to fund greenways include the following:

Transportation Equity Act for the 21st Century (TEA-21)

The primary source of federal funding for greenways is through the Transportation Equity Act of 1998 (TEA-21), formerly the Intermodal Surface Transportation Efficiency Act (ISTEA). ISTEA provided millions of dollars in funding for bicycle

and pedestrian transportation projects across the Country, and will provide millions more as TEA-21.

There are many sections of TEA-21 that support the development of bicycle and pedestrian transportation corridors. The Kentucky Transportation Cabinet can distribute funding from any of these subsets of TEA-21 to support greenway development within Lexington-Fayette County. Those sections that apply to the creation of greenways, sidewalks and bikeways include:

Surface Transportation Program (STP) Funds

These funds can be used for bicycle and pedestrian facility construction or non-construction projects, such as brochures, public service announcements and route maps. The projects must be related to bicycle and pedestrian transportation and must be part of the Long Range Transportation Plan.

Transportation Enhancements Program

Nationally, a total of \$3.6 billion is available through TEA-21 for Transportation Enhancements. Ten percent of Kentucky's annual STP funds are available for Enhancements projects, which include projects such as trails, greenways, sidewalks, signage, bikeways, safety education and wildlife undercrossings. The program is operated by the Kentucky Transportation Cabinet's Division of Multi-Modal Programs. There are several key requirements that projects must meet in order to receive these funds. Local applicants must provide a financial match totaling 20 percent of the project's cost, and local government sponsorship is required. Projects funded through this program must have "a clearly defined relationship to surface transportation." Twelve specific activities are eligible, some of which are recreation-related; e.g., provision of facilities for pedestrians and cyclists.

Transit Enhancement Program

This TEA-21 program will generate approximately \$30 million annually for transit enhancement activities, which will be divided among the 125 largest urban areas in the U.S. Activities eligible for

funding include pedestrian access and walkways, bicycle access, bike storage facilities, bike-on-bus racks, and transit connections to parks within the transit service area.

Recreational Trails Program

A component of TEA-21, the Recreational Trails Program is a funding source for the development of non-motorized and motorized recreational trails. The Program uses funds generated from fees on non-highway recreational fuel used by off-road vehicles. Program money can be spent on easement acquisition, property acquisition, trail development, construction and maintenance. Local government or a non-profit entity can be a project sponsor. This competitive grant program requires a 100 percent match, and the maximum grant award is \$50,000. Applications are normally due in October for the following year's funding cycle.

Congestion Mitigation and Air Quality Improvement Program (CMAQ)

The CMAQ program was created to reduce congestion on local streets and improve air quality. Funds are available to communities designated as "non-attainment" areas for air quality, meaning the air is more polluted than federal standards allow. Funds are also available to "maintenance" areas, which are former non-attainment areas that are now in compliance. Funds are distributed to states based on population by county and the severity of air quality problems. A 20 percent local match is required.

Community Development Block Grant Program

The U.S. Department of Housing and Urban Development (HUD) offers financial grants to communities for neighborhood revitalization, economic development, and improvements to community facilities and services, especially in low- and moderate-income areas.

Land and Water Conservation Fund (LWCF) Grants

This federal funding source was established in 1965 to provide park and recreation opportunities to residents throughout the United States. Money for the fund comes from the sale or lease of nonrenewable resources, primarily federal offshore oil and gas leases and surplus federal land sales. LWCF funds are used by federal agencies to acquire additions to National Parks, Forests, and Wildlife Refuges. In the past, Congress has also appropriated

LWCF moneys for so-called "state-side" projects. These "state-side" LWCF grants can be used by communities to acquire and build a variety of park and recreation facilities, including trails and greenways.

The program requires a 100 percent match of non-federal funds or in-kind match, and project sponsors must be a local unit of government. There is an annual LWCF funding cycle in Kentucky, with applications due at the beginning of each fiscal year. Appropriations vary from year to year. The maximum grant award is currently \$75,000, which may change with increased funding levels.

United States Department of Agriculture (USDA) Service

Watershed Protection and Flood Prevention Grants

The USDA Natural Resource Conservation Service (NRCS) provides funding to state and local agencies or non-profit organizations authorized to carry out, maintain and operate watershed improvements involving less than 250,000 acres. The NRCS provides financial and technical assistance to eligible projects to improve watershed protection, flood prevention, sedimentation control, public water-based fish and wildlife enhancements, and recreation planning. The NRCS requires a 50 percent local match for public recreation and fish and wildlife projects

Conservation Reserve Program

The USDA, through its Agricultural Stabilization and Conservation Service, provides payments to farm owners and operators to place highly erodible or environmentally sensitive landscapes into a 10-15 year conservation contract. The participant, in return for annual payments during this period, agrees to implement a conservation plan (approved by the local conservation district) for converting these sensitive lands to a less intensive use. Individuals, associations, corporations, estates, trusts, cities, counties and other entities are eligible for this program. This program can be used to fund the maintenance of open space and non-public use greenways along water bodies and ridge lines.

Wetlands Reserve Program

The USDA also provides direct payments to private landowners who agree to place sensitive wetlands under permanent easements. This program can be used to fund the protection of open space and greenways within riparian corridors. Landowners

can receive up to the fully appraised value for land that is very difficult to farm. In Kentucky, eligible land can be protected through easements. This program is voluntary and landowners retain control of access.

Wildlife Habitat Incentives Program

The USDA Natural Resource Conservation Service (NRCS) will work with local landowners to develop a wildlife habitat plan that a landowner implements and maintains. The NRCS provides up to 75% of the initial cost for installing a habitat. The landowner agrees to allow NRCS to have access to the land for monitoring purposes.

Environmental Quality Incentives Program

The USDA Natural Resource Conservation Service (NRCS) will provide cost share assistance of up to 75% to farms and ranches for environmental protection practices. Examples of this assistance include: grassed waterways, filter strips, manure management facilities, capping abandoned wells and wildlife enhancement. Contracts are made for 5- to 10-year increments. Incentive payments can also be used to assist farmers with land management practices.

Forestry Incentives Program

The USDA will provide cost share assistance of up to 65% to local landowners for the planting of trees and timber on non-industrial, privately owned forest lands.

Conservation Contracts

The USDA Farm Service Agency can forgive debt from the Farm Loan Program in exchange for conservation contracts on environmentally sensitive portions of a borrower's property. Contracts can be set up for conservation, recreation and wildlife purposes on farm property, including properties adjacent to streams and rivers.

Federal Emergency Management Agency

Hazard Mitigation Grant Program

The Federal Emergency Management Agency (FEMA) provides grants to state and local governments for implementing long-term hazard mitigation measures following a major disaster declaration. Eligible projects include the acquisition and relocation of repetitive flood structures. Such lands, once acquired, can be converted into greenways for flood mitigation purposes. A 25 percent local match is required. All applications

must be submitted no later than 90 days following FEMA's approval of the State Hazard Mitigation plan.

Flood Mitigation Assistance

This FEMA program provides funds to states and communities to help reduce the long-term risk of flood damage to structures. Eligible projects include acquisition and relocation of insured structures. Grantees must participate in the National Flood Insurance Program and a 25 percent local match is required. The total amount of Flood Mitigation Assistance Grants provided during any 5-year period cannot exceed \$10 million to any state or \$3.3 million to any community.

G.2. STATE OF KENTUCKY FUNDING SOURCES

The Kentucky Heritage Land Conservation Fund

The Kentucky Heritage Land Conservation Fund (KHLCF) is the premier state funding mechanism to acquire lands in their natural state. It was established by the 1994 Kentucky General Assembly to implement the functions of the 1990 Heritage Land Conservation Act. The Fund is administered by a 12 member board. The mission of the fund is to purchase lands from willing sellers to meet one or all of the statutory priorities to preserve: (1) natural areas that possess unique features, such as habitat for rare and endangered species; (2) areas important to migratory wildlife, particularly waterfowl and songbirds; (3) areas that perform important natural functions that are subject to alteration or loss, such as wetlands, old-growth or riparian forests, and forested watersheds; and/or (4) areas to be preserved in their natural state for public use, outdoor recreation, and education. Greenspace and greenways minimally meet the last priority and may commonly meet all four priorities. The fund also provides for initial management expenses, such as biological and archeological inventories; trail development; signage; and recreational/educational displays. Fund applications include a project description, a resource management plan, and discussion as to how fund priorities are met by the proposed project. Local governments, colleges and universities, and state agencies are eligible to apply to the fund. The KHLCF is supported by the state portion of the unmined minerals tax, environmental fines (other than

mining) and the \$10 additional fee to purchase the Kentucky Nature License Plate.

The Kentucky River Authority

The Kentucky River Authority was first established by the Kentucky General Assembly in 1986 to take over operation of the Kentucky River Locks and Dams 5 through 14 from the United States Corps of Engineers. Following the drought of 1988, the Authority was given a mission to protect and improve the waters of the Kentucky River through environmental management of the entire watershed. It is the first effort by the Commonwealth of Kentucky to protect a significant water resource through watershed management on a regional scale. Watershed management recognizes that a river is more than the water flowing in the main channel, and that human activities throughout the drainage area of the river affect the amount and quality of water that flows through the waterways. The Authority is charged with developing comprehensive plans for the management of the Kentucky River Basin, including long-range water supply, drought response and groundwater protection plans. It will do this by adopting regulations to improve and coordinate water resource activities within the basin among state agencies. It is also charged to develop recreational areas within the basin. The Authority is supported by water-user fees collected from facilities that withdraw water from the basin (except for those facilities using water for agricultural purposes). These fees are passed on to the citizens in the basin who purchase water.

The Kentucky Heritage Council

The mandate of the Kentucky Heritage Council is to identify, preserve and protect the cultural resources of Kentucky. The Council also maintains continually updated inventories of historic structures and archaeological sites and nominates properties to the National Register of Historic Places. By working with other state and federal agencies, local communities, and interested citizens, the Council seeks to build a greater awareness of Kentucky's past and to encourage the long-term preservation of Kentucky's significant cultural resources. Through its various programs, the Council strives to show how historic resources contribute to the heritage, economy, and quality of life of all Kentuckians.

Kentucky Community Rivers and Streams Grant Program

The purpose of this grant program is to promote community and local government participation in restoring, maintaining, and enhancing local and regional river resources and their accompanying watersheds, streams, and riparian areas. Examples of typical grants include: (1) development of river, stream and watershed assessments, protection strategies, and multi-use management plans; (2) activities to promote tourism, recreation, historic preservation, economic development and other river and stream-related opportunities; and (3) river and stream cleanups. Grant awards are determined by the Rivers and Streams Coordinating Committee, using rating criteria developed for the program. The maximum Grant award is \$5,000.00.

Kentucky Division of Community Development

The Division of Community Development administers three federally funded grant programs, as well as some state funded programs. These programs are geared to enhance the quality of life of all Kentucky communities by working through and with city and county governments. The U.S. Department of Housing and Urban Development (HUD) funded Community Development Block Grant (CDBG) program provides assistance to communities for use in revitalizing neighborhoods, expanding affordable housing and economic opportunities and/or improving community facilities and services.

A variety of programs designed to improve the quality of life for the residents of the Commonwealth are located Under the Recreation and Neighborhood Programs Branch. They include the CDBG Community Projects, CDBG Community Emergency Relief Fund (CERF) projects, and the Renaissance Kentucky program. CDBG Community Projects are designed to provide funds for community and senior center projects, as well as small infrastructure projects. As part of the Commonwealth's allocation from the CDBG program, these projects were allocated \$2,049,020, for FY 2001 (with the maximum amount of \$500,000 of CDBG funding per project).

G.3. LOCAL FUNDING SOURCES

Revenue from Taxes

Greenways can be funded through sales tax revenues. One example of a community that is using

sales tax dollars to fund bicycle and pedestrian facilities is Cobb County, Georgia, where citizens voted to implement a 1 percent special local option sales tax to provide funding for transportation projects. Over four years, Cobb County will receive \$3.8 million of this sales tax revenue for bicycle improvements alone to be used as a match for federal dollars. Another example is Oklahoma City, where voters approved a temporary \$0.01 sales tax, which generated millions of dollars for greenway acquisition and development.

Hotel/Motel Tax

A hotel/motel tax might be one avenue for generating income for the greenway system in Lexington-Fayette County. The Greenspace Commission has calculated that a 1 percent increase in this tax could generate \$670,000 in annual revenue for the greenway system.

Park Improvement Fees

An increase in Park Improvement Fees could generate dollars for both land acquisition and greenway facility development.

Impact Fees

Impact fees are monetary, one-time charges levied by a local government on new development. Unlike required dedications, impact fees can be applied to finance greenway facilities located outside the boundary of development. The Kentucky General Assembly has permitted a "small but growing number of local governments to impose impact fees." These fees can be levied through the subdivision or building permit process to finance greenways in Lexington-Fayette County.

Bond Referendums

Communities like Charlotte-Mecklenburg, North Carolina have successfully used bond referendums to fund greenway programs. During a four-year period in the 1990s, Charlotte-Mecklenburg raised more than \$15 million for the implementation of its county-wide greenway program. Lexington-Fayette County is currently considering a bond referendum that would fund park improvement projects.

Local Capital Improvements Program

Some local governments have initiated a yearly appropriation for greenway and trail development in the Capital Improvements Program. In Raleigh, North Carolina, greenways continue to be built and maintained, year after year, using a dedicated source

of annual funding that has ranged from \$100,000 to \$500,000.

G.4. PRIVATE FUNDING SOURCES

Many communities have solicited greenway funding from a variety of private foundations, corporations and other conservation-minded benefactors. As a general rule, local foundations and businesses have a greater interest and are more likely to fund local projects. These local sources should be approached first, before seeking funds outside the community.

Foundations

The following provides a listing of charities principally located within Lexington, Kentucky. The purpose of this listing is to provide information about organizations that may be interested in financially participating in the development of certain elements of the Lexington-Fayette County Greenway system. This participation may include funding the development of trails or other outdoor facilities, programming for educational or cultural events, improvements to local income neighborhoods, or enhancement for water quality purposes. This is not a comprehensive listing, and the foundations and organizations listed herein may not support greenway initiatives.

Edith Gardner Foundation
201 East Main Street
Room 1000
Lexington, Kentucky 40507

Mary E. Wharton Nature Sanctuary at Floracliff
400 Old East Vine
Lexington, Kentucky 40507
(Supports environmental causes)

Brain, Frances Hollis Foundation, Inc.
1558 Lakewood Court
Lexington, Kentucky 40502

Catholic Charities USA
Sister Frances E. Moore, CDP
Diocesan Director
Catholic Social Service Bureau
1310 West Main Street
Lexington, Kentucky 40508-2040
Phone: (859) 253-1993
Fax: (859) 254-6284

The Kentucky Waterway Alliance
Judith D. Petersen, Executive Director
854 Horton Lane
Munfordville, Kentucky 42765-8135
(270) 524-1774
email: Judy@KWAlliance.org
(Supports water quality initiatives)

Kentucky Society of Natural History
Graduate Student Research Grants
W.H. (Wally) Roberts
President, K.S.N.H.
3792 Illinois Avenue
Louisville, Kentucky 40213
(Supports research on bio-diversity)

Kentucky Rails to Trails Council
Post Office Box 597
Lexington, Kentucky 40588-0597
KyRailTrail@hotmail.com
(Supports for rails-to-trails projects)

Good Samaritan Foundation, Inc.
270 South Limestone Street
Lexington, Kentucky 40508-2566
Attn: Arch G. Mainous, Jr., President
Verona Cumberledge, Vice President
(Supports health care related projects only)

The Howe Charities, Inc.
Investing in Humanity
658 Montclair Drive
Lexington, Kentucky 40502
Phone: (859) 266-3030
(support for arts, sciences and education)

Local Businesses

Local industries and private businesses may agree to provide support for development of greenways in Lexington-Fayette County through the following:

- donations of cash to a specific greenway segment;
- donations of services to reduce the cost of greenway implementation, including equipment and labor to construct and install elements of a trail; or
- reductions in the cost of materials purchased from local businesses which support greenway implementation and can supply essential products for facility development.

This method of raising funds requires a great deal of staff coordination. One example of a successful endeavor of this type is the Swift Creek Recycled Greenway in Cary, North Carolina. A total of \$40,000 in donated construction materials and labor made this trail an award-winning demonstration project. (Some materials used in the "recycled trail" were considered waste materials by local industries!)

Trail Sponsors

A sponsorship program for trail amenities allows for smaller donations to be received from both individuals and businesses. The program must be well planned and organized, with design standards and associated costs established for each amenity. Project elements that may be funded can include wayside exhibits, benches, trash receptacles, entry signage and picnic areas. Usually, plaques recognizing the individual contributors are placed on the constructed amenities or at a prominent entry point to the trail.

Volunteer Work

Community volunteers may help with trail construction and fund raising. Potential sources of volunteer labor in Lexington-Fayette County could include local bicyclists; local historical groups; neighborhood associations; local churches; conservation groups; school groups and local civic clubs, such as Kiwanis, Rotary and Lions Clubs.

A good example of a volunteer greenway program is Cheyenne, Wyoming, which generated an impressive amount of community support and volunteer work. The program has the unusual problem of having to insist that volunteers wait to begin landscaping trails until construction is completed. A manual for greenway volunteers was developed in 1994 to guide and regulate volunteer work. The manual includes a description of appropriate volunteer efforts, request forms, waiver and release forms, and a completion form (volunteers are asked to summarize their accomplishments). Written guidelines are also provided for volunteer work in 100-year floodplains.

To better organize volunteer activity, Cheyenne developed an "Adopt-a-Spot" program. Participants who adopt a segment of trail are responsible for periodic trash pick-up, but can also install landscaping, prune trail-side vegetation, develop wildlife enhancement projects and install site amenities. All improvements must be consistent with the Greenway Development Plan and must be

approved by the local Greenway Coordinator. Adopt-a-Spot volunteers are allowed to display their names on a small sign along the adopted section of greenway.

"Buy-a-Foot" Programs

"Buy-a-Foot" programs have been successful in raising funds and awareness for trail and greenway projects across the Country. Under local initiatives, citizens are encouraged to purchase one linear foot of the greenway by donating the cost of construction. An excellent example of a successful endeavor is the High Point Greenway "Buy-a-Foot" campaign, in which linear greenway "feet" were sold at a cost of \$25 per foot. Those who donated were given a greenway T-shirt and a certificate. This project provided an estimated \$5,000 in funds.

American Greenways DuPont Awards

The Conservation Fund's American Greenways Program has teamed with the DuPont Corporation and the National Geographic Society to award small grants (\$250 to \$2,500) to stimulate the planning, design and development of greenways. These grants can be used for activities, such as mapping; conducting ecological assessments; surveying land;

holding conferences; developing brochures; producing interpretive displays; incorporating land trusts; building trails and other creative projects. Grants cannot be used for academic research, institutional support, lobbying or political activities.

REI Environmental Grants

REI (Recreational Equipment Incorporated) awards grants to organizations in the protection and enhancement of natural resources for outdoor recreation. Grants of up to \$2,000 are available through this program and can be used for:

- Preservation of wild lands and open space
- Advocacy-oriented education for the general public on conservation issues
- Building the membership base of a conservation organization
- Direct citizen action (lobbying) campaigns for public land and water recreation issues
- Projects that serve to organize a trail constituency or enhance the effectiveness of a trail organization's work as an advocate

Grants cannot be used for trail construction and maintenance.

Appendix H:

Land Acquisition Procedures

This section of the Plan defines land acquisition procedures that have been used throughout the Nation. It is recommended that for greenways in Lexington-Fayette County, the land be acquired on a voluntary basis wherever possible. Listed below is a menu of tools that landowners, land conservation organizations and LFUCG can use to establish the physical boundaries of the greenway system. In the event that certain parcels of land are considered vital to the overall efforts of the greenway system, mechanisms defined herein enable the LFUCG to purchase or negotiate for the dedication of certain property rights. Dedication should be negotiated in a manner that is consistent with local, state and Federal laws that permit and govern such action.

Properties designated for greenway acquisition must be properly maintained by the property owner (or designated person/entity) until such time that it is acquired by LFUCG. The property must be in a reasonably well-maintained condition before acceptance by LFUCG. A reasonably well-maintained parcel includes removal of any construction debris, trash, fill material, dangerous or dead trees. If any removal of ground cover or grading was permitted, then the site must be regraded and seeded.

H.1. METHODS FOR GREENWAY ACQUISITION

Methods for Acquisition of Land through Management

Management is a method of conserving the resources of a specific greenway parcel through either an established set of policies called Management Plans, or through negotiated agreements or easements with private property owners.

Management Plans

Management plans are prepared by the LFUCG for Urban County-owned greenways. In addition, agencies can work together to establish management plans for lands under their control. Management

plans should identify valuable resources, determine compatible uses for the parcel, determine administrative needs of the parcel (such as maintenance, security and funding requirements) and recommend short-term and long-term action plans for the treatment and protection of the resources.

Easements

An easement is an agreement between two parties: one who owns the land, and the other who is granted the right to use it for a specific purpose. Easements may be limited to a specific period of time or may be granted in perpetuity; or the termination of the easement may be predicated upon the occurrence of a specific event. An easement agreement survives transfer of land ownership and is generally binding upon future owners until it expires on its own terms. The purpose of an easement is to establish a legally binding contract for a mutual understanding of the specific use, treatment and protection that a greenway will receive. Property owners who grant easements retain all rights to the property except those that have been granted by the easement. The property owner is responsible for all taxes associated with the property, less the value of the easement granted. Easements are generally restricted to certain portions of property; although in certain cases, an easement can be applied to an entire parcel of land. Three types of greenway easements are:

- A. Conservation Easements

This type of easement generally establishes permanent limits on the use and development of land to protect the natural resources of that land. Dedicated conservation easements can qualify for both federal income tax deductions and state tax credits. Tax deductions are allowed by the Federal government for donations of certain conservation easements. The donations may reduce the donor's taxable income.

- B. Preservation Easements

This type of easement is intended to protect the historical integrity of a structure or important elements of the landscape by sound management

practices. Preservation easements may qualify for the same federal income tax deductions and state tax credits as conservation easements.

- **C. Public Access Easements**

Right of public access easements provide the general public with the right to access and use a specific parcel of property. Both conservation easements and preservation easements may contain clauses for the right of public access and still be eligible for tax incentives.

Methods for Acquisition of Land through Regulation

The second method of protecting greenways is through government regulation. Regulation is defined as the government's ability to control the use and development of land through legislative powers. The following types of development ordinances are regulatory tools that can meet the challenges of projected suburban growth and development and, at the same time, conserve and protect greenway resources.

Dedication/Density Transfers

Also known as incentive zoning, this mechanism allows greenways to be dedicated to a local government in exchange for density transfers on the development of the property. The subdividing of a property can be expressed in dwelling units per acre, or density. Known as density transfers, these dwelling units may be relocated to other portions of the same parcel or to contiguous land that is part of a common development plan. Dedicated density transfers can also be conveyed to subsequent holders if properly noted in transfer deeds.

Negotiated Dedications

The local government may ask a landowner to enter into negotiations for certain parcels of land that are deemed beneficial to the protection and preservation of greenway corridors. The government may ask for the dedication of land for greenways when landowners subdivide property (a minimum size would be determined). Such dedications would be proportionate to the relationship between the impact of the subdivision on community services and the percentage of land required for dedication—as defined by the U.S. Supreme Court in *Dolan v. Tigard*.

Fee-in-Lieu

To complement negotiated dedications, a fee-in-lieu program may be necessary to serve as a funding source for other land acquisition pursuits of the

Greenway Program. Based on the density of development, this method allows a developer the alternative of paying money for the development/protection of greenways in lieu of dedicating land for greenways. This money is then used to implement greenway management programs or acquire additional greenway lands.

Reservation of Land

A reservation of land does not involve any transfer of property rights but simply constitutes an obligation to keep property free from development for a stated period of time, such as 6 or 12 months. At the end of this period, if an agreement has not already been reached to transfer certain property rights, the reservation expires.

Buffer/Transition Zones

This mechanism recognizes the problem of reconciling different, potentially incompatible land uses by preserving greenways that function as buffers or transition zones between uses. Care must be taken to ensure that use of this mechanism is reasonable and will not destroy the value of a property.

Overlay Zones

An overlay zone and its regulations are established in addition to the zoning classification and regulations already in place.

Subdivision Exactions

An exaction is a condition of development approval that requires a developer to provide or contribute to the financing of public facilities at his/her own expense. For example, a developer may be required to build a greenway on site as a condition of developing a certain number of units because the development will create a need for new parks or will harm existing parks due to overuse. The mechanism can be used to protect or preserve a greenway, which is then dedicated to the local government. Consideration should be given to including greenway development in future exaction programs.

Methods for Protection of Greenways through Acquisition

The third method of protecting greenway corridors is through the acquisition of property. A variety of methods can be used to acquire property for greenway purposes.

Donation/Tax Incentives

A local government agency agrees to receive full title to a parcel of land at virtually no cost. In most cases, the donor is eligible to receive federal and state deductions on personal income, as previously described under conservation easements. In addition, property owners may be able to avoid inheritance taxes, capital gains taxes and recurring property taxes.

Fee Simple Purchase

This is a common method of acquisition where a local government agency or private greenway manager purchases property outright. Fee simple ownership conveys full title to the land and the entire "bundle" of property rights, including the right to possess land; to exclude others; to use land and to alienate or sell land.

Easement Purchase

This mechanism is the fee simple purchase of an easement. Full title to the land is not purchased, only those rights granted in the easement agreement. Therefore, the easement purchase price is less than full title value.

Purchase/Lease Back

A local government agency or private greenway organization can purchase a piece of land and then lease it back to the seller for a specified period of time. The lease may contain restrictions regarding the use and development of the property.

Bargain Sale

A property owner can sell property at a price less than the appraised fair market value of the land. Sometimes the seller can derive the same benefits as if the property were donated. Bargain Sale is attractive to sellers when the seller wants cash for the property, the seller paid a low cash price and thus is not liable for high capital gains tax, and/or the seller has a fairly high current income and could benefit from a donation of the property as an income tax deduction.

Option/First Right of Refusal

A local government agency or private organization establishes an agreement with a public agency or private property owner to provide the right of first refusal on a parcel of land that is scheduled to be sold. This form of agreement can be used in conjunction with other techniques, such as an easement, to protect the land in the short term. An

option would provide the agency with sufficient time to obtain capital to purchase the property or successfully negotiate some other means of conserving the greenway resource.

Purchase with Grant Assistance

A local government agency may acquire greenway property through the assistance of public and private funding sources, as described in Appendix G.

Rezoning Petitions

Petitions for rezoning that are adjacent to or include areas identified as a potential park or greenway sites are recommended by the Planning Commission for inclusion into the system. Planning staff encourages the dedication of those areas as part of the rezoning process.

Purchase of Development Rights

A voluntary Purchase of Development Rights (PDR) program has been established in Lexington-Fayette County, and is used to protect agricultural lands. PDR involves purchasing the development rights from a private property owner at a fair market value. The landowner retains all ownership rights under current use, but exchanges the rights to develop the property for cash payment.

Condemnation

The practice of condemning private land for use as greenways is viewed as a last resort policy. Using condemnation to acquire property or property rights can be avoided if private and public support for the Greenway Program is present. Condemnation is seldom used for the purpose of dealing with an unwilling property owner. In most cases, condemnation for greenway purposes has been exercised when there has been absentee property ownership, when title to the property is not clear, or when it becomes apparent that obtaining the consent for purchase will be difficult because there are numerous heirs located in other parts of the United States, or in different countries. The community must exercise caution in using eminent domain.

It is recommended that the right of eminent domain for a specific property be exercised by the community only if all of the following conditions exist:

- A. That the property is valued by the community as an environmentally sensitive parcel of land, significant natural resource, or critical parcel of

- land and, as such, has been defined by the community as an irreplaceable property;
- B. That written scientific justification for the community's claim that the property possesses such value should be prepared and offered to the property owner;
 - C. That all efforts to negotiate with the property owner for the management, regulation and acquisition of the property have been exhausted and that the property owner has been given reasonable and fair offers for compensation and has rejected all offers;
 - D. That due to the ownership of the property, the timeframe for negotiating the acquisition of the property will be unreasonable, and in the interest of pursuing a cost effective method for acquiring the property, the community has deemed it necessary to exercise the right of eminent domain.

H.2 SCORING CRITERIA FOR ACQUISITION PRIORITIZATION

Property on greenways should be acquired by the Lexington-Fayette Urban County Government at such time when new development occurs or capital improvement projects are constructed. All other properties on greenways will need to be evaluated for acquisition by other means. While all greenways are considered equally important within the greenway system, their acquisition and development is a long-term endeavor. Criteria should be established to determine which greenways receive priority funding.

To facilitate in the ranking of greenways for acquisition, criteria should be based on the goals and objectives established in Chapter 3. Fundamental to the Criteria is a need to give equal weighting and balance to all of the goals, which include greenways for the following uses or purposes:

- connectivity of neighborhoods to schools, parks, cultural facilities, workplaces, natural areas and the region
- natural resource protection
- alternative transportation opportunities
- health, fitness and recreation opportunities
- cultural and historic enhancement/preservation
- economic stimulation
- educational opportunities
- operations and management

Another way of looking at the criteria is:

- Greenway Trail System
 - transportation alternative
 - health and recreation
 - cultural resources enhancement and preservation
- Conservation Greenway System
 - floodplain protection
 - water quality mitigation and enhancement
 - bio-diversity restoration and preservation
- Operations and Management
 - locational: proximity, accessibility, threat of loss
 - feasibility: funding, availability

It can be argued that all greenways have a connectivity, educational and/or economic benefit, so extra points would be given for any greenway that has a specific linkage, educational or economic component to it.

Scoring Criteria

Scoring Criteria is for the evaluation of an individual parcel or group of parcels along a proposed greenway, for the purpose of acquisition of the parcel(s) into the greenway system. In scoring a parcel, all criteria should be considered, since a

particular parcel may possess opportunities in several categories. For example, a parcel on a Greenway Trail might also have a stream or rare plant species. Or a parcel on a Conservation Greenway might include a low-impact trail.

The following is an example, or guideline for the future development of scoring criteria.

Alternative Transportation

POINTS	CRITERIA
5	Parcel(s) is on greenway that supports several opportunities for transportation alternatives, linking major employment centers, neighborhoods, schools, other businesses, or other community facilities; or Parcel(s) includes a major employment center, school or other community facility.
3	Parcel(s) is on greenway that supports a few opportunities for transportation alternatives, linking major employment centers, neighborhoods, schools, other businesses or community facilities; or Parcel(s) is adjacent to employment centers, school or other community facility.
1	Parcel(s) is on greenway that supports very limited opportunities for transportation alternatives, linking major employment centers, neighborhoods, schools, other businesses or community facilities; or Parcel(s) is in close proximity to employment centers.
0	Parcel(s) provides no potential for transportation alternative.

Health, Fitness and Recreation

POINTS	CRITERIA
5	Parcel(s) provides opportunity for several passive or active recreational uses; or Parcel(s) provides ADA accessibility with little or no modification; or Parcel(s) includes a healthcare facility or senior citizen facility.
3	Parcel(s) provides opportunity for a few passive or active recreational uses; or Parcel(s) provides ADA accessibility with some modification; or Parcel(s) is adjacent to a healthcare facility or senior citizen facility.
1	Parcel(s) provides very limited potential for passive or active recreational uses; or Parcel(s) provides ADA accessibility with considerable modification
0	Parcel(s) provides no opportunities for health and recreation.

Cultural and Historic Resources

POINTS	CRITERIA
5	Parcel(s) includes a cultural or historic resource: buildings, landscapes, sites or districts listed or eligible for listing per definition of cultural or historic resource; identified community icons and landmarks, or any designated scenic road or byway. Other cultural resources include: libraries, museums, cemeteries, churches and stone fences; or Parcel(s) provides opportunities for community-wide cultural activities.
3	Parcel(s) is adjacent to a cultural or historic resource (as listed above) Parcel(s) provides opportunities for neighborhood-level cultural activities; or Parcel(s) includes unique landscape features, such as stone fences, tree-lined streets, waterfalls, rapids, springs, or variety in the landscape
1	Parcel(s) is in close proximity to a cultural or historic resource (as listed above)
0	Parcel(s) provides no opportunities for enhancement/protection of cultural or historic resources or cultural activities

Floodplain Protection

POINTS	CRITERIA
5	Parcel(s) contains a floodplain with structures that have had numerous flood events.
3	Parcel(s) contains a floodplain with structures that have had several flood events.
1	Parcel(s) contains a floodplain with structures that have had no reported flooding; or Parcel(s) contains a floodplain with no structures, and flooding is in open space areas.
0	Parcel(s) contains no floodplain.

Water Quality

POINTS	CRITERIA
5	Parcel(s) is located along a stream that is listed by state agencies as impaired; or Parcel(s) is located on a stream or drainageway within a drinking water recharge watershed; on a water supply reservoir, or in a wellhead protection area; or Parcel(s) is in a designated geographic hazard area (GHA) or natural areas (NAT); or Parcel(s) has a well-established riparian buffer; or Parcel(s) stream quality has been adversely affected by land use development or poor land use decisions
3	Parcel(s) is not designated as impaired, but is along one of the nine identified primary streams; or Parcel(s) has excellent potential for re-establishment of riparian vegetation. Parcel(s) is in a designated environmentally sensitive area (ESA)
1	Parcel(s) is located along any other perennial stream or tributary.
0	Parcel(s) provides no opportunities for enhancement of water quality

Bio-diversity

POINTS	CRITERIA
5	<p>Parcel(s) has been identified as part of a wildlife corridor or wildlife network; or</p> <p>Parcel(s) has known rare or endangered plant or animal life; or</p> <p>Parcel(s) has known significant plant communities, native species or tree stands; or</p> <p>Parcel(s) has known significant wildlife or aquatic habitat</p>
3	<p>Parcel(s) has potential for being a part of a wildlife corridor or wildlife network; or</p> <p>Parcel(s) has potential for rare or endangered plant or animal life; or</p> <p>Parcel(s) has potential for significant plant communities, native species or tree stands; or</p> <p>Parcel(s) has potential for significant wildlife or aquatic habitat.</p>
1	Parcel(s) has plant or fauna that is common to the area, with few significant habitat, plant, fauna or migration corridors.
0	Parcel(s) provides no opportunities for preservation/enhancement of biotic life

Operation and Management

POINTS	CRITERIA	CRITERIA
	<u>Locational</u>	<u>Availability</u>
5	<p>Parcel(s) includes a designation point, trailhead, borrowable resource or other public access; or</p> <p>Parcel(s) has an immediate threat of loss and is in immediate need for protection; or</p> <p>Parcel(s) is adjacent on two sides by existing greenway; or</p> <p>Parcel(s) provides a substantial buffer to incompatible land uses; or</p> <p>Parcel(s) is readily or moderately accessible for management</p>	<p>Parcel(s) shall be donated or funding is in place immediately; or</p> <p>Parcel(s) has been available for acquisition for over two years; or</p> <p>Parcel(s) provides opportunity for public/private partnership.</p>
3	Parcel(s) is in close proximity to a designation point, trailhead borrowable resource or other public access; or	Parcel(s) has potential in near future to be donated or funded; or

	<p>Parcel(s) has a moderate threat of loss and is in moderate need for protection; or</p> <p>Parcel(s) is adjacent on one side by existing greenway;</p> <p>Parcel(s) provides a partial buffer to incompatible land uses; or</p> <p>Parcel(s) is in the viewshed of publicly owned land or cultural resources; or</p> <p>Parcel(s) is adjacent to private open space in easement (i.e., PDR); or</p> <p>Parcel(s) is readily or moderately accessible for management</p>	<p>Parcel(s) has been available for acquisition for between one and two years; or</p> <p>Parcel(s) has potential for public/private partnership.</p>
1	<p>Parcel(s) has a low threat of loss and is in no immediate need for protection; or</p> <p>Parcel(s) is not adjacent to existing greenway; or</p> <p>Parcel(s) is difficult to access for management</p>	<p>Parcel(s) has been available for acquisition for less than one year; or</p> <p>Parcel(s) has little potential for public/private partnership</p>

Additional points:

POINTS	CRITERIA
5	<p>Parcel(s) provides specific educational or scientific opportunities, such as an outdoor classroom or interpretative signage; or</p> <p>Parcel(s) provides specific economic opportunity, such as flood control; water quality improvements; local or regional tourism; revitalization projects; local business access</p>

Scorecard

Category	Score	Comments
Transportation Alternative		
Health, Fitness and Recreation		
Cultural and Historic Resources		
Floodplain Protection		
Water Quality		
Bio-diversity		
Locational Availability		
Additional Points		

Appendix I:

Facility Design Guidelines:

The purpose of the Facility Design Guidelines is to assist public and private sector agencies, organizations and individuals in developing greenway facilities that are in keeping with the overall Greenway Program goals and objectives. Every effort shall be made to preserve and protect the natural, cultural and historic resources found within all Greenway corridors. These Guidelines provide a variety of trail facility and ecological system restoration concepts and ideas.

The Guidelines are not a substitute for a more thorough examination and detailed landscape architectural and engineering evaluation of specific facility projects. LFUCG disclaims any liability for the use, appropriateness and accuracy of these Guidelines as they apply to a specific project; the Guidelines are intended to be used as a generalized guide towards establishing minimum standards for greenway facility development. It is recommended that explicit Design Guidelines be developed in a new Greenway Manual that will be used for the development of all Greenway Corridors.

Guidelines should meet or exceed national standards for water quality, on-road and off-road greenway facility design. Should the national standards be revised in the future, the local standards should be then re-examined for any needed changes. Standards for greenway facilities should be delineated as per the LFUCG Engineering Manuals. Standards for bicycle facilities, sidewalk facilities and signage in the Roadway Manual are based on standards set by the American Association of State Highway Transportation Officials (AASHTO). In addition, the following resource materials have been used in the preparation of these Guidelines:

- Guide to the Development of Bicycle Facilities (AASHTO), FHWA or AASHTO, www.aashto.org/bookstore/abs.html
- Americans with Disabilities Act
- Manual on Uniform Traffic Control Devices (MUTCD)

- Lexington-Fayette Urban County Government Roadway Manual,
- Lexington-Fayette Urban County Government 2001 Stormwater Manual
- Lexington-Fayette Urban County Government Division of Parks and Recreation Design Standard Manual
- Andy Clarke, American Pedestrian/Bicycle Professionals, 2002 Kentucky Rails to Trails Conference, Frankfort, KY.

For more in-depth information and design development standards, the following publications are suggested:

- Greenways: A Guide to Planning, Design and Development, Authors: Charles A. Flink and Robert Searns, Published by Island Press, 1993, www.greenways.com
- Trails for the Twenty-First Century, Authors: Charles A. Flink, Robert Searns and Kristine Olka, Published by Island Press, 2001, www.greenways.com
- Manual on Uniform Traffic Control Devices (MUTCD), Published by the U.S. Department of Transportation, Washington, DC
- Mountain Bike Trails: Techniques for Design, Construction and Maintenance, Published by Bike-Centennial, Missoula, MT
- Universal Access to Outdoor Recreation: A Design Guide, Published by PLAIE, Inc., Berkeley, CA, 1993

Other useful web sites for information include:

- Rails-to-Trails Conservancy - www.railtrails.org
- National Park Service - www.nps.org
- US Department of Transportation – www.fhwa.dot.gov/environment/bikeped/

- Pedestrian and Bicycle Information Center
www.walkinginfo.org and www.bicyclinginfo.org
- Trails and Greenways Clearinghouse -
www.trailsandgreenways.org

- National Bicycle and Pedestrian Clearinghouse
www.bikefed.org/clear.htm

I.1. Conservation Greenways



Wolf Run

The development of a Conservation Greenway may include measures to improve water quality and/or water quantity. All development shall be in accordance with the approved LFUCG Stormwater Manual. For the purposes of a Conservation Greenway, it is preferred that the entire floodplain (as defined by the Stormwater Manual) be included. It is recommended that there be a minimum buffer of 50 feet (100 feet preferred) from the top of stream bank. (A minimum 25-foot buffer is required by LFUCG on each side of creeks and streams). Some Conservation Greenways will include a shared use trail or walking trail. In those cases, the minimum setback from the top of a stream bank for trail construction should be 25 feet.

Refer to the Manual for explanations concerning stream bank stabilization, erosion control, vegetative planting and best management practices. The restoration of stream banks should use vegetative or bioengineering techniques as a first and second choice. Vegetation is an important component to stream bank stabilization, water quality, flood control and wildlife/aquatic habitats. Where possible, desirable plant material should remain undisturbed, invasive species be removed and native species planted. As needed, install rock check dams to enhance the natural stream meander and create deeper pools of water to provide habitat for aquatic species and improve flooding conditions.

I.2. Constructing Trails in Floodplains



Source: Pedestrian and Bicycle Information Center

Building trails within flood prone landscapes is equal part art, science and engineering. A trail should be designed to fit the natural contours of the landscape as closely as possible but still adhere to design standards. Trails should be developed in such a manner as to support and highlight the ecological features of the floodplain environment. Finally, trails should be properly engineered to withstand the rigors of frequent flooding. The only

surface materials suitable for floodplain trails will be asphalt or concrete. It is also critically important to use geotextile fabric in constructing trails. The fabric serves to keep the subbase intact, which will, in turn, support the trail surface. Hydrostatic pressure can become a problem for trails constructed in floodplains; therefore, care and attention must be given to establishing proper surface and subsurface drainage patterns.

I.3. Boardwalk Trail



Source: Pedestrian and Bicycle Information Center

Boardwalks, or wood surface trails, are typically required when crossing wetlands or poorly drained areas. While boardwalks can be considered shared use trails, the surface tends to be slippery when wet and not suited for wheeled users. Boardwalks intended for use by bikes, pedestrians, in-line skaters, etc., should be a minimum of 14 feet wide. However, boardwalk trails limited to pedestrian use can be as narrow as 8 feet. Wood surfaced trails are usually composed of sawn wooden planks or lumber that forms the top layer of a bridge, boardwalk or deck. Synthetic wood, manufactured from recycled plastics, is now available for use as a

substitute in conventional outdoor wood construction. While these products are more expensive than wood lumber, recycled plastic lumber lasts much longer, does not splinter or warp and will not discolor. The most commonly used woods for trail surfacing are exposure-and decay-resistant species, such as pine, redwood, fir, larch, cedar, hemlock and spruce. Wood is a preferred surface type for special applications because of its strength and comparative weight, its aesthetic appeal and its versatility. However, wood can be very slippery when wet.

I.4. Low Impact or Limited Facility Path



McConnell Springs

These paths are off-road facilities designed to accommodate pedestrians and are not intended for cyclists or other wheeled users. These natural surface trails typically make use of dirt, rock, soil, forest litter, mulch, and other native materials for the trail surface. Preparation varies from machine-worked surfaces to those worn only by usage. This is the most appropriate surface for ecologically sensitive areas, such as Conservation Greenways (where designated).

These pathways, often very narrow, sometimes follow strenuous routes and may limit access to all but skilled users. Some paths may permit equestrian use.

Construction of these trails mainly consists of providing positive drainage for the trail tread and should not involve extensive removal of existing vegetation. These trails vary in width from 3 feet to 6 feet, and vertical clearance should be maintained at 9 feet (12 feet when equestrian use is allowed).

I.5. Shared Use Trail -Natural Surfaces



Proposed Brighton West Rail Trail

The off-road shared use trail designed with natural surface materials is intended to accommodate a variety of users, including walkers, joggers, bicyclists, equestrians and others. These pathways are intended for use outside of floodplains and on a grade of less than 5 percent longitudinal and 2 percent cross slope.

Materials that can be used to surface a trail include natural materials (see I.4, Low Impact or Limited Facility Path), soil cement, graded aggregate stone, granular stone, and shredded wood fiber. The soft surface materials are compatible with the natural environment; however, they do not always accommodate certain users, such as roller-bladers and disabled persons. Soft surfaced trails are preferred by some runners, mountain bicyclists and equestrians. While less expensive to install, unpaved trails typically have higher maintenance costs than hard surface trails, and require more frequent repairs. Careful consideration should be given to the amount of traffic the specific trail will generate, as these surfaces tend to deteriorate with excessive use.

Soil cement will support most user groups, though bicyclists and horseback riders should have only restricted use. Soil cement surfaces last longer if installed on top of a properly prepared subgrade and subbase. Graded aggregate stone material suitable for trail surfacing includes dense graded aggregate or crushed stone. This surface will often need to be kept in place with wood or metal edging. Because it is a loose, uncompacted surface, graded aggregate stone is limited in application to flatter slopes. Granular stone includes a broad range of aggregate stone, such as limestone, sandstone, crushed rock, gravel and sand. This is one of the best surface types for greenway trails because it can be densely compacted and is compatible with the natural environment. If properly constructed, granular stone can support bicycle and handicapped accessible trail development. Shredded wood fiber is usually composed of mechanically shredded hardwood and softwood pulp, pine bark chips or nuggets, chipped wood pieces, or other by-products of tree trunks and limbs. However, shredded wood fiber decays rapidly and must be installed on flat subgrades.

I.6. Shared Use Trail – Hard Surfaces



Squires Road Trail

Typical pavement design for hard surface, off-road, shared use trails should be based upon the specific loading and soil conditions for each project. These trails, typically composed of asphalt or concrete, should be designed to withstand the loading requirements of occasional maintenance and emergency vehicles. In areas prone to frequent flooding, it is recommended that concrete be used for its excellent durability.

One important concern for asphalt shared use trails is the deterioration of trail edges. Installation of a geotextile fabric beneath a layer of aggregate base course can help to maintain the edge of a trail. It is also important to provide a 2-foot-wide graded shoulder to prevent trail edges from crumbling. Refer to the LFUCG [Roadway Design Manual](#) for specifications on the thickness of shared use paths.

Currently, the minimum width for two-directional trails is 10 feet, however, 12 foot widths are

preferred where heavy traffic is expected. Centerline stripes should be considered for paths that generate substantial amounts of pedestrian traffic. Possible conflicts between user groups must be considered during the design phase, as cyclists often travel at a faster speed than other users.

Bituminous asphalt is a hard surface material that is popular for a variety of trails. It is composed of asphalt cement and graded aggregate stone, and is a flexible pavement that can be installed on virtually any slope.

Concrete surfaces are capable of withstanding most powerful environmental forces. They hold up well against the erosive action of water, root intrusion and subgrade deficiencies, such as soft soils. Most often, concrete is used for intensive urban applications. Of all surface types, it is the strongest and has the lowest maintenance requirement if it is properly installed.

I.7. Clear Zone



Huckleberry Trail in Virginia

A Clear Zone refers to the amount of space adjacent to a trail that is free from obstruction. This includes horizontal and vertical clearance. The amount of clearing required will depend on the type of trail being developed: low impact trails require little or no vegetation removal, while shared use

trails may require significantly more. The clear zone along trails should be a minimum of 3 feet horizontal and 10 feet vertical (12 feet for equestrian use). Refer to LFUCG [Roadway Design Manual](#) for minimum clearing distances from solid objects for on-road facilities.

I.8. Proximity and Buffers



Masterson Station Subdivision

A positive relationship can be established between publicly accessible greenways and adjacent private property. For greenways with publicly accessible trails, a minimum 50-foot (100-foot preferred) corridor should be established. This should allow enough room for the trail and any buffering or screening from surrounding private property. Trails should be located away from property lines to the greatest extent possible, and no closer than 10 feet. Buffering should be considered along greenways where there is a need for separation between the trail and adjacent properties. Separation may be necessary because of safety, privacy, aesthetics or natural resource protection. For example, in residential neighborhoods, a visual buffer provides privacy to homeowners; in rural areas, a buffer is used to separate trail users from active farming

operations. A buffer could also be considered as transitional space, such as the riparian zone between a trail and a stream, or between a trail and an active railroad or busy street.

The width of a mid-block access to a greenway depends on the intended use: if the access is for local neighborhood use, then a standard sidewalk located in a 20 foot easement should suffice; if the access shall be used by maintenance crews or in a commercial district, then the width will have to be larger. Other considerations involve signage, ADA accessibility and side yard setbacks.

For trails or paths adjacent to a stream, a minimum setback from the top of a stream bank to the trail should be 25 feet.

I.9. Sidewalk



Source: Pedestrian and Bicycle Information Center

Sidewalks are a critical component of the Lexington-Fayette County on-road Greenway System. They not only encourage walking, but they also improve the safety of pedestrians. An individual's decision to walk is as much a factor of the perceived quality of the experience as it is convenience. Pedestrian facilities should be designed with the following factors in mind:

Protection from Traffic

High volume and/or high speed (>35 mph) motor vehicle traffic creates dangerous and uncomfortable conditions for pedestrians. Physical (and perceptual) separation can be achieved in several ways, or a combination of methods, such as a grassy planting strip with trees, a raised planter, bike lanes, or on-street parallel parking.

Streetscape

Streetscape design is essential for a high quality pedestrian environment. Paving, street trees, lighting, benches, building facades, and scale are a

few elements of the streetscape that contribute to a pleasurable walking experience. Corridors should be designed for walking in safe and enjoyable surroundings.

Pedestrian-Scaled Design

Signage should be designed for clear visibility by pedestrians. Street lighting should likewise be scaled to the level of the pedestrian, instead of providing light poles that are more appropriate on high-speed roadways. Pedestrian scale also refers to the height and width ratio of buildings and trees to the sidewalk and street.

Pedestrian facilities are often discontinuous, particularly when private developers are not encouraged to link on-site pedestrian facilities to adjacent developments and nearby sidewalks or street corners. New development should be designed to encourage pedestrian access from nearby streets. Existing gaps in the system should

be placed on a prioritized list for new sidewalk construction.

Clearances

Vertical clearance above sidewalks for landscaping, trees, signs, awnings and similar obstructions should be at least 10 feet. The vertical clearance for building overhangs that cover the majority of the sidewalk should be 12 feet. Horizontal clearance needs to be a minimum of 3 feet for shrubs and other stationary obstacles. Large shrubs should be discouraged to avoid a fear of the unknown.

Conformance with National Standards

Sidewalk design should be consistent with Americans with Disabilities Act requirements and/or ANSI requirements. Specific guidance is provided by the Architectural and Transportation Barriers Compliance Board's ADA [Accessibility Guidelines](#).

Sidewalk Obstacles

Street furniture and utility poles create obstacles to pedestrian travel when located directly on the sidewalk. At a minimum, there should be 36" of sidewalk clearance to allow wheelchairs to pass. Where possible, utilities should be relocated so as not to block the sidewalk. Benches should not be sited directly on the sidewalk, but should be set back at least 3 feet

The design of new intersections or re-design of existing intersections presents an opportunity to improve pedestrian circulation. In general, the designer should consider the impact on sight distance for all features located in the vicinity of roadway intersections.

Sidewalk Pavement Design

Sidewalks and roadside pathways should be constructed of a solid surface designed to withstand adequate load requirements. Depth of pavement should consider site specific soil conditions, but in no case should it be less than 4½ inches. Brick and concrete pavers are popular materials for more decorative sidewalks. The use of stylized surfaces is encouraged, however, they must be installed properly or they will deteriorate over time.

Sidewalk Width and Setback Guidelines

Sidewalks should accommodate anticipated volumes based on adjacent land uses, and should, at a minimum, allow two adults to walk abreast with

ease. It is important to note that there are some areas that warrant wider sidewalks than the minimum. For example, sidewalks in and around local universities and colleges must accommodate a much higher volume of pedestrians, and therefore warrant additional width. The recommendations below are based upon standards used by other pedestrian-friendly communities in the United States.

By following the recommendations below, Lexington-Fayette County can ensure that basic needs of pedestrians are addressed. In existing residential and commercial areas that lack sidewalks, new sidewalk construction (independent of new development) should occur first in locations that demonstrate the most need. Note that the current [Subdivision Regulations](#) require a 4-foot minimum width for sidewalks.

Sidewalks on Local Streets in Residential Areas

Five-foot-wide sidewalks are recommended on both sides of the street, with a 5- to 7-foot-wide planting strip. The planting strip may need to be slightly wider to accommodate the roots of street trees, if they are included in the design.

Sidewalks on Collector Streets in Residential and Commercial Areas

Five-foot-wide sidewalks are recommended on both sides of the street. A 5.5-foot-wide planting strip is recommended for residential areas, and a 10.5-foot strip is recommended for commercial areas.

Sidewalks on Arterial Streets in Residential and Commercial Areas

A minimum of six-foot-wide sidewalks is recommended on both sides of the street, with 10-foot-wide planting strips.

Sidewalks on Streets within 2000' of Schools

Sidewalk width and setback should be based on the specific roadway type as described above. For all roadway types, however, sidewalks should be installed on both sides of the road, and should include well-marked crosswalks and school crossing signs.

Sidewalks on Streets with No Curb and Gutter

The setback requirements described above are based on roadway cross sections that include curb and gutter. Sidewalks located immediately adjacent to pavement with no curb and gutter are not

recommended. However, if sidewalks are to be constructed, then a much greater setback from the pavement is required, depending on roadway conditions. Engineers should consult the AASHTO [Policy on Geometric Design of Highways and Streets](#) for more specific guidelines.

Sidewalks in Rural Areas

In most rural areas, the low volume of pedestrians does not warrant sidewalk construction. In most cases, 4 to 6-foot-wide paved shoulders can provide an adequate area for pedestrians to walk on rural roadways, while also serving the needs of bicyclists.



Source Pedestrian and Bicycle Information Center

Pedestrian Crosswalk with striping, signage, bump and median

I.10. Wide Curb Lane



Source Pedestrian and Bicycle Information Center

There are three types of on-road bicycle facilities: wide curb lanes, paved shoulders, and bike lanes. Refer to the LFUCG [Roadway Design Manual](#) and AASHTO's [Guide to the Development of Bicycle Facilities](#) for details.

Wide curb lanes, or outside lanes, are wider than the standard 12-foot travel lane and can provide more space for cyclists and easier passing for motorists. Under most conditions, automobiles and bicycles can coexist in a 14-foot-wide curb lane, without the need for the motorist to move into the next adjacent lane.

Location and Width

Wide curb lanes best accommodate advanced cyclists, as these riders are more comfortable operating directly in traffic. The wide curb lane is always the furthest right-hand lane, and should optimally be 14-16 feet wide, not including the gutter pan, (consistent with the LFUCG [Roadway Design Manual](#)). Wide curb lanes are not required to have curb and gutter. A width greater than 16' is not recommended.

In order to achieve the extra space needed for a 14' wide outside lane, the roadway may either be physically widened or re-striped to reduce the lane width of inner lanes and increase the width of outer lanes. Re-striping proposals should be reviewed by

LFUCG transportation engineers to ensure adequate safety for the motorists, as well as bicyclists.

Signage

There is no special “wide curb lane” sign, however, on high volume urban arterials, LFUCG may choose to install “Share the Road” warning signs (standard bicycle warning plate with a subplate stating “SHARE THE ROAD”).

Intersection Design

As wide curb lanes approach intersections with turning lanes, the 14' wide lane should continue through the intersection as the outside through-lane.

Design Issues

Acceptance:: Bicycle programs in numerous communities have found that less experienced bicyclists seldom see a difference when wide curb lanes are provided. Therefore, if the desired outcome is greater numbers of bicyclists or a visible “Pro Bicycle” statement, this option will not satisfy the need.

Traffic speeds: Wider curb travel lanes may tend to increase motorist speeds. Whether a marginal increase in speeds is important in a particular situation should be a subject for analysis.

I.11. Paved Shoulder



Winchester Road

The second type of on-road facility is paved shoulders, which are used along rural roads and some urban streets such as Tates Creek Road and Richmond Road. Paved shoulders are not only an excellent way to accommodate the motoring public, they are also beneficial to bicyclists as well. Paved shoulders have the added advantage of eliminating problems caused when the pavement edge begins to deteriorate, thus extending the life of the road surface and requiring less maintenance. Paved shoulders also provide a pull-off for motorists with car trouble.

Width

Shoulders should be a minimum of 4 feet wide to accommodate cyclists, depending upon the speed and volume of motor vehicle traffic (consistent with LFUCG [Roadway Design Manual](#)). Paved shoulders for bicycles can be designed according to typical roadway cross sections for bicycle lanes, with the exception that no pavement decals or bicycle lane signage is used.

Although 4 feet of width is preferable, certainly any additional shoulder width is preferable to none at all. Shoulders that are 2-3 feet wide can improve conditions and are recommended in cases where 4-foot widths cannot be achieved. “Share the Road” signs would be acceptable in these locations, as they would serve to warn motorists of the likely presence of bicyclists.

As with bicycle lanes, paved shoulders should have the same pavement thickness and subbase as the adjacent roadway, and should be regularly swept and kept free of potholes.

Signage

Paved shoulders can be designated as bikeways by erecting standard bicycle route warning signs. As described above, these “Share the Road” signs may be installed on roads with paved shoulders that are less than 4 feet in width.

I.12. Bicycle Lane



Source: Pedestrian and Bicycle Information Center

The third type of on-road bicycle facility is a bike lane. Design of bicycle lanes should conform to the standards found in the LFUCG [Roadway Design Manual](#). They should not be separated from other motor vehicle lanes by curbs, parking lanes, or other obstructions. General standards for width, striping, and intersections are provided below.

Location and Use

Bicycle lanes serve the needs of experienced and inexperienced bicyclists in urban and suburban areas, providing them with their own travel lane. Bicycle lanes are always located on both sides of the road (except when they are constructed on one-way streets). By this design, cyclists are encouraged to follow the rules of the road, which require them to travel in the same direction as adjacent motor vehicle traffic. During the repair and reconstruction of roads, consideration should be given to the installation of bicycle lane facilities as designated in the [Greenway Master Plan](#) and [2025 Transportation Plan](#). Additionally, collector roads (existing and proposed) should be considered for bike lane facilities.

Width

The minimum width of bike lanes should be 4 feet, exclusive of the gutter pan. For roads with parallel

parking, bike lanes should be a minimum of 5 feet wide, and should be installed adjacent to the motor vehicle lanes, rather than between the parking lane and the curb.

Signage

The MUTCD specifies standard signage for bicycle lanes.

Striping

A bicycle lane stripe should be a solid, six inch wide white line. Care should be taken to use pavement striping that is skid resistant. Bicycle-shaped pavement symbols and directional arrows should be placed in the bicycle lane to clarify its use. Pavement letters that spell “BIKE ONLY” are also highly recommended. Symbols should be installed at regular intervals, immediately after intersections, and at areas where bicycle lanes begin.

Bike lane striping at intersections is challenging. Traffic has a tendency to mix at intersections: motorists who are turning right must cross paths with cyclists who wish to continue straight, and cyclists who wish to turn left must cross into left-hand turn lanes. Several intersection striping patterns are provided by AASHTO’s [Guide for the Development of Bicycle Facilities](#) and the MUTCD.

I.13. Trail and Trailhead Amenities



Bike Hitch Rack Downtown Lexington

One component of greenway facility design will be the installation of amenities, such as bike racks, benches, trash receptacles, landscaping, bollards, water fountains and signage. All trailheads should have parking, restrooms and kiosks. Some trailheads will need to be designed to accommodate special events or regional tourism. Trails with equestrian use will need additional space for unloading and parking horse trailers, tie posts and water troughs. Users of water trails will need adequate space to unload kayaks and canoes at a distance near to the water.

All amenities should be chosen according to the specific needs of the site; and, where appropriate, should be compatible in style to the surrounding elements. An individual trail may have a particular "theme", however for the majority of time, the details for amenities should be uniform throughout the greenway system. Amenities should also be chosen for their ease of installation, vandal resistance and low maintenance costs.

Bike Racks

It is important to choose a bicycle rack design that is simple to operate and allows for a variety of lock types. Racks should be located within 50 feet of building entrances. Racks should be installed in a public area within easy viewing distance from a main pedestrian walkway, usually on a wide sidewalk with five or more feet of clear sidewalk space remaining (a minimum of 24" clear space from a parallel wall, and 30" from a perpendicular wall).

Racks are placed to avoid conflicts with pedestrians. They are usually installed near the curb and at a reasonable distance from crosswalks. Racks should be installed at bus stops, but must not interfere with boarding or loading patterns. Lexington Transit buses already have installed racks on their buses to facilitate bike-on-transit travel.

Trash Containers

Trash containers are necessary at trailheads and staging areas. They can be attractive as well as functional, and should be selected based on the amount of trash expected, overall maintenance

program of the trail, and types of users. Trash cans need to be accessible to both trail users and maintenance personnel. At a minimum, containers should be located at each entranceway. Trash cans are not recommended along the trail. A policy of 'bring it in, take it out' should be adopted. The location of additional trash cans will depend upon the location of concessions, facilities adjacent to the trail and areas where trail users tend to congregate.

Benches

Benches along trails allow users to rest, congregate, and enjoy the view or activities. Trail benches should comfortably accommodate the average adult. They should be located at the primary and

secondary entrances to the trail, and at regular intervals along the trail. Benches should be set back three feet from the trail edge.

Signage

Necessary signage shall be provided on all trails, prior to opening, as per AASHTO and LFUCG standards. Directional signage instructs trail users as to the location of trails, intersections, trailheads and points of interest. "Rules of the Trail" is a sign listing the rules of trail use, and these need to be posted at trail access points. Interpretive signage educates trail users about a particular site or feature that they encounter along the way.



Bike Rack and Locker

I.14. Roadway Crossings



Source: Pedestrian and Bicycle Information Center

The intersection of trails/sidewalks and roadways is one particular area of concern in the greenway system development. On heavily traveled roadways, trails and sidewalks should be separated from the vehicular traffic with an overpass or underpass, where feasible.

There are two common types of trail/sidewalk and roadway conflicts: at roadway intersections and at mid-block crossings. Safety is of utmost importance when designing roadway crossings. Considerations for trail/sidewalk crossings of roads include the following:

- Use MUTCD sign standards to clearly mark the trail and road.
- Design the crossing so that trail/sidewalk users are visible and predictable to the vehicular traffic (and vice versa).
- Design with consistency throughout the greenway system.
- Design intersection and mid-block trail/sidewalks to cross at a curb cut, be at a 90-degree angle, and with no compound grade changes or curves. It is best to raise the

roadway to the level of the trail so that the trail user doesn't have to contend with grade changes at the intersection.

- Catch stormwater before it crosses the trail/sidewalk to avoid slick conditions for cyclists and pedestrians.
- Stripe the pavement at intersections to indicate the crosswalk. At mid-block crossings, (depending upon the volume of traffic) striping the trail crossing may also be advisable.
- Design other traffic calming devices, such as pavement texture changes, a median, bump-out or signalized light where necessary for safety purposes.
- Include signage that identifies the greenway, since intersections are also access points.
- Use bollards or a Y-shaped planting median on a trail to keep unwanted vehicles off of the trail.

Mid-block crossings can be the greenway corridor itself, or an access easement to the greenway. The spacing distance between mid-block access easements is dependent upon several factors, such

as grade, adjacent land use, and local regulations for maximum block length. If there is a “T” intersection within the block, it is preferred that the access be located across from the intersection for maximum exposure and use. Width of the access depends on the intended use: if it is for local

neighborhood access, then a standard sidewalk in a 20-foot easement should suffice; if the access will be used by maintenance crews, or in a commercial district, then the width should be larger. Other considerations involve signage, accessibility and distance of the sidewalk to adjacent homes.



Source: Pedestrian and Bicycle Information Center

I.15. Native Plant Species



Reforest the Bluegrass

There are a number of ways to help ensure that riparian areas provide the necessary water quality and quantity protection.. First and foremost is to retain as much of the area as possible in a naturally vegetated, undisturbed condition, especially the portion of the riparian area that is closer to the adjacent stream or creek. In most situations, "naturally vegetated" means native forest cover. Streamside forest vegetation, whether living, decaying or dead, on the ground or fallen or extending into the water, should be left in place wherever possible to maximize its detention capability and allow plenty of time for the

breakdown of pollutants by plants and microorganisms. Excessive "tidying up" of riparian areas by leaf raking, brush clearing, removing fallen logs or other removal of plant material from the forest floor and/or streambank can significantly reduce detention time and the opportunity for the riparian area's living filter to beneficially interact with and attenuate water-borne pollutants.

In order to insure proper native and non invasive species the attached table provide the recommended native and non invasive species.

**NATIVE PLANT SPECIES SUITABLE FOR STREAMBANKS
AND RIPARIAN BUFFERS IN CENTRAL KENTUCKY**

Herbaceous Ground Covers:		
Common Name	Scientific Name	Shade/Sun
River Oats	<i>Chasmanthium latifolia</i>	shade
Indian Grass	<i>Sorghastum nutans</i>	sun
Switch Grass	<i>Panicum virgatum</i>	sun
Redtop	<i>Agrostis alba</i>	sun
Deertongue	<i>Panicum clandestinum</i>	shade
Broomsedge	<i>Andropogon virginicus</i>	sun
Big Blue Stem	<i>Andropogon gerardii</i>	sun
Frank's Sedge	<i>Carex frankii</i>	sun
Gray's Sedge	<i>Carex grayii</i>	shade
Soft Rush	<i>Juncus effusus</i>	sun
Flat Sedge	<i>Cyperus strigosus</i>	sun
Lady Fern	<i>Athyrium felix-femina</i>	shade
Sensitive Fern	<i>Onoclea sensibilis</i>	shade
Cinnamon Fern	<i>Osmunda cinnamomea</i>	shade
Common Boneset	<i>Eupatorium perfoliatum</i>	sun
Golden Ragwort	<i>Senecio aureus</i>	shade
Wrinkled Goldenrod	<i>Solidago rugosa</i>	sun
Tall Goldenrod	<i>Solidago gigantea</i>	sun
Beard Tongue	<i>Penstemon hirsutus</i>	shade
Monkey Flower	<i>Mimulus ringens</i>	shade
Cardinal Flower	<i>Lobelia cardinalis</i>	shade
Great Blue Lobelia	<i>Lobelia silphilitica</i>	shade

**NATIVE PLANT SPECIES SUITABLE FOR STREAMBANKS
AND RIPARIAN BUFFERS IN CENTRAL KENTUCKY**

Vines and Shrubs:		
Common Name	Scientific Name	Shade/Sun
Cross Vine	<i>Bigonia capreolata</i>	shade
Trumpet Creeper	<i>Campsis radicans</i>	sun
Climbing Hydrangea	<i>Decumaria barbara</i>	shade
Giant Cane	<i>Arundinaria gigantea</i>	sun
Buttonbush	<i>Cephalanthus occidentalis</i>	sun
Meadowsweet	<i>Spirea alba</i>	sun
Sweetspire	<i>Itea virginica</i>	shade
Spicebush	<i>Lindera benzoin</i>	shade
Paw-paw	<i>Asimina triloba</i>	shade
Arrowwood	<i>Viburnum dentatum</i>	shade
Nannyberry	<i>Viburnum lentago</i>	sun
Swamp Haw	<i>Viburnum nudum</i>	shade
Ninebark	<i>Physocarpus opolifolius</i>	sun
Hazelnut	<i>Corylus americana</i>	sun
Possum Haw	<i>Ilex decidua</i>	sun
Winterberry	<i>Ilex verticillata</i>	shade
Chokeberry	<i>Aronia arbutifolia</i>	sun
Elderberry	<i>Sambucus canadensis</i>	sun
Juneberry	<i>Amelanchier arborea</i>	shade
Mountain Camelia	<i>Stewartia ovata</i>	shade
Sweetbells	<i>Leucothe racemosa</i>	shade
Smooth Azalea	<i>Rhododendron arborescens</i>	shade
Silky Dogwood	<i>Cornus amomum</i>	sun
Redosier Dogwood	<i>Cornus stolonifera</i>	shade
Rough-leaf Dogwood	<i>Cornus drummondii</i>	shade
Pagoda Dogwood	<i>Cornus alternifolia</i>	shade
Smooth Alder	<i>Alnus serrulata</i>	sun
Sandbar Willow	<i>Salix interior</i>	sun
Silky Willow	<i>Salix sericea</i>	sun
Dwarf Willow	<i>Salix humilis</i> var. <i>macrophylla</i>	sun
Pussy Willow	<i>Salix discolor</i>	sun
Streamco Willow	<i>Salix purpurea</i>	sun
Bankers Willow	<i>Salix x cotteti</i>	sun
Heart-leaf Willow	<i>Salix rigida</i>	sun

**NATIVE PLANT SPECIES SUITABLE FOR STREAMBANKS
AND RIPARIAN BUFFERS IN CENTRAL KENTUCKY**

Trees:	
Common Name	Scientific Name
Black Willow	<i>Salix nigra</i>
Boxelder	<i>Acer negundo</i>
Red Maple	<i>Acer rubrum</i>
Silver Maple	<i>Acer saccharinum</i>
Green Ash	<i>Fraxinus pennsylvanica</i>
White Ash	<i>Fraxinus americana</i>
Red Elm	<i>Ulmus rubra</i>
Silverbell	<i>Halesia carolina</i>
Persimmon	<i>Diospyros virginiana</i>
River Birch	<i>Betula nigra</i>
Black Gum	<i>Nyssa sylvatica</i>
Hackberry	<i>Celtis occidentalis</i>
Cottonwood	<i>Populus deltoides</i>
Sweet Gum	<i>Liquidambar styraciflua</i>
Tulip Polar	<i>Liriodendron tulipifera</i>
Sycamore	<i>Plantanus occidentalis</i>
American Beech	<i>Fagus grandiflora</i>
Ironwood	<i>Carpinus caroliniana</i>
Yellow Buckeye	<i>Aesculus octandra</i>
Shellbark Hickory	<i>Carya lacinosa</i>
Shagbark Hickory	<i>Carya ovata</i>
Pecan	<i>Carya illinoensis</i>
Black Walnut	<i>Juglans nigra</i>
Bur Oak	<i>Quercus macrocarpa</i>
Pin Oak	<i>Quercus palustris</i>
Swamp Oak	<i>Quercus bicolor</i>
Swamp Chestnut Oak	<i>Quercus michauxii</i>

**NATIVE HERBACEOUS SPECIES SUITABLE FOR WET PONDS
AND CONSTRUCTED WETLANDS IN CENTRAL KENTUCKY**

Common Name	Scientific Name	Water Depth
Barnyard grass	<i>Echinochloa crusgalli</i>	transitional
Switch Grass	<i>Panicum virgatum</i>	transitional
Swamp Milkweed	<i>Asclepias incarnata</i>	transitional
Giant Cane	<i>Arundinaria gigantea</i>	transitional
Jewelweed	<i>Impatiens capensis</i>	transitional
River oats	<i>Chasmanthium latifolia</i>	transitional
Deertongue	<i>Panicum clandestinum</i>	transitional
Boneset	<i>Eupatorium perfoliatum</i>	transitional
Sedges	<i>Carex</i> spp.	shallow
Soft rush	<i>Juncus effusus</i>	shallow
Rice cutgrass	<i>Leersia oryzoides</i>	shallow
Flat sedges	<i>Cyperus</i> spp.	shallow
Blue iris	<i>Iris virginicus</i>	shallow
Panic grass	<i>Panicum agrostoides</i>	shallow
Wool grass	<i>Scirpus cyperinus</i>	shallow
Pink smartweed	<i>Polygonum pennsylvanicum</i>	shallow
Green bulrush	<i>Scirpus atrovirens</i>	mid
Pickerelweed	<i>Pontederia cordata</i>	mid
Duck potato	<i>Sagittaria latifolia</i>	mid
Arrow arum	<i>Peltandra virginica</i>	mid
Bur-reed	<i>Sparganium eurycarpum</i>	mid
Wild rice	<i>Zizania aquatica</i>	mid
Spike rushes	<i>Eleocharis</i> spp.	mid
Water plantain	<i>Alisma subcordatum</i>	mid
Three square sedge	<i>Scirpus americanus</i>	mid
Yellow water crowfoot	<i>Ranunculus flabellaris</i>	deep
White water buttercup	<i>Ranunculus longirostris</i>	deep
Water lotus	<i>Nelumbo lutea</i>	deep
Spaderdock	<i>Nuphar luteum</i>	deep
White water lily	<i>Nymphaea tuberosa</i>	deep
Duckweed	<i>Lemna</i> spp.	floating

Note: transitional = seasonally flooded edge; shallow = 0 – 6 inches, semi-flooded pool; mid = 6 – 20 inches, permanent pool; deep = 20 – 60 inches, permanent pool; floating = non rooted

Appendix J:

Facility Management

Operating and managing a system of greenways in Lexington-Fayette County will require a coordinated effort among all Urban County Government (LFUCG) departments, private sector organizations and individuals. The following text defines key aspects of greenway system management, such as access, maintenance, safety and security, trail user rules and regulations, emergency response and risk management. More specific problems and issues may arise during the long-term development of the system that result in additional policies being considered and adopted.

As defined in previous sections of this Plan, the protection of stream corridors from urban encroachment is essential in order to permit stream channels and their floodplains to perform natural functions. Stream corridors are best protected by first delineating the landscape boundaries of the regulatory floodplain and then by encouraging landowners and government to engage in land stewardship practices. A strategy should be established for stream mitigation, where needed, and protection of undeveloped stream corridors.

J.1. ACCESS AND SCREENING

Right of Public Access and Use of Trail Lands

The general public should have free access to and use of greenways that support public use (land that Lexington-Fayette County owns or has secured the right of public access and use). All access and use is governed by existing Urban County policies and should also be governed by a new Greenway Ordinance. Trails should be limited to non-motorized uses, including hiking, bicycling, running, jogging, wheelchair use, skateboarding, rollerblading, equestrian use, mountain biking and other uses that are determined to be compatible with the Urban County's greenway trails.

Cross-Access Agreements

The LFUCG can use cross-access agreements that will permit private landowners that have property on

both sides of a greenway corridor to access and use the greenway corridor to facilitate their operation and land use activities.

Cross-access agreements are based on case law of the United States and specific experiences from other greenway trail systems throughout the United States. Adjacent landowners generally have the right to use the access at any time. However, access cannot block the right-of-way for trail users, other than for temporary measures, such as permitting livestock to cross, or transporting equipment. Adjacent landowners are responsible for acts or omissions that would cause injury to a third party using the trail. If a landowner must move products, materials, livestock or equipment across the trail on a regular basis, appropriate signage should be installed to warn users of the trail to yield for such activities.

Crossing of abandoned or active rail lines, utility corridors, roads or highways will require the execution of agreements with companies, local, state or federal agencies and organizations that own the rights-of-way. These crossings must provide clearly controlled, recognized, and defined intersections in which the user will be warned of the location. In accordance with the American Association of State Highway Transportation Officials (AASHTO) and the Manual on Uniform Traffic Control Devices (MUTCD), the crossing will be signed with appropriate regulatory, warning and information signs.

Screening

The LFUCG should work with each landowner on an individual basis to determine if screening is required, appropriate and feasible. The Urban County may agree to fund the installation of screening. Maintenance or replacement of the screening will typically be the responsibility of LFUCG if within the greenway, or the responsibility of the adjacent property owner if on adjacent property.

J.2.MAINTENANCE

Adopt-A-Greenway Program

An Adopt-A-Greenway Program should be established by the LFUCG to encourage community groups, families, businesses, school groups, civic clubs and other organizations to join in managing the greenway system. The LFUCG should implement this program for every greenway corridor in the system, and work closely with local organizations to ensure that these groups manage and maintain trails in a manner that is consistent with the LFUCG objectives. The LFUCG should develop written agreements for each Adopt-A-Greenway entity and keep a current record of this agreement on file. Adopt-A-Greenway entities will be assigned a specific section of the greenway system, defined by location or milepost. The activities of each organization should be monitored by the LFUCG (or LFUCG designee). Agreements for management can be amended or terminated at any time by either party, giving 30 days written notice.

Management Agreements

Management Agreements will be established between the LFUCG and specific public or private organizations wishing to assist with the management of designated segments of the greenway system. The objective of these agreements is to define areas of maintenance and management that are compatible with existing land management activities, especially where greenways intersect with public or private properties and/or rights-of-way. Management agreements spell out specific duties, responsibilities and activities of the LFUCG, and public or private organization that wishes to assist with management activities. They can be amended or terminated at any time by either party, giving 30 days written notice.

Facility Maintenance

All greenway facilities should be managed by the LFUCG (or LFUCG designee). Greenway maintenance should include the removal of debris; trash; litter; obnoxious and unsafe man-made structures; and other foreign matter, so as to be safe for public use. Trailheads, points of public access, rest areas and other activity areas should be maintained in a clean and usable condition at all times. .

Property owned or used by the LFUCG for the greenway system shall be maintained in a condition that promotes safety and security for greenway users

and adjacent property owners. To the extent possible, the property shall also be maintained in a manner that enables the corridor to fulfill multiple functions (i.e. passive recreation, alternative transportation, stormwater management and habitat for wildlife). Property that is owned or managed by other entities should be managed and maintained in accordance with the policies as set forth by Lexington-Fayette Urban County Government.

All trail surfaces should be maintained in a safe and usable manner at all times. Rough edges, severe bumps or depressions, cracked or uneven pavement, gullies, rills and washed out treads should be repaired immediately. Volunteer vegetation occurring in the tread of the trail should be removed in such a manner so that the trail surface is maintained as a continuous, even and clean surface.

Vegetation within each greenway corridor shall be managed to promote safety, serve as wildlife habitat, buffer public trail use from adjacent private property (where applicable), protect water quality, and preserve the unique aesthetic values of the natural landscape. Removal of native vegetation, significant trees or riparian cover shall be highly discouraged. Removal of exotic species should be accomplished in a systematic and thorough manner. LFUCG may choose to remove exotic species and other unwanted vegetation using various means, depending on the specific location and circumstances.

Vegetation adjacent to trails shall be managed as necessary to maintain clear and open lines of sight along the edge of the trail, and eliminate potential hazards that could occur due to natural growth, severe weather or other unacceptable conditions. To promote safe use of any greenway trail, all vegetation should be clear cut to a minimum distance of three (3) feet from each edge of a trail. Selective clearing of vegetation should be conducted within a zone that is defined as being between three (3) to ten (10) feet from each edge of a trail. At any point along a trail, a user should have a clear, unobstructed view along the centerline of a trail, 300 feet ahead and 300 feet behind his/her position. The only exception to this policy should be where terrain or curves in a trail serve as the limiting factor. The LFUCG or their designated agent should be responsible for the cutting and removal of vegetation. Removal of vegetation by an individual or entity other than the LFUCG or its designee shall be deemed unlawful and subject to fines and/or prosecution.

It may be necessary for the LFUCG to conduct wildlife management programs on lands that are publicly owned. This shall be accomplished in a manner that is in keeping with accepted laws, professional practices and/or recommended strategies that are provided to the LFUCG by wildlife management experts.

J.3. SAFETY AND SECURITY

Safety is a duty and obligation of all public facilities. In order to provide a standard of care that offers reasonable and ordinary safety measures, the LFUCG should cooperatively develop and implement a Safety and Security Program for the greenway system. This Program would consist of well-defined safety and security policies that identify trail management, law enforcement, emergency and fire protection agencies, proper postings and means for the notification and education of the trail user policies. The Program would also outline a system that offers a timely response to the public for issue or problems that are related to safety and security. The safety and security of the greenway system will need to be coordinated with local law enforcement officials, local neighborhood watch associations, and Adopt-A-Greenway organizations.

Important components of the Safety and Security Program include the following. The LFUCG should:

1. Work with law enforcement agencies to establish a Greenway Safety and Security Committee that can meet periodically to discuss management of the greenway system.
2. Prepare a Greenway Safety Manual and distribute this to management agencies and post it at all major trailheads.
3. Post User Rules and Regulations at all public access points to greenway trails.
4. Work with the management agencies to develop Trail Emergency Procedures.
5. Prepare a Safety Checklist for the greenway system, and utilize it monthly during field inspection of greenway facilities.
6. Prepare a Greenway User Response Form for complaints and complements and provide copies at all trailheads.
7. Work with management agencies to develop a system for accident reporting analysis.
8. Conduct a regular Maintenance and Inspection Program, and share the results of these investigations with all management agencies.

9. Coordinate other Public Information Programs that provide information about greenway events and activities in which County residents may participate.
10. Have an ongoing evaluation of greenway program objectives.

J.4. USER RULES AND REGULATIONS

Trails within greenway corridors shall be operated like all other parks within the LFUCG, open for public use from sunrise to sunset, 365 days a year, except as specifically designated. Individuals who are found to be using unlighted facilities after dusk and before dawn should be deemed in violation of these hours of operation and treated as trespassers. Where trails are lighted for nighttime use, the rules established within future Greenway regulations should govern permitted uses and activities.

The LFUCG shall enforce trespassing laws as defined under Kentucky Revised Statutes for publicly owned lands and facilities.

The LFUCG should always discourage the general public from using any segment of a greenway trail that is under construction. Trail segments should not be considered officially opened for public use until such time as a formal dedication ceremony and official opening has been completed. Individuals who use greenway segments that are under construction, without written permission from the LFUCG should be deemed in violation of this access and use policy and treated as a trespasser.

Off-Road Trail Rules

Multi-use conflict is a national problem for community and regional greenway systems. Typically, conflicts are caused by overuse of a greenway trail, however, other factors may be problematic including poorly designed and engineered trail alignments, inappropriate user behavior, or inadequate facility capacity. The most effective conflict resolution plan is a well-conceived safety program that provides the individual user with a Code of Conduct. Several communities across the United States have adopted progressive trail ordinances to govern public use and keep trails safe for all users. The following Rules and Regulations are recommended for the LFUCG Greenway Trails System. These rules should be displayed both on brochures and information signs throughout the greenway system:

1. **Be Courteous:** All Trail users, including bicyclists, joggers, walkers, wheelchairs, skateboarders and skaters, should be respectful of other users, regardless of their mode of travel, speed, or level of skill. Never spook animals; this can be dangerous for you and other users. Respect the privacy of adjacent landowners! No trespassing is allowed from trails. Remain on trails at all times.
2. **Keep Right:** Always stay to the right as you use the Trail, or stay in the lane that has been designated for your user group. The exception to this rule occurs when you need to pass another user.
3. **Pass on the Left:** Pass others going in your direction on their left. Look ahead and behind to make sure that your lane is clear before you pull out and around the other user. Pass with ample separation. Do not move back to the right until you have safely gained distance and speed on the other user. Faster traffic should always yield to slower on-coming traffic.
4. **Give Audible Signal When Passing:** All users should give a clear warning signal before passing. This signal may be produced by voice, bell or soft horn. Voice signals might include "Passing on your left!" or "Cyclist on your left!" Always be courteous when providing the audible signal—profanity is unwarranted and unappreciated.
5. **Be Predictable:** Travel in a consistent and predictable manner. Always look behind before changing position on the Trail, regardless of your mode of travel.
6. **Control Your Bicycle:** Lack of attention, even for a second, can cause disaster—always stay alert! Maintain a safe and legal speed at all times.
7. **Do Not Block the Trail:** When in a group (including your pets), use no more than half of the trail, so as not to block the flow of other users. If your group is approached by trail users from both directions, form a single line or stop and move to the far right edge of the Trail to allow safe passage by these users.
8. **Yield when Entering or Crossing Trails:** When entering or crossing the Trail at an uncontrolled intersection, yield to traffic already using the other trail.
9. **Do not Use this Trail Under the Influence of Alcohol or Drugs:** It is illegal to use this Trail if you have consumed alcohol in excess of the statutory limits, or if you have consumed illegal drugs. Persons who use a prescribed medication

- should check with their doctor or pharmacist to ensure that it will not impair their ability to safely operate a bicycle or other wheeled vehicle.
10. **Clean-up your Litter:** Please keep this Trail clean and neat for other users to enjoy. Do not leave glass, paper, cans or any other debris on or near the Trail. Please clean up after your pets. Pack out what you bring in—and remember to always recycle your trash.
11. **Keep Pets on Leashes:** All pets must be kept on secure and tethered leashes. Keep pets off of adjacent private property. Failure to do so will result in a fine.
12. **Prohibition on Camp Fires:** Fires, for any purpose, are prohibited within the Trails System. Any person caught lighting a fire for any purpose will be prosecuted to the fullest extent of the law.

On-Road Facility Rules

The LFUCG recommends the following safety tips for both pedestrians and cyclists who use the on-road components of the county-wide greenway system. It is important to remember that a bicycle is a legal vehicle in the State of Kentucky and is therefore subject to all the rights and responsibilities of other vehicles. A cyclist, by law, must obey all traffic laws, signs and signals.

1. Ride on the right side of the road with traffic.
2. Always wear a helmet when riding a bicycle.
3. Use hand signals to communicate your intended actions to motorists. Establish eye contact with motorists at intersections whenever possible.
4. Ride no more than two abreast on the road and stay in the same lane as other vehicle traffic. Large groups should spread out to allow motorists to pass.
5. Ride defensively. Always be alert and plan your bike route carefully.

Because the horse industry and general agriculture are very important to Central Kentucky, there are some additional rules and bike etiquette that are necessary while riding our rural roads. While it is the goal for cyclists to enjoy the wonderful views and beautiful countryside, the rules are for the protection of both the farming community and cyclists. Some basic manners need to be acknowledged and followed because the consequences could be detrimental to both the agricultural industry and cyclists.

Here are rules for cyclists to follow along rural roads:

1. Some things that seem quite harmless can actually jeopardize livestock. Contact with horses, cattle, etc., can easily spread serious diseases that have the potential to kill the animals and cause huge financial losses for the affected farms. Therefore, the following rules should be observed:
2. Please do not litter; the horses or livestock could eat the trash and become sick. Respect the environment and keep our landscape beautiful.
3. Do not trespass onto private property. Kentucky law now states that the property owner will not be held responsible for any individual that trespasses onto private property and is injured. Respect private property owners' rights and stay off their property.
4. Do not climb or lean over fences to get a better view. Getting off the road to take a picture would be better than doing it from the road.
5. Do not try to touch or pet the horses or livestock. The animals can bite and are dangerous.
6. Do not lean your bike against farm fences.
7. Do not spook the horses or livestock by making sudden movement or noise.
8. Do not feed the horses or other animals.
9. Get completely off the road if you have to make an emergency stop.
10. Ride in single file. Some of the rural roads are very narrow; farm traffic sometimes carries wide loads and could be hazardous if riding is done two abreast. Be aware that the months from February to May are breeding and foaling season, and there is a large amount of horse van traffic on the rural roads.
11. Avoid smoking. If you do smoke, be careful to extinguish cigarettes carefully; it is easy to inadvertently start a wildfire, especially in dry weather.
12. Wear bright clothing.

J.5. EMERGENCY RESPONSE

In order to effectively patrol the greenway system and respond to the potential for fire, flash floods and other natural or human-caused disasters, the LFUCG should adopt a Greenway Emergency Response Plan. This plan defines a cooperative law enforcement strategy for greenways based on services required and those that are typically provided by police, sheriff, fire and EMS agencies.

Specifically, all trails should be provided with an address system that denotes specific locations along the length of a trail corridor. A site plan that illustrates points of access to each trail corridor should be produced and kept on file at the LFUCG and provided to each agency. Trails in flash flood areas shall be appropriately signed to warn users. Each trail should be designed to permit access for law enforcement, fire and EMS agencies and vehicles that are not in excess of 6.5 tons gross vehicle weight. Typically, inter-governmental agreements are executed for this. A system of cellular-type emergency phones should be located in remote sections of the system, providing users with access to the area 911 Emergency System. All emergency phones should be placed above the flood elevation to ensure long-term usage.

The emergency response plan should also define the agencies that should respond to 911 calls, and provide easy to understand routing plans and access points for emergency vehicles. For long distance trails, access points for emergency and maintenance vehicles should be located at reasonable distances from trail heads (approximately every 2-3 miles). Local hospitals should be notified of these routes so that they may also be familiar with the size and scope of the project. The entire greenway system should be designed and developed to support a minimum gross vehicle weight of 6.5 tons.

Risk Management

The purpose of a Risk Management Plan is to increase safety for the users of the LFUCG Greenway System, and reduce the potential for accidents to occur within the system or on lands adjacent to the system. While it is impossible to guarantee that all risk will be eliminated by a Risk Management Plan, implementation of a Plan is in fact a critical step to reduce liability and improve safety. A Risk Management Plan establishes a methodology for greenway management that is based on current tort liability and case law in the United States related to the development, operation and management of public use greenway lands and facilities. The ultimate responsibility for managing the greenway system, as defined within this Plan, rests with the LFUCG. The Risk Management Plan has as its major goals:

1. Risk Identification: determining where risk (threat to safety or potential loss) exists within the corridor.

2. Risk Evaluation: conducting appropriate examination of areas defined as a risk, and determining the factors that contribute to risk.
3. Risk Treatment: defining and implementing an appropriate solution to the area of risk, in accordance with one of the four options:
 - a. Risk avoidance: prohibiting use of a risk area;
 - b. Risk reduction: limiting use of the area and repairing a risk area immediately;
 - c. Risk retention: obtaining waivers from all potential users of the risk area;
 - d. Risk transfer: transferring risk area (property) to an agency better suited to manage the area.

The following sixteen-steps should be implemented by the LFUCG to establish a Risk Management Plan for the LFUCG greenway system:

1. Develop a policy statement about risk management;
2. Conduct a needs assessment for the greenway program;
3. Determine goals and objectives for risk management - what are acceptable and not acceptable management levels;
4. Develop specifications for site and facility development;
5. Establish a clear and concise program for risk management;
6. Define supervision and responsibility for risk management;
7. Define appropriate rules and regulations that govern the use of the trail system;
8. Conduct routine/systematic inspections and investigations of the trail system;
9. Develop an accident reporting and analysis system;
10. Establish procedures for handling emergencies;
11. Develop appropriate releases, waivers and agreements for use and management;
12. Identify best methods for insuring against risk;
13. Develop a comprehensive in-service training program for employees of the County;
14. Implement a public relations program that can effectively describe the risk management program and activities;
15. Conduct periodic reviews of the Risk Management Plan by outside agents to ensure that the Plan is up to date;
16. Maintain good legal and insurance representation.

Liability

The design, development, management, and operation of the LFUCG greenway system must be carefully and accurately executed in order to provide a resource that protects the health and welfare of the public. Liability may occur when a facility has been under-designed to handle its intended volume of use; when management of the facility is poor; or when unexpected accidents occur because the trail manager failed to recognize the possibilities of a potentially hazardous situation. To reduce the possibility and exposure to liability, the Urban County should have in operation the following measures prior to opening the first segment of greenway:

1. A thorough Maintenance Program that provides the appropriate duty or level of care to greenway users;
2. A Risk Management Plan that appropriately covers all aspects of the greenway system, and as necessary adjacent landowners;
3. A comprehensive working knowledge of public use laws and recent case history applicable in Kentucky.

The LFUCG's existing self-insurance program may be adequate to protect the Urban County government from financial loss that might occur through the development and operation of the greenway system. Trails are no greater liability to the LFUCG than park and recreation, sidewalk or urban open space resources. The Urban County should review its current policy and check coverages to be certain that all aspects of its policies are up-to-date.

The LFUCG should exercise reasonable care in the design and construction of all greenway facilities to reduce hazardous, public nuisance and life threatening situations. Recreational Use Statutes in Kentucky serve to reduce the exposure that adjacent landowners might expect to realize from the proximity of trails to private property. In fact, it is very difficult to find any case law in the United States where an adjacent property owner has been sued because a trail user strayed onto the adjacent private property and fell victim to an accident that was caused by the adjacent landowner. Some landowners have claimed that their insurance rates will go up because of the presence of a trail abutting their property. Once again, there is no case history among insurance companies to support this claim—provided the landowner has not gone out of their

way to create an attractive nuisance and lure trail users onto their property.

It is also important that a fee not be charged to use any portion of the greenway system, because

typically this may impact the way in which the recreational use statutes in Kentucky apply to the use of the system. A voluntary donation applied to the greenway system will generally not affect the recreational use statute.