



# Blue River Greenway Master Plan

Phase 1 Report  
January 2005

# **Blue River Greenway Master Plan Study**

## **Phase 1 Report**

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Kansas City, MO Public Works**

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## EXECUTIVE SUMMARY

### Introduction

The **study area** for the Blue River Greenway Master Plan extends from the mouth of the Blue River to the Banister Federal Complex, generally bounded by I-435 on the east and on the west a general line following Hardesty north of 40<sup>th</sup> Street, 71 Highway between 40<sup>th</sup> and 75<sup>th</sup> Streets, and Holmes Road south of 75<sup>th</sup> Street (see Figure 1).

The **purpose of the plan** was to assess the corridor to identify potential greenway elements that can connect related greenway and trail planning projects underway in adjacent basins, based on the MetroGreen Action Plan. An additional purpose of the plan was to identify a conceptual route for a trail from Swope Park to Truman Road. A separate report documents this plan.

The **plan elements** are intended to be implemented on at least two levels.

- Elements that can be incorporated into, and constructed with, current flood control projects
- Elements in surrounding areas that can link to adjacent projects or other greenways

The Primary elements of the study comprise a multi-use open space and circulation corridor the length of the study area with nodes and linkages that provide access to the Blue River and adjacent corridors. Included in this corridor are sites and opportunities for protection and enhancement of riparian habitat, water and air quality. Primary elements fall into three categories:

- greenway linkages
- Ecological restoration
- Cultural resource conservation

The planning process involved assessing **Existing Conditions**, identifying **Issues, Constraints and Opportunities** influencing design and implementation, **Public Input** to refine the issues and supplement data, and recommendation of **Plan Elements**.

### Existing Conditions

Existing Conditions were assessed through research of available data, stakeholder interviews to gather unpublished data, and site reconnaissance. The assessment focused on six conditions:

**Flood Damage Reduction Projects:** The Corps of Engineers began construction of the flood damage reductions projects in the Blue River channel in 1983. Flood damage projects include modifications to the river channel and projects to protect high value land uses in the river valley. Construction of channel modifications has been completed for 10.5 miles of the river channel from the downstream end of the I-435 bridge to the confluence with Brush Creek. Modifications of the two miles the river channel from Brush Creek to 63<sup>rd</sup> Street are in design phases and will consist of channel widening and deepening designed to contain flows of 35,000 cubic feet per second (cfs) and effectively reduce the 100-year flood event elevation by six (6) to eight (8) feet in the project area of the basin.

Flood walls and levees are being utilized to protect important industrial facilities in the Blue River basin. A levee was constructed in 1990 to protect the Bannister Federal Complex from floodwater from a 500-year event. The flood wall and levee system to protect the Dodson Industrial area from a 500-year event is partially constructed. The remaining phases of the project are in design. Pre-construction engineering and design is underway for a planned flood wall to protect the Swope Park Industrial Area from a 500-year event.

**Land Use:** Several large tracts of parkland provide access to the Blue River corridor. South of Blue Parkway, the river frontage is largely open space, and natural habitat of varying quality. Industrial facilities dominate the land north of the Brush Creek confluence, however much of the land is underutilized or vacant and poorly maintained. Residential neighborhoods dominate the west side of the corridor. However they are often separated from the river by industrial uses or a railroad, limiting access.

**Public Ownership of Land:** A large percentage of river corridor is owned by the city or county, especially south of US 40. North of Byram's Ford, public ownership is less critical, since channel improvements will provide access to each side of the river. South of Swope Park, the riparian corridor will not be altered, and roadway rights-of-way are limited. Land at the important Brush Creek corridor is publicly owned, facilitating connection. Greenway enhancements can support the Kansas City FOCUS plan to improve residential neighborhoods east of the river.

**Ecological Resources:** The ecosystem throughout the corridor is degraded, however, from Byram's Ford Big Blue Battlefield south, the condition is better than in the lower reaches. Some remnant patches of forest provide moderate connectivity of habitat south of Swope Park, but only isolated habitat north. Channelization of the river to reduce flooding has resulted in loss of wetlands. Reconnecting meanders and oxbows can restore some of the wetland systems.

**Cultural Resources:** Historic resources in the corridor are tied to the Civil War and migration to the American West. While the entire corridor has potential significant archeological resources, three primary resources were studied.

- The route of the three National Historic Trails
- Byram's Ford - Big Blue Battle field site
- The Independence-Westport crossing, an alternative route of the Oregon and Santa Fe trails.

**Circulation:** The Blue River is a hub that can link many of the components of the regional greenway system. The MetroGreen Plan recognizes the value of the Blue River, envisioning a trail that extends from the confluence of the Blue River and Missouri River upstream southward into Johnson County, Kansas. Other regional and city greenways and bike trails cross or intersect the Blue River corridor, using streets to cross the river. Opportunities to link the corridor to neighborhoods are limited by the railroad corridors and industrial development. Using the parks and key roadways, the plan identifies links that cover most of the adjoining neighborhoods.

## Issues and Opportunities

Through data collection and analysis, stakeholder meetings, site reconnaissance and public meetings, the factors influencing development of a greenway were summarized into specific issues, constraints and opportunities. Many of these are the basis for recommended projects. Several environmental issues apply to most of the corridor. Riparian habitat is degraded to

varying degrees throughout the corridor. Opportunities for preservation, enhancement and recreation occur in all segments, but mostly in the Central Study Area.

Width of the corridor, locations and extent of park and other public land ownership, and bridges are among the major constraints. Opportunities are associated with most of these issues as well.

Much of the land along the river is underused or vacant, presenting good opportunities for recreation, wetland and other riparian habitat reconstruction and economic development. The channelization project provides opportunity for continuous public access along the corridor.

## Public Involvement

A series of three public workshops were conducted at sites along the corridor in September, 2003.

Workshop objectives were to:

- Learn the benefits of Greenway systems
- Identify key issues associated with the Blue River corridor
- Help formulate a future vision of the lower Blue River corridor

Participants listened to a presentation of data gathered and site reconnaissance investigations. They discussed issues and opportunities and recorded their ideas on flipcharts and directly on base maps of the corridor.

Important issues included:

- Access and opportunities to link the community to the Blue River corridor
- Environmental enhancements to improve water quality, habitat, and visual quality
- General cleanup and pollution control
- Recreational use and cultural enhancements

The discussion can be summed up in nine themes:

- Trail connections,
- Habitat improvements,
- Clean up and pollution control,
- Recreation and aesthetic enhancements,
- Cultural enhancements,
- Flood control,
- Security,
- Partnerships and,
- Economic development.

## Recommended Greenway Elements

A number of potential greenway elements comprising 24 project areas are proposed for the Blue River corridor. They are divided into those that focus on specific locations and those that are generic and applicable throughout the corridor.

Because many parts of the Blue River corridor are highly disturbed, it will likely not be possible to restore habitat to a level of quality that existed pre-settlement. An acceptable goal would therefore be to prevent the establishment of a monoculture in an ecosystem or habitat area.

Another goal would be to eliminate the presence of noxious invaders. Finally, a goal would be for the dominant species in a habitat area to be native.

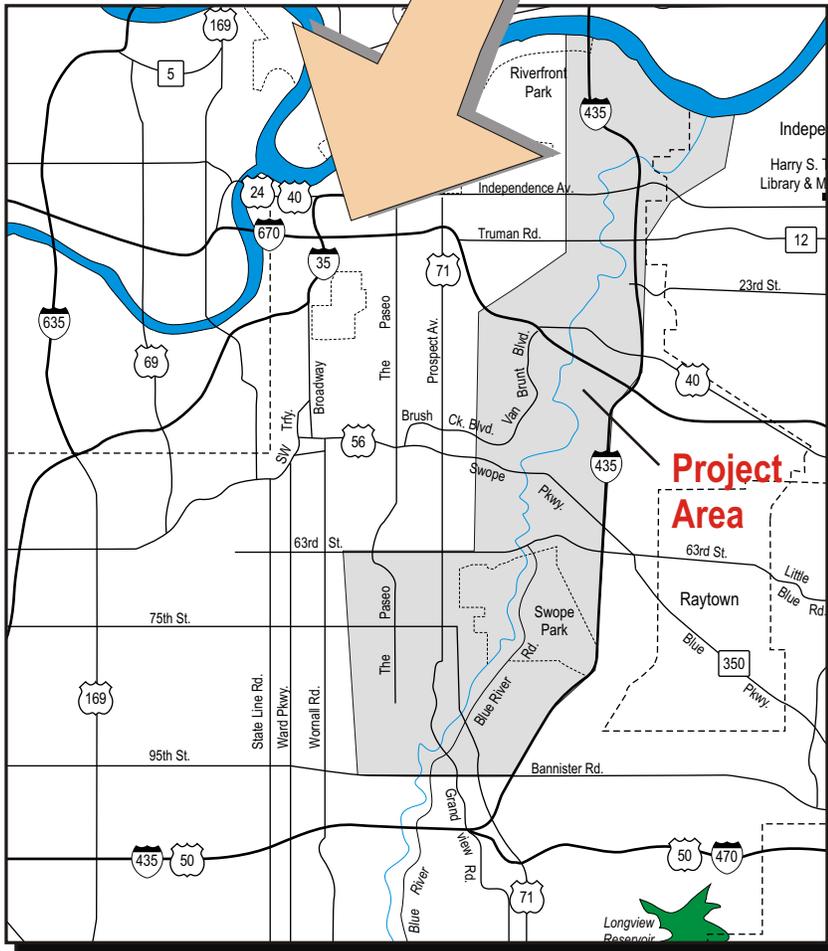
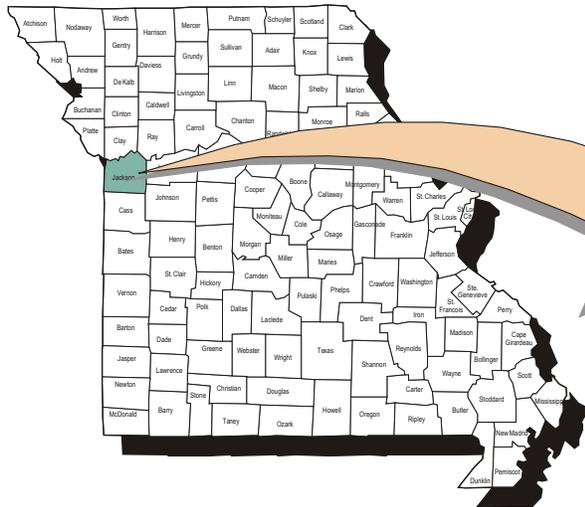
A number of the projects call for the reestablishment of flood plain connectivity with the Blue River. The projects were developed from a synthesis of site visits, collected data, interviews and public workshops. The project sites are locations where river corridor projects could be accomplished. Each site could comprise numerous projects (trail, ecosystem, cultural, etc), which work together to enhance ecological functions, cultural resource protection, linkages, and education.

### **Swope Park to Truman Trail**

The multi purpose Swope to Truman Trail will be the first Blue River Greenway Master Plan project implemented. From Swope Park, it will proceed north through the Byram's Ford to Blue Banks Park. Crossing the river, it will follow the east bank to a crossing at the US 40 highway bridge, and then continue on the west bank to Corrington Park, then north on Winchester Avenue to a trailhead at Truman Road. Engineering challenges occur at some bridges, where clearance or width of the bridge limits the area available for the trail. Other challenges involve crossing of major drainage outfalls or tributaries, which require bridges or deflection of the path away from the Blue River to a narrower crossing point, or to land uphill from a headwall.

A separate study was issued in July 2004 describing the routing, connections and challenges to developing the trail. The report includes a conceptual cost opinion.

Missouri



Vicinity Map  
Blue River Greenway  
Figure 1

Kansas City, Missouri



NOT TO SCALE



# 1. ECOLOGICAL RESOURCES

## Riparian System

The Blue River was once a free flowing stream that formed a broad riparian system extending from its confluence with the Missouri River southward and westward primarily through Jackson County, Missouri and into Johns on County, Kansas. This riparian system consisted predominately of large tracks of bottomland forests, prairies, wet meadows and other types of wetlands. The riparian corridor was bordered by upland forests, glades and prairies. The Blue River riparian system has been altered extensively since the early 1900's. For purposes of this report, the riparian corridor will be considered to be the historic limits of the flood plain of the Blue River, prior to alterations due to the flood control improvements.

The Blue River was once a retreat for many Kansas City residents, with boating, swimming and fishing popular activities. Club houses and weekend cottages lined many parts of the river, particularly in the lower reaches. In his 1912 report to the Kansas City Board of Park Commissioners on the Blue Valley Parkway and Waterway, landscape architect George Kessler noted that unless action was taken to protect the Blue River corridor, land along the river would be absorbed for industrial purposes. Unfortunately, this has occurred in much of the riparian corridor, particularly downstream from Byram's Ford, and at the Banister Road Federal Complex as well as the Swope Park Industrial Corridor. The riparian corridor from 23<sup>rd</sup> Street on the east bank and 17<sup>th</sup> Street on the west bank to Independence Avenue is almost completely industrialized. Almost no areas of natural vegetation persist in this area. One exception is the Centropolis Loop, which was a meander cut off by the flood control project. The meander has been used as a wetland mitigation site, with limited success.

Downstream from Independence Avenue, the Blue River crosses the broad former flood plain of the Missouri River. It is designated as "former" because flood plain connectivity with the river has been eliminated by the levee protection. The riparian corridor of the Blue River and the Missouri River intermingle at this point. Industrial development occurs along much of the corridor, with pockets of wetlands and bottomland forests interspersed.

Much of the Blue River has been severely degraded, particularly in the lower reaches, below Swope Park. The river is in the final stages of being channelized from Byram's Ford battlefield area to its confluence with Brush Creek. The channelization project has removed many of the meanders for most of this portion of the riparian corridor. Much of the lower reaches of the Blue River, from Byram's Ford north is industrialized, effectively eliminating the original riparian habitat. The channel is concrete lined from Independence Avenue to the Kansas City Southern Railroad Flyover Bridge, a distance of 3,500 feet. In-channel vegetation and riparian habitat does not exist in the concrete lined section. Most of the remainder of the channelized section of Blue River has been lined with riprap or planted with fescue. Some limited riparian habitat occurs at the top of bank.

The purpose of the channelization project was to reduce flooding and resultant damage. This has occurred, but at the expense of habitat within the riparian corridor. At the time Congress approved the channelization project, the flood plain of the Blue River was much more heavily industrialized than it currently is. Today opportunities exist through the channelized section to reconnect portions of the flood plain, such as remnant oxbows, to the river for both flood storage

and water quality improvements, as well as habitat restoration. The Centropolis Loop is a primary example of a remnant oxbow that has been partially restored to provide flood water storage and habitat.

Upstream from Byram's Ford the condition of the Blue River riparian corridor remains more natural. However, degradation of the Blue River continues upstream from Byram's Ford as well. Severe erosion has and continues to occur within the stream channel itself, primarily in the form of head cutting, with undercutting and slumping of the channel banks. Damage to the channel banks is severe enough that it threatens zoo exhibits in Swope Park. It also threatens to undermine portions of Gregory Boulevard and Oldham Road, also in Swope Park.

The Blue River is a naturally "flashy" river because storm water runoff reaches the river in a short period of time and the river channel is narrow. Increased upstream urbanization is worsening this existing natural condition., The Corps of Engineers is currently preparing a General Reevaluation Report (GRR), which will address these issues.

Riffle and pool complexes upstream from Swope Park are much more common, and much of the Blue River is lined with riparian forest. Only remnants of riparian habitat exist or are being naturally restored downstream of Byram's Ford. The U. S. Geological Survey has noted that sedimentation is not a major problem in the Blue River. The Corps of Engineers has not observed any major sedimentation problems on completed portions of the flood control project.

Areas of Bethany Falls limestone bluffs and glade habitat occur along the edge of the riparian corridor. This habitat is unique to the Kansas City area.

Water quality in the Blue River varies greatly, depending on the location. The Blue River is no longer the swimmable stream it once was. High levels of fecal coliform occur periodically, due to combined sewer overflows and runoff. Industrial pollutants can be a problem but have been regulated and are generally controlled. Polluted storm runoff and groundwater are a concern from the many automobile salvage yards that border the riparian corridor, particularly downstream of Blue Parkway.

More than thirty-five species of fish have been identified in the Blue River, upstream of the concrete lined section of the river. The abundance of fish species increases upstream of the channelized sections of the river, where better aquatic habitat can be found. Common fish that are present include catfish, carp, bluegill, green sunfish and bass.

There are several tributaries of the Blue River. The largest is Indian Creek, with a drainage basin of 75 square miles, most of which is in Johnson County, Kansas. Brush Creek, which drains 30 square miles, flows primarily through urban areas, and has limited natural habitat. Other major tributaries, most located outside the study area, include Tomahawk Creek, Wolf Creek and Coffee Creek. Other minor tributaries have been channelized or piped.

Soils in the lower reaches of the riparian corridor have been extensively disturbed. These soils consist of Haynie-Urban Land-Leta Association in the lower reaches, Kennebec-Colo-Bremmer Association along the flood plain areas. A number of hydric soils occur in the riparian corridor.

The slopes and rolling hills bordering the riparian corridor consist primarily of soils in the Snead-Menfro-Oska Associations.

## Wetlands

The extent of wetlands varies widely throughout the study area. Upstream from Byram's Ford, wetlands are more common, and there are more areas of hydric soils, especially immediately adjacent to the top of bank. Upstream of the flood control project, flood plain connectivity is much more intact, and hydric soils, and hydrologic conditions that support wetlands are more common.

Near the confluence with the Missouri River, some remnant wetlands occur. These are on relatively undisturbed areas that were not developed. Even though hydrologic connectivity with the Blue River is eliminated, these areas have hydrologic inputs from the Missouri River and from storm runoff. Upstream of Independence Avenue, where the channelized section is rip-rap lined, a number of wetlands occur in oxbows and meanders that have been cutoff as a result of channel realignment. Some of these areas can be reconnected as pulsed wetlands, to improve storage and water quality in addition to habitat.

The National Wetland Inventory maps indicate riverine wetlands within the channel bottom of the concrete lined section of the Blue River. However, as constructed, the concrete lined channel section of the Blue River no longer contains riverine wetlands within the channel. It is almost completely devoid of aquatic habitat. No in-stream or in-channel vegetation is present.

Upstream of the concrete lined channel section, riverine wetlands are present. These are of limited quality. When the Blue River was channelized, all riffle and pool complexes were eliminated. However, the Corps of Engineers have been adding hardpoints to the channel upstream of 17<sup>th</sup> Street to create channel habitat. These efforts have been coordinated with and supported by the Missouri Department of Natural Resources. The channel is brush-hogged periodically to prevent the establishment of woody vegetation. Cover on the banks of the channelized section varies. Most is graded and seeded with fescue, although some stretches are completely lined with rip-rap. Fescue was planted bank to bank downstream of 12<sup>th</sup> Street. From 12<sup>th</sup> Street to Brush Creek, fescue is limited to the lower channel slope and benches. In some areas where the channel has been terraced native grasses are being established. Establishment of native grasses has required a shift in maintenance of these areas. Mowing is scheduled based on habitat issues such as nesting periods and plant maintenance such as seed production and weed infestations.

The channelized section extends from the end of the concrete lined section upstream to the "yet to be constructed" grade control structure located just downstream from Byram's Ford. The Grade Control Structure is required to control head cutting upstream of the improved channel project that would occur due to changed gradient in the channel. Further, in order to protect the Byram's Ford Historic Crossing, the structure was designed to ensure that channel velocities upstream of the structure approximate pre-project conditions. The Grade Control Structure is an important component of the channel project that will maintain existing, pre-channel modification flow conditions upstream of the structure.

Bottomland topsoils in the corridor, particularly near the confluence of the Blue and Missouri Rivers, should have an adequate seed-bank of wetland species for use in restoration projects.

Pulsed wetlands that are hydrologically linked to the Blue River can be developed as a form of off-channel detention. This provides habitat, as well as some flood protection. The flood protection can offset the addition of vegetation within the river channel.

## Channel Conditions

The channel cross section below the grade control structure is over 300 feet wide in some locations. Upstream of the grade control structure, the channel assumes a more natural cross-section and profile. Water levels will be controlled somewhat by the grade control structure through portions of Swope Park. Upstream from Swope Park the channel profile includes riffle and pool complexes.

The channel of the Blue River upstream from the grade control structure has been degraded due to urbanization in the watershed. A stream channel is in a state of dynamic equilibrium. In other words, the stream is in a state of constant, but slow and relatively predictable change. Development in a watershed can cause rapid changes, and the relative state of equilibrium is upset. The stream channel will continue to adjust, until a state of dynamic equilibrium is again reached.

In the Blue River corridor, the effects of development in the upper reaches of the watershed that manifest themselves in the river channel upstream from the grade control structure include down cutting of the channel bottom and undercutting of the channel banks. The channel banks then slump into the channel, adding to the sediment load in the stream. This process results in steeper banks. In some areas of the Blue River upstream from the grade control structure, banks are near vertical. Unless stabilized, these steep banks continue to slump until they reach a stable grade. This ultimately results in a widening of the channel cross-section.

Bank erosion is a normal process. However, land use changes within a watershed accelerate the process and increase the severity. Protecting the natural vegetation in the riparian corridor and adding upstream detention, along with other measures that reduce the volume and rate of storm water runoff will help to alleviate changes to a stream channel brought about by development.

Bio-stabilization measures are useful to stabilize and protect stream channels. The benefit of bio-stabilization over traditional hard armoring of a channel is that a bio-stabilized stream will more closely follow fluvial form and function. A bio-stabilized stream channel will also provide improved aquatic habitat and improved water quality.

## Vegetation

The quality and type of vegetation within the Blue River corridor varies. Near the confluence with the Missouri River, in undisturbed areas, some bottomland forest habitat with pockets of wetland woods remain intact. These occur primarily in what would be designated the Missouri River flood plain, or in areas of the former flood plain (levee protected) areas of the Missouri River. Some extensive areas of bottomland forest interspersed with wetland woods occur in the vicinity of Byram's Ford. Emergent wetland species are prevalent where many of the cut-off meanders and oxbows occur. Upstream from Swope Park, the wetlands consist of riverine systems, areas of wetland woods and some emergent wetland areas.

## Miscellaneous Resources and Concerns

Other valuable ecological resources occur within or immediately adjacent to the riparian corridor. The glade habitat that occupies hills bordering the Blue River at various locations is unique for this region. Of particular note is the Blue River Glades Natural Area owned and managed by the Jackson County Parks and Recreation Department. It was designated a state natural area in 1983, by the Missouri Department of Natural Resources. The Blue River Glades Natural Area extends south from Swope Park.

The riffle and pool complexes in the upper section of the study area are a valuable resource that provides aquatic habitat and improved water quality. The loss of this habitat in the lower reaches has affected water quality. Similar patterns can be built into the channelized section to improve aeration and pool habitat during low flow periods. To achieve improved habitat, the Corps of Engineers has been adding hardpoints to the channel between 17<sup>th</sup> Street and Brush Creek to create channel habitat. These hardpoints are intended to create backwater, eddies, and riffle conditions.

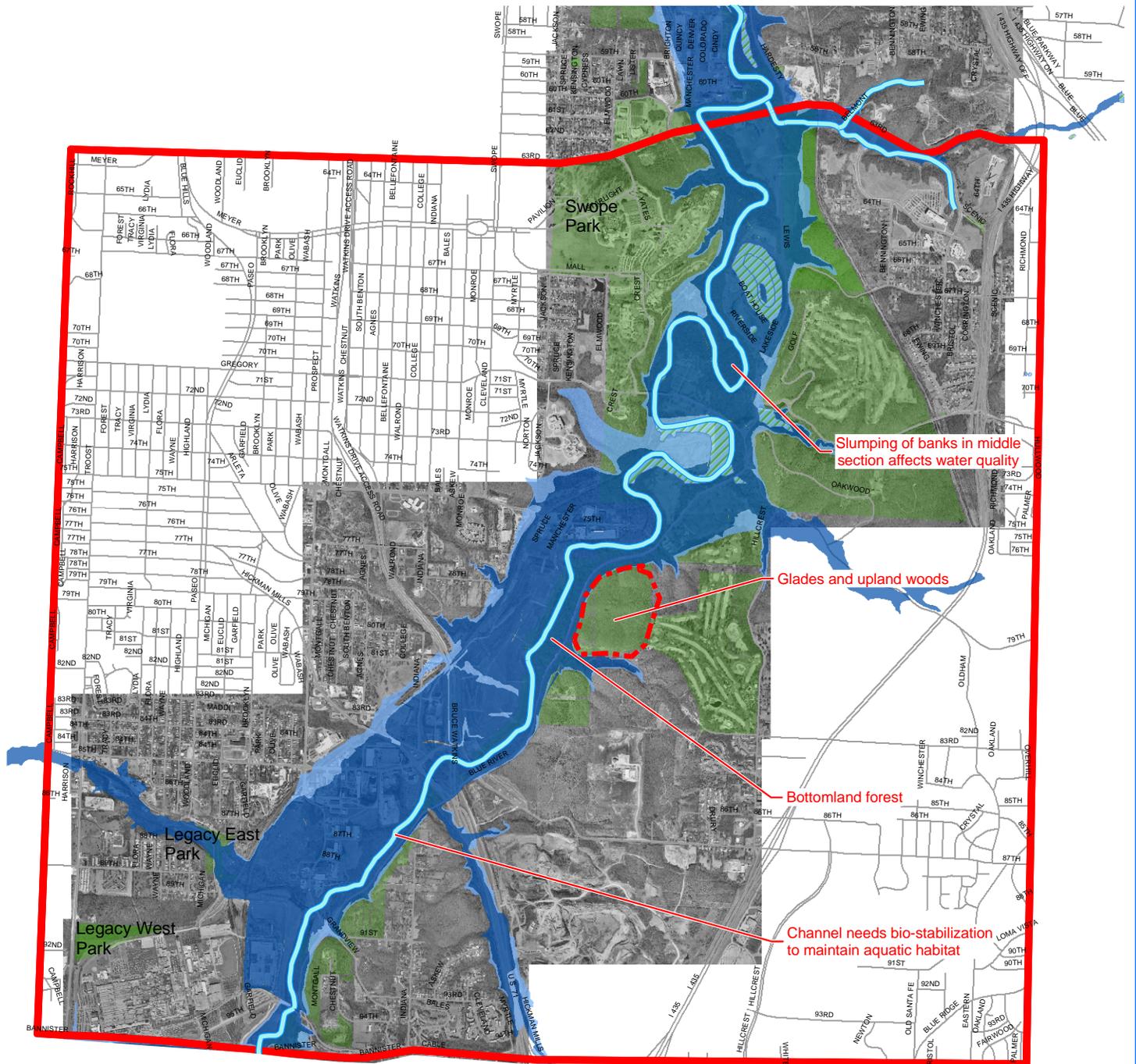
A number of invasive plant species including bush honeysuckle, Japanese honeysuckle, garlic mustard, creeping euonymus and English ivy occur along the length of the Blue River corridor. Of these, bush honeysuckle is the most prevalent, and severely degrades the quality of habitat in many areas along the Blue River. Control of invasive species can be difficult, and usually must include a mix of mechanical and chemical means, and occasionally fire.

In addition to non-native invasive species, several native species including sugar maple and red cedar can adversely affect species diversity. These species were naturally controlled by fire, which prevents them from dominating an area, preserving diversity. Fire is often not a viable control measure in an urban area, so less effective mechanical or chemical controls must be used. Sugar maples are starting to dominate some areas on the upland slopes bordering the riparian corridor through Swope Park.

In the many of the industrialized areas of the Blue River corridor soil and ground water have become contaminated. This is particularly true in the older industrialized areas between the confluence and 23<sup>rd</sup> Street. Several sites have been designated EPA Superfund sites. Contaminants include insecticides, herbicides and fungicides, volatile organic compounds and heavy metals, among others.

The Blue River corridor is also dotted with automobile salvage operations. Many of these sites are not licensed and have the potential for contamination.

Any new development within the corridor, and the watershed as a whole, should incorporate sustainable concepts of low impact development. In particular, a non-structural approach to storm water management must be taken that incorporates measures to reduce the volume and rate of storm water runoff. Such measures must replicate the variable source flow of storm water. Non-structural storm water management measures must also be used in conjunction with bio-stabilization and other measures to replicate fluvial form and function in the stream channel. This in turn will improve water quality through reduction of sediment load and other pollutants, and will improve aquatic habitat.

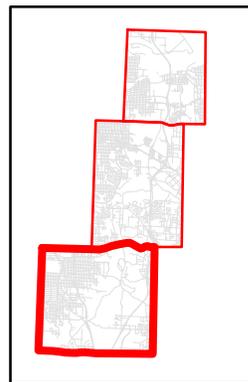


**Blue River Greenway Legend**

-  Blue River
- Riparian Corridor**
-  100-Year Floodplain
-  500-Year Floodplain
-  Wetlands

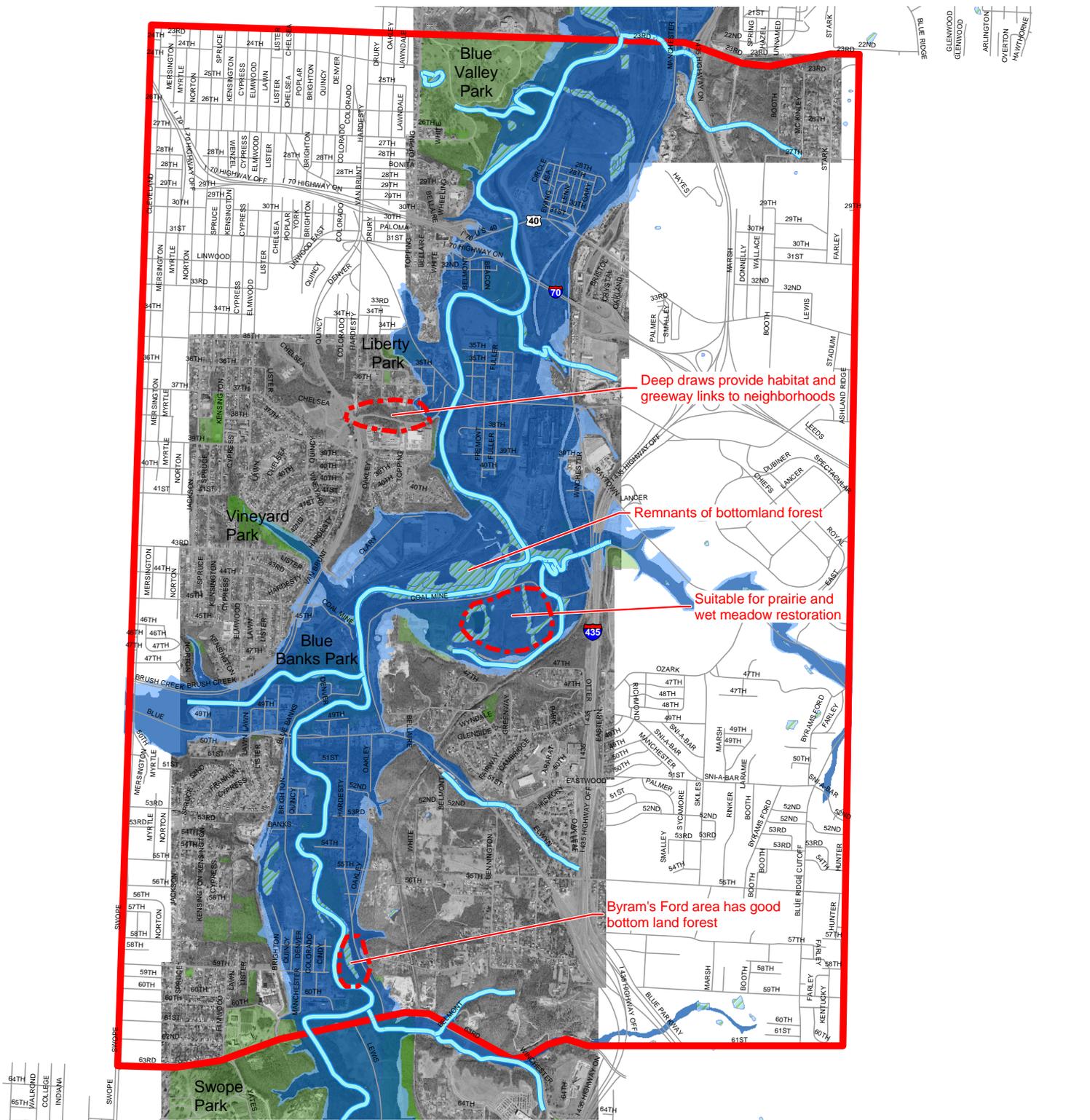


Source: Data obtained from City of Kansas City, MO and U.S. Fish and Wildlife Survey - National Wetlands Inventory



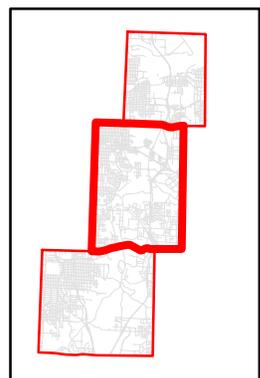
**Ecological Resources South Study Area Figure 2**



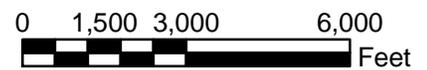


**Blue River Greenway Legend**

-  Blue River
- Riparian Corridor**
-  100-Year Floodplain
-  500-Year Floodplain
-  Wetlands



**Ecological Resources  
Central Study Area  
Figure 3**



Source: Data obtained from City of Kansas City, MO and U.S. Fish and Wildlife Survey - National Wetlands Inventory



## 2. CULTURAL RESOURCES

The Blue River valley within the study corridor has a variety of cultural resources that reflect the migration of people to the American West and Civil War battles. Most of these resources are north of 63<sup>rd</sup> Street where the topography in the river valley was generally more conducive to east-west travel than the narrower river valley south of 63<sup>rd</sup> Street. This section features Byram's Ford and the Big Blue Battlefield site, historic river crossings related to travel within the region, and trails that provided routes for travelers to the American West. The U.S. Army Corps of Engineers, Kansas City District is in early stages of the preparation of the Blue River watershed General Reevaluation Report, which will provide information on archeological resources in the study area.

### Three Trails (Santa Fe, Oregon, California National Historic Trails)

The migration of settlers to the west started in western Missouri. Although some alternate routes were utilized to traverse the Blue River, the primary route for the three National Historic Trails is being interpreted and developed as a bike trail that crosses the Blue River just north of I-435. The Three Trails route does traverse a short section of the South Study Area and can be connected to a Blue River Greenway trail system. The trail will extend from the northeast to the Federal Parks Trail Information Center, which will be located at Bannister Mall. The trail will then follow Bannister Road to the west to a point where it will turn south and parallel US 71. The trail crosses under US 71 and parallels I-435 west to the Blue River crossing. (see Figure 5)

### Byram's Ford - Big Blue Battlefield Site

Most of the Byram's Ford - Big Blue Battlefield site is located immediately north of 63<sup>rd</sup> Street. Lands associated with the battle are owned by the KCMO Parks and Recreation Department, Monnett Battle of Westport Fund, Inc. (Monnett Fund) and the KCMO Public Works Department.

The National Park Service's (NPS) Civil War Battlefield Sites Advisory Commission ranks the importance of Civil War battlefield sites. The most historically significant battlefields are Class A sites. Battlefields next in importance are Class B sites. Byram's Ford - Big Blue Battlefield is classified as a Class B battlefield by the NPS commission. Over the years the battlefield has lost integrity due to industrial development. Only portions of the original battlefield retain the landscape integrity associated with the historic event.

The Byram's Ford Historic District was listed in the National Register of Historic Places (NRHP) in 1989. The historic district comprises only a portion of the overall battlefield. The NRHP district is located on both sides of the Blue River and is focused on the location of the river crossing. Investigations subsequent to the NRHP nomination and listing have recommended revisions to the original district boundary to encompass additional battlefield areas that have not lost integrity due to development. (see Figure 6)

The Monnett Battle of Westport Fund, Inc. has led efforts to protect and interpret the Byram's Ford - Big Blue Battlefield. Recommendations for expansion of the NRHP district, preservation of the property and development of a comprehensive interpretation program are presented in the *Preservation Plan and Archeological Surface Reconnaissance for Big Blue (Byram's Ford)*

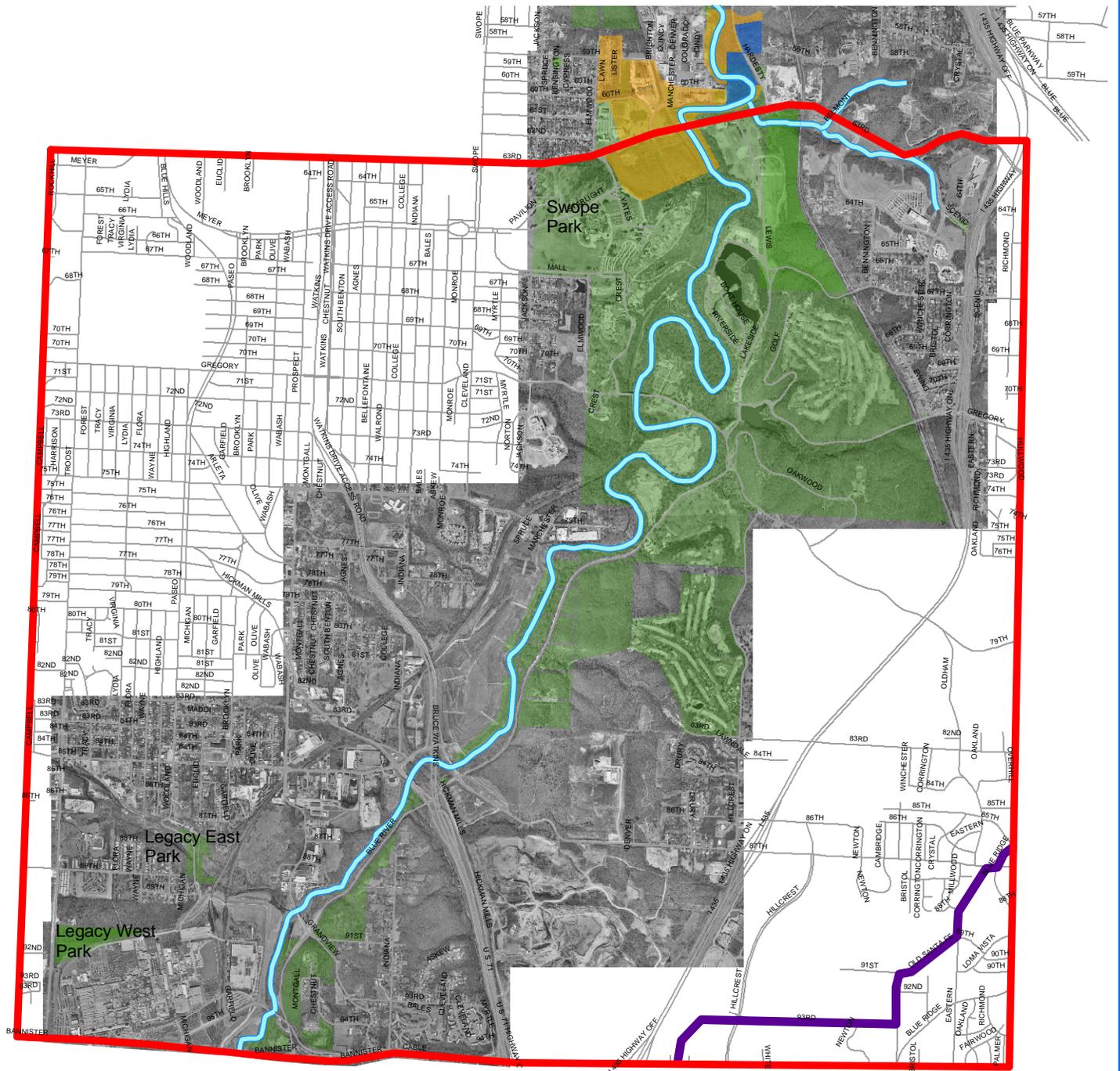
*Battlefield ( Gray and Pape, Inc, 1995) and the Interpretive and Development Plan for Byram's Ford Big Blue Battlefield, 2002 and revised 2003 (Monnett Battle of Westport Fund, Inc, 2003).*

## **Independence-Westport Road Crossing**

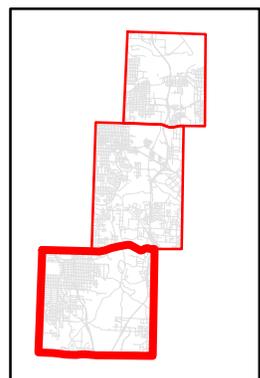
In 1994, the U.S. Army Corps of Engineers, Kansas City District conducted an investigation of alternate routes of the Oregon and Santa Fe Trails crossings of the Blue River. The investigation looked at a crossing on the south end of Blue Valley Park, southeast of the intersection of 27<sup>th</sup> and Topping, and several other locations along the Blue River. (see Figure 6) The investigation concluded that the crossing at Blue Valley Park and the road leading to the intersection of 27<sup>th</sup> and Topping should be considered for designation as a state and local historic site. The site is also potentially eligible for listing on the NRHP.

## **Archeological Resources**

The Blue River valley is considered to have a high potential for significant archeological resources. Resources could range from historic artifacts from civil war battles to prehistoric artifacts from early human occupation. The U.S. Army Corps of Engineers, Kansas City District is in early stages of the preparation of the Blue River watershed General Reevaluation Report, which will provide information on archeological resources in the study area.



- Blue River Greenway Legend**
- Blue River
  - Byram's Ford Historic District**
  - Existing Boundary
  - Potential Expansion
  - Three Trails Route



**Cultural Resources  
South Study Area  
Figure 5**

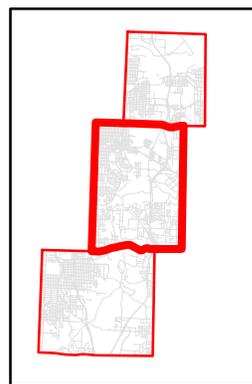


Source: Data obtained from City of Kansas City, MO

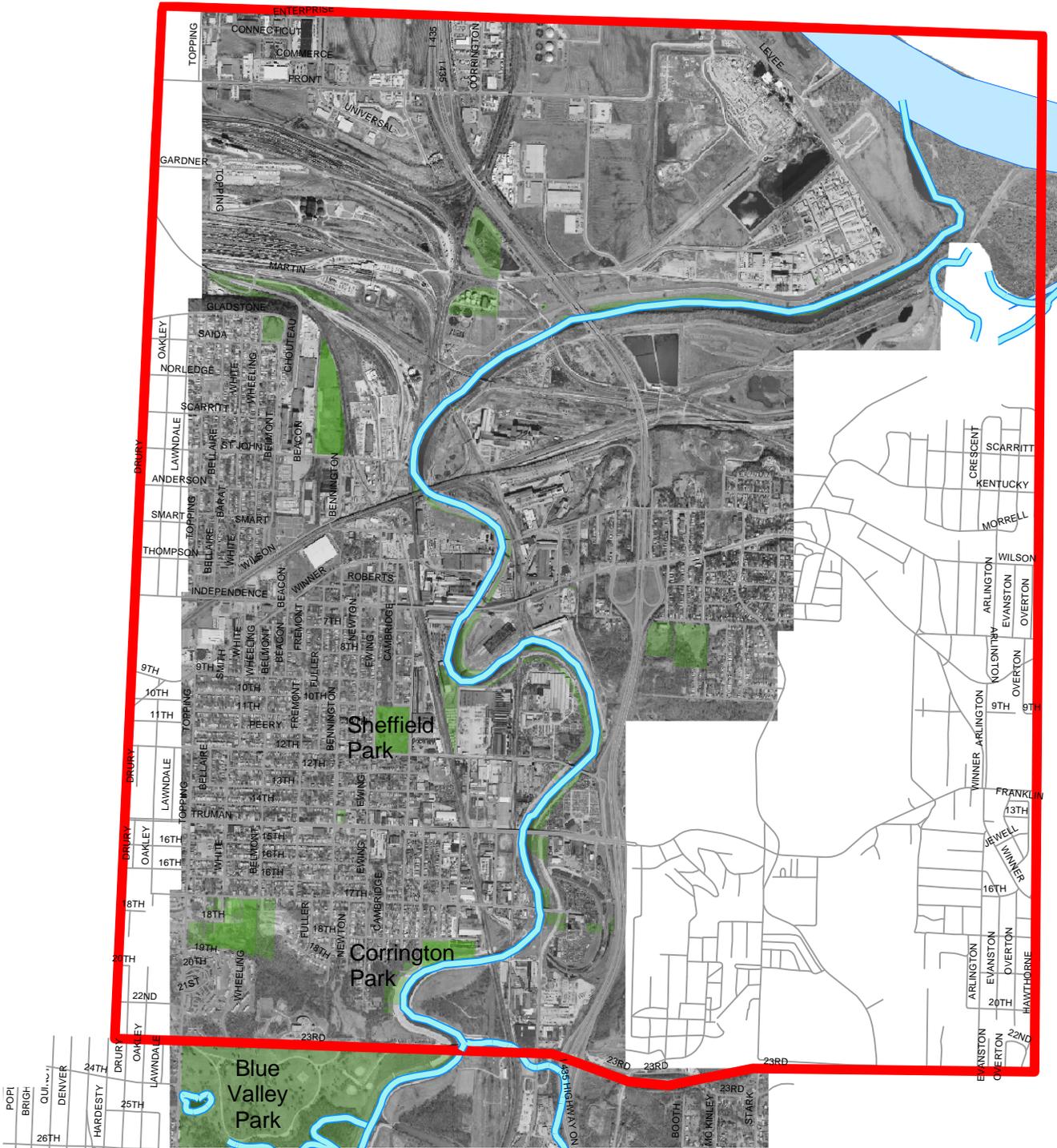


- Blue River Greenway Legend**
- Blue River
  - Byram's Ford Historic District**
  - Existing Boundary
  - Potential Expansion
  - ✦ Independence Westport Road

**Cultural Resources  
Central Study Area  
Figure 6**

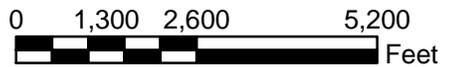
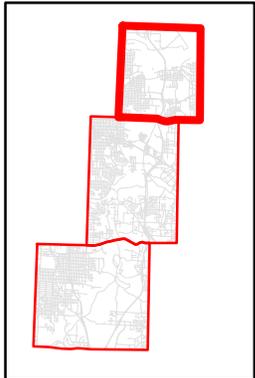


Source: Data obtained from City of Kansas City, MO



**Blue River Greenway Legend**  
 — Blue River

**Cultural Resources  
 North Study Area  
 Figure 7**



Source: Data obtained from City of Kansas City, MO

### 3. LAND USE AND PUBLIC OWNERSHIP

#### Development Patterns

This section provides an overview of the development patterns within the Blue River corridor. Existing land use is summarized to provide the framework of past development in the area, which leads to an overview of the city's desires for future development patterns. Recent and ongoing planning efforts in the Blue River corridor are also summarized.

#### Land Use

The dominant existing land uses within the Blue River corridor are parks, open space, industrial, vacant and residential parcels. Existing land use in the corridor is illustrated in Figures 8, 9 and 10. The prominence of each land use category varies throughout the corridor.

Parks and open space are the major land use features in the Southern Study Area. Swope Park, the landfill and the Blue River Parkway are the most prominent land uses between 63<sup>rd</sup> Street and the intersection of Bruce R. Watkins Drive, Hickman Mills Drive and 87<sup>th</sup> Street. The Central Study Area includes Blue Banks Park, which is located at the confluence Brush Creek, Vineyard Park and Blue Valley Park. Blue Valley Park, is a large park that serves several neighborhoods in the central and northern portions of the corridor.

Industrial development in the South Study area of the corridor is characterized by the Federal complex at Hickman Mills and 85<sup>th</sup> Street. The character of industrial development in the Central Study Area changes to smaller parcels scattered throughout the river valley. Many of these smaller industrial parcels are automobile and appliance salvage yards. The North Study Area is predominantly industrial in character, dominated by heavy industrial businesses on large parcels.

There are a large number of parcels classified as vacant in the Blue River corridor. Some of the larger contiguous vacant parcels are in the vicinity of the Hickman Mills/85<sup>th</sup> Street intersection, between 63<sup>rd</sup> Street and the Brush Creek confluence, and between I-435 and the Missouri River confluence.

Established residential neighborhoods dominate the area west of the Blue River. These neighborhoods are primarily residential, however there is a mix of commercial, institutional land uses and vacant parcels scattered throughout these residential neighborhoods. Figures 8, 9, and 10 illustrate neighborhoods bordering the Blue River.

#### City Planning

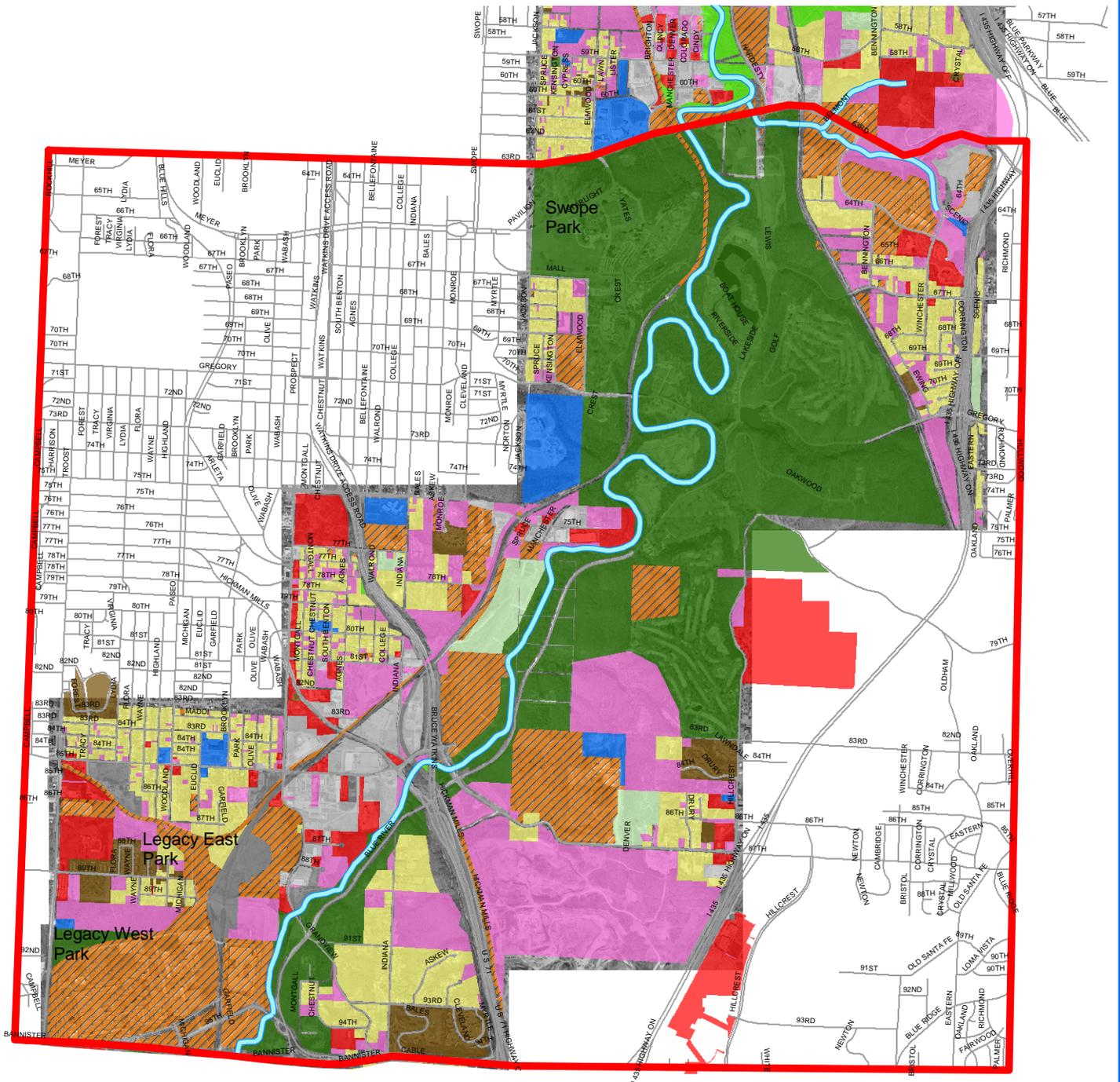
Kansas City has conducted numerous planning studies that range from citywide to area specific. Kansas City's Comprehensive and Strategic Plan which is titled *Forging Our Comprehensive Urban Strategy* (FOCUS) was prepared in 2000. This plan is intended to provide a road map for the future of the city. It addresses development patterns, redevelopment opportunities, historic preservation, neighborhood preservation and social capital issues. Actions recommended in FOCUS included preparation of neighborhood assessments, development of alternative transportation opportunities and protection of natural and cultural resources. The FOCUS Plan also addressed the future land use pattern of the city.

The future land use pattern is more generalized than existing land use. The dominant land uses are residential, parks, industrial and mixed use. Residential neighborhoods are intended to be the prominent land use west of Blue River. Expansion and stabilization of residential neighborhoods is desired north and south of Swope Park on the east side of the river. Swope Park, the Blue River Parkway and Blue Valley Park will continue to be the prominent park resources along the river. However, upgrading of Blue Banks Park and proposed parkland at the Missouri River confluence will expand the presence of the parks system along the Blue River valley. Industrial facilities will continue to dominate the northern portion of the corridor. Smaller parcel industrial facilities will border the Blue River in the Central Study Area. The Federal Complex will continue to be the prominent industrial facility in the South Study Area. The Bannister Mall area is designated as a large mixed use area.

Most neighborhood assessments have been completed. The objectives of the neighborhood assessments were to engage the community in a process to identify the “neighborhood type” and to develop improvement strategies for the neighborhood. Recommendations range from reduction in crime to park improvements such as updating Blue Valley Park with trails.

## Public Ownership

Much of the land along the Blue River is in public ownership, and the City of Kansas City is one of the largest landowners. Most of the land owned by KCMO is parks, most notably Swope Park, Blue Valley Park, Blue Banks Park, Brush Creek Greenway and Corrington Park. These parks account for more than 2,300 acres. The City owns a number of smaller parcels along the Blue River between 63<sup>rd</sup> Street and Blue Banks Park. It also owns the municipal farm, east of the Brush Creek confluence and land south of the I-70/US 40 interchange. Jackson County owns most parcels east of Blue River Boulevard between Bannister Road and Swope Park. Most of the land north of Truman Road, on each side of Blue River, is owned by industrial businesses. Where river corridor improvements are made, the City will generally own a 20 foot wide access right-of-way at the top of bank on each side of the river. The right-of-way width may vary somewhat throughout the length of the corridor. This will provide the opportunity for public access along the river through most of the corridor north of the Big Blue battlefield at 59<sup>th</sup> Street.



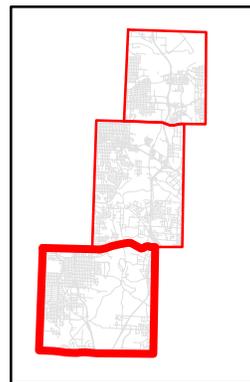
**Blue River Greenway Legend**

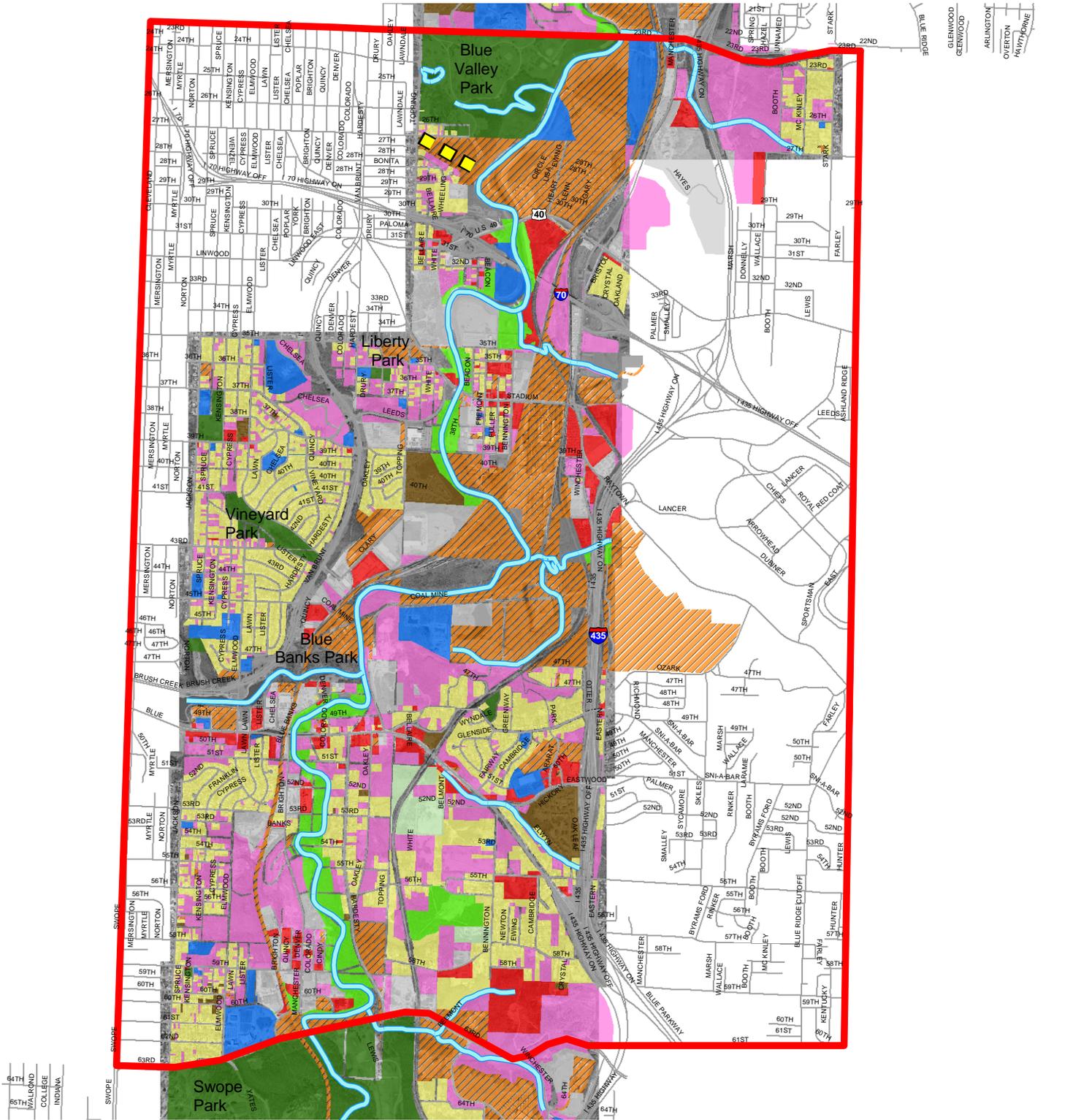
- Blue River
- Existing Land Use**
- Single Family Residential
- Multiple Family Residential
- Commercial
- Institutional
- Light Industrial/Utility/Storage
- Heavy Industrial
- Park/Recreation
- Open Space/Common Ground
- Agriculture
- Vacant
- No Data



Source: Data obtained from City of Kansas City, MO

**Land Use South Study Area Figure 8**





**Blue River Greenway Legend**

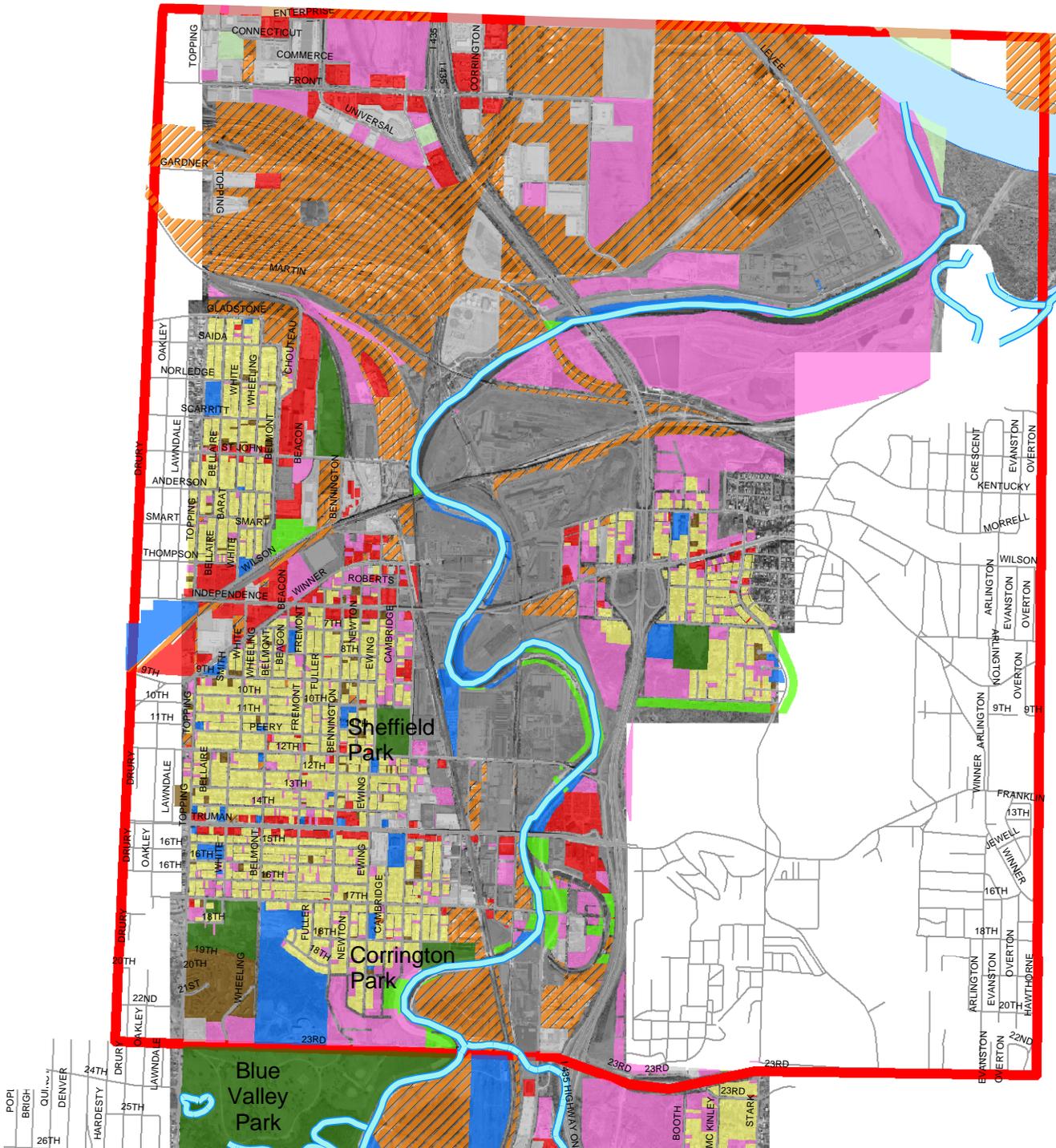
- Blue River
- Existing Land Use
- Single Family Residential
- Multiple Family Residential
- Commercial
- Institutional
- Light Industrial/Utility/Storage
- Heavy Industrial
- Park/Recreation
- Open Space/Common Ground
- Agriculture
- Vacant
- No Data



Source: Data obtained from City of Kansas City, MO

**Land Use  
Central Study Area  
Figure 9**





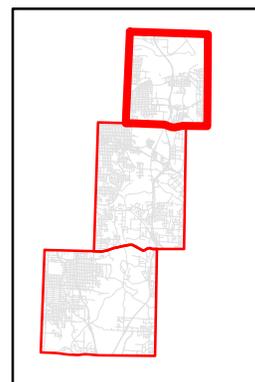
**Blue River Greenway Legend**

- Blue River
- Existing Land Use
- Single Family Residential
- Multiple Family Residential
- Commercial
- Institutional
- Light Industrial/Utility/Storage
- Heavy Industrial
- Park/Recreation
- Open Space/Common Ground
- Agriculture
- Vacant
- No Data



Source: Data obtained from City of Kansas City, MO

**Land Use  
North Study Area  
Figure 10**



## 4. CIRCULATION

### MetroGreen

MetroGreen is a regional greenway and trail system plan for the Kansas City metropolitan area. It evolved as a series of linear corridors that link neighborhoods, parks, community facilities and markets in the seven county greater Kansas City area. The linear corridors are generally located along streams, creeks and rivers, roadway rights-of-way and abandoned railroad corridors.

MetroGreen evolved out of a Community Assistance Team project sponsored by the Prairie Gateway Chapter of the American Society of Landscape Architects (ASLA) at ASLA's annual meeting held in Kansas City in 1991. It extends the original concept of landscape architect George Kessler's parkways and boulevards plan for Kansas City in 1894. Consisting of over 1000 miles of interconnected trails, corridors and open spaces, the MetroGreen system now covers the Missouri counties of Platte, Clay, Jackson and Cass; as well as the Kansas counties of Leavenworth, Wyandotte and Johnson.

Almost 650 miles of the regional MetroGreen plan follows stream, creek and other riparian corridors. The Blue River and its tributaries flow mainly through western and central Jackson County and cover much of Johnson County, making the Blue River a significant component of the MetroGreen Plan.

MetroGreen provides regionally applicable standards for trail planning and design that should be incorporated into any plans for the Blue River Greenway.

Proposed segments of the MetroGreen plan in Jackson County include the Blue River corridor from Swope Park to the Missouri River, and from Swope Park to the Kansas / Missouri State Line. The MetroGreen plan extends even further into Johnson County, Kansas. A number of MetroGreen corridors link directly to the Blue River corridor, including the Riverfront Heritage Trail along the Missouri River, the Brush Creek corridor, which extends into Johnson County and the Trolley Track Trail. Other trails include a link from downtown Kansas City, Missouri to the Little Blue River, and a greenway proposed along the Highway 40 Corridor from the Blue River to the Little Blue River.

### City Bicycle Routes and Trails

A number of bicycle routes and multi-use trails have already been developed or have been proposed by the City of Kansas City and MARC that will connect with the Blue River Greenway. The initial segment of the Blue River Greenway is the Swope Park to Truman Road trail (see "Swope to Truman Trail Concept Plan" July 2004). Ultimately, this trail will be extended north and south along the greenway. Other trail linkages are proposed as part of this greenway planning effort. Section 7 Recommended Greenway Elements details the 13 proposed new linkages.

At the confluence of the Blue River and the Missouri River, the Riverfront Heritage trail will provide a multi-use trail link from the Blue River along the Missouri River west to downtown Kansas City. Ultimately, the Riverfront Heritage Trail will extend east to Independence, Missouri.

A proposed multi-use trail will extend out of downtown from 12<sup>th</sup> Street to Truman Road, crossing the Blue River at Truman Road, where it will connect to the northern trailheads of the Swope to Truman trail. The western trailhead is on school property at Winchester Road and the eastern trailhead is at Manchester Highway, just east of the river. This trail will extend east to the Little Blue River, providing access for residents east of I-435 to the Blue River and downtown Kansas City.

A multi-use trail is proposed along the US 40 corridor. This trail will also link the Blue River with the Little Blue River to the east. A trailhead, connecting the two trails, is proposed along the Swope to Truman trail at the MoDOT staging yard. Another trailhead at nearby Liberty Park will provide access to both trails as well as the Van Brunt trail and residential neighborhoods to the west of Van Brunt. The Stadium Drive trail also provides bicycle and pedestrian access from the Blue River to the metropolitan baseball and football stadiums.

The proposed Brush Creek Trail will link Country Club Plaza with the Blue River, terminating at Blue Banks Park. The Brush Creek Trail is planned to connect to the proposed Van Brunt Road Trail. Van Brunt is a major north-south arterial that parallels part of the Blue River on the west. Trail connections from the Blue River corridor to the Brush Creek trail are possible on both sides of the creek, through existing and potential park land, creating an important open space link from the Blue River valley to Brush Creek.

## Primary Roads

I-435 on the east and US 71 on the west frame the Blue River corridor and connect to east-west streets that provide access to the parks and proposed trails along the river. The Blue River roughly flows down the center between these two limited access highways. These highways provide easy access for the entire metropolitan area to the Blue River corridor through connecting streets. US 71 crosses the Blue River near the southern end of the study area.

Blue River Road is a north-south parkway adjacent to the Blue River south of Swope Park. In addition to regional circulation, it serves as a recreational driving route. The addition of a paralleling trail will make this a multi use corridor of almost entirely public conservation land. North of Swope Park, primary north-south arterials and collectors include the Van Brunt Road, Manchester Trafficway, and Hardesty Avenue. While Manchester and Van Brunt can accommodate trails, the primary trail opportunities are off street, along the river.

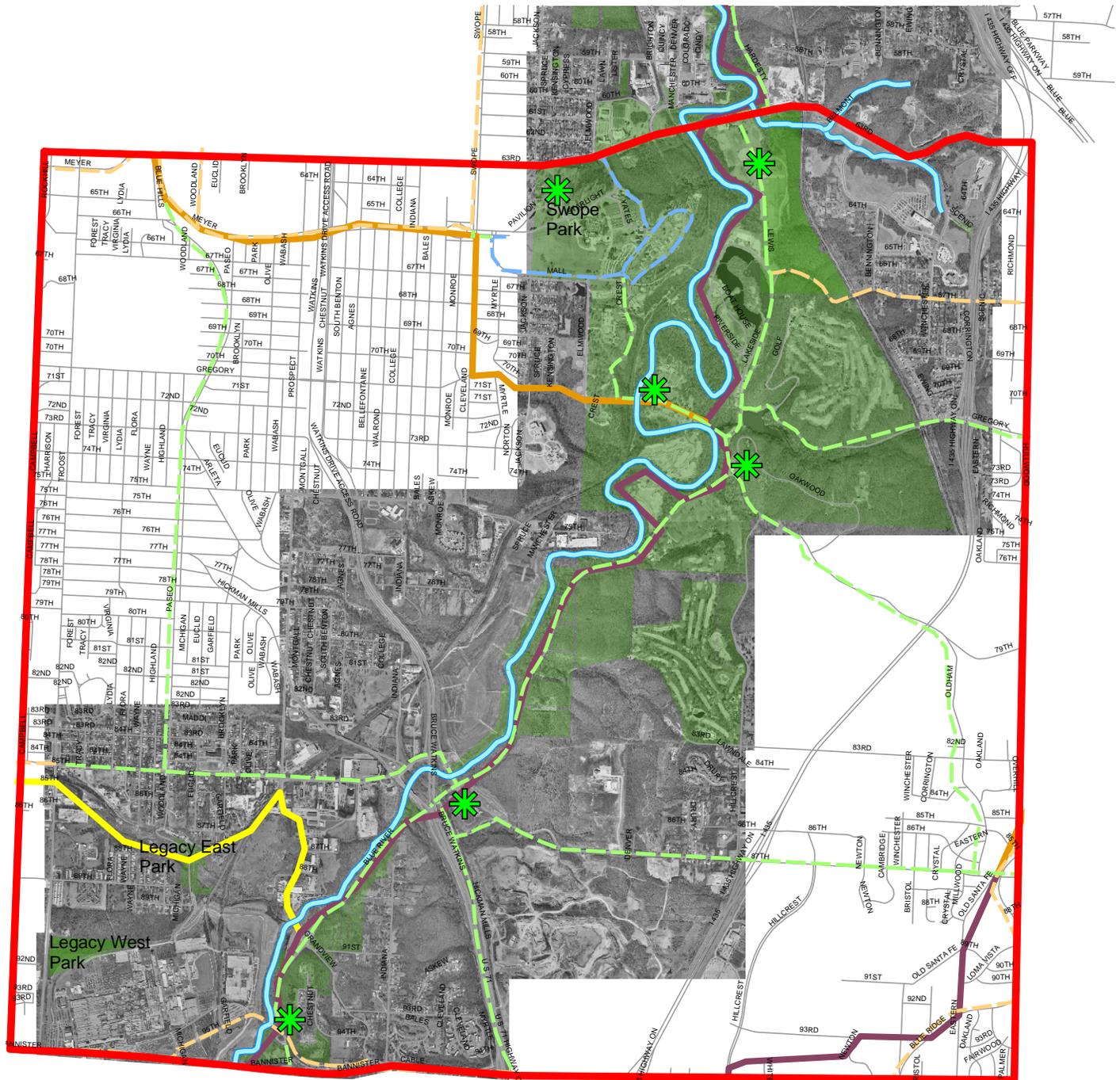
From north to south, major east-west arterials and collectors providing access to the Blue River corridor include Independence Avenue (US 24), Truman Road, 23<sup>rd</sup> Street (SR 78), US 40, I-70, the Blue Parkway, 63<sup>rd</sup> Street and Bannister Road. Trailheads are proposed along or near each of these roads to expedite access to the greenway, and trail crossing of the river. The connections and potential trailhead sites are described in the Swope to Truman Trail Concept Plan and in section 7 of this report.

## Equestrian Routes

Equestrian trails provide horseback riding opportunities separate from most multi-use trails within greenways. There are no equestrian trails within the Blue River corridor north of Swope Park, and limited trails occur in Swope Park on the east side of the Blue River. However, there is

considerable interest in the region for trails extending north from Swope Park to the area of the Brush Creek confluence and Municipal Farm, where sufficient public land exists for a trailhead.

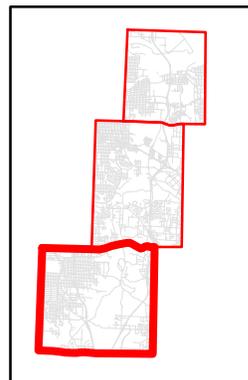
A trailhead at Saegar Woods currently serves trails south of the city ranging north to Swope Park, with riders venturing as far north as Brush Creek and Blue Valley Park. KCMO Parks is considering an equestrian facility at Swope Park. A new trail could also provide links to private facilities such as Jerry Smith Farm, R & R Stables to the private ranch at Blue Parkway at Manchester.



**Blue River Greenway Legend**

- Blue River
- Swope to Truman Trail**
- Preferred Bike/Ped Alignment
- Equestrian Alignment
- Potential Linkages
- Potential Trailheads
- City Bike Routes**
- Existing
- Planned
- Proposed
- MARC Greenways**
- Existing
- Phase 1
- Phase 2
- Phase 3

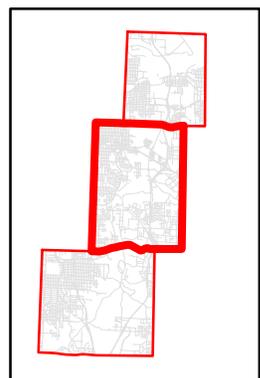
**Circulation South Study Area Figure 11**



Source: Data obtained from City of Kansas City, MO



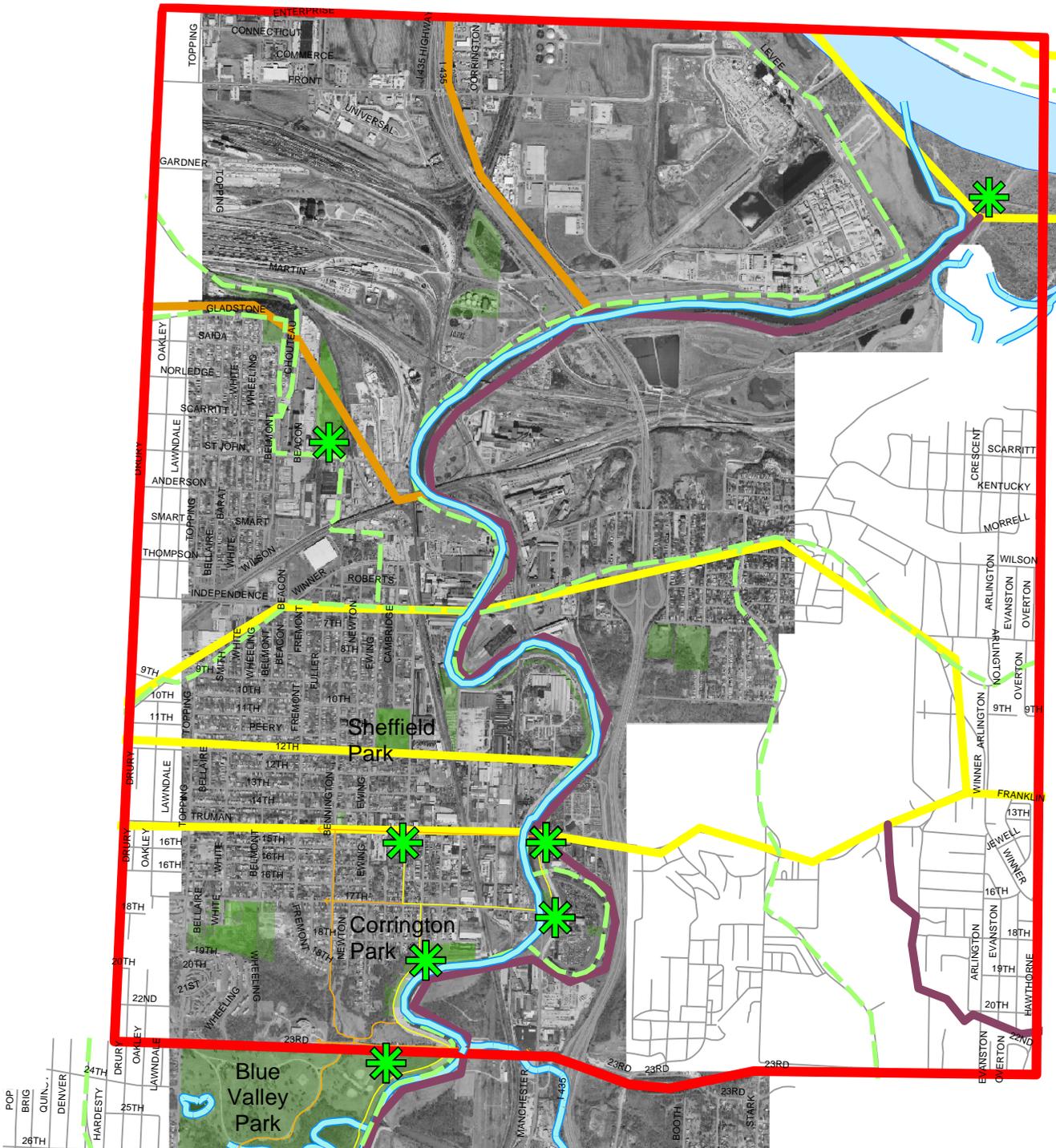
- Blue River Greenway Legend**
- Blue River
  - Swope to Truman Trail
  - Preferred Bike/Ped Alignment
  - Equestrian Alignment
  - Potential Linkages
  - \* Potential Trailheads
- City Bike Routes**
- Existing
  - Planned
  - Proposed
- MARC Greenways**
- Existing
  - Phase 1
  - Phase 2
  - Phase 3



**Circulation**  
**Central Study Area**  
**Figure 12**

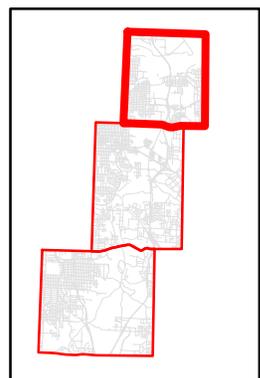


Source: Data obtained from City of Kansas City, MO



**Blue River Greenway Legend**

- Blue River
- Swope to Truman Trail
- Preferred Bike/Ped Alignment
- Equestrian Alignment
- Potential Linkages
- \* Potential Trailheads
- City Bike Routes**
- - - Existing
- - - Planned
- - - Proposed
- MARC Greenways**
- Existing
- Phase 1
- Phase 2
- Phase 3



**Circulation  
North Study Area  
Figure 13**



Source: Data obtained from City of Kansas City, MO

## 5. ISSUES, CONSTRAINTS, OPPORTUNITIES

### Introduction

An analysis of the available data, corroborated and further assessed through field reconnaissance and meetings with key stakeholders identified factors that will affect development of the Blue River Greenway. The public meetings further refined this analysis to produce specific issues, constraints and opportunities for greenway development and connections. Most of the factors are specific to segments of the corridor, and form the basis for recommended projects. Several environmental issues apply to most of the corridor.

Many constraints relate to width of land available for habitat and trail connectivity. Steep banks, adjacent circulation routes and existing development all limit the amount of land along portions of the river. Public lands and well distributed parks offer opportunities throughout the corridor for gathering places, connections to adjacent neighborhoods and recreational and environmental improvements. Many bridges cross the river. While a majority of them are high enough to allow passage beneath, some do not. In most cases, these are older bridges that are planned for replacement. With this plan in place, any bridge reconstruction can be designed to accommodate trails parallel to the river and crossing the river.

Remaining riparian habitat is degraded, some more than others. Many factors affect the quality of the habitat, so the opportunities and constraints affecting each area are unique, based on the unique combination of factors involved.

Much of the land along the river is underused or vacant, presenting good opportunities for recreation, wetland and other riparian habitat reconstruction and economic development. The channelization project would generally provide a 20 foot access right-of-way on both sides of the river for both maintenance and continuous public access along the corridor. The right-of-way width may vary somewhat throughout the corridor. The remnant meanders and many publicly owned parcels offer opportunities to enhance, expand and connect natural areas to improve habitat, water quality, flood management and recreational opportunity.

Discussion of specific issues, constraints and opportunities follows.

### Levee (Federal Complex)

Between Bannister Road and 95<sup>th</sup> Street the valley narrows into a linear corridor characterized by a relatively natural riparian zone along the east side of the river defined by steep bluffs and the levee surrounding the Federal Complex on the west. The bluffs rise as much as 100 feet above Blue River parkway, which traces the bottom of the bluffs. The levee, with a service road on top, forms the west edge of the corridor and Blue River Parkway forms the east edge.

North of the Federal Complex, a tributary extends from the Blue River west to Troost, between Euclid and 87<sup>th</sup> Street. The vegetation is mixed with invasive species, and banks on some channel meanders in the tributary are eroding. This corridor links wildlife and drainage to the Blue River and should be protected and enhanced.

Native forest covers most of the bottom land east of the river and within the corridor south of 95<sup>th</sup> Street. This is the site of a wetland mitigation project. The bottomlands west of the river are open wet prairie and grass lands.

While the habitat is continuous, trail opportunities are limited. Pedestrian access from the south can be cut in under bridges at Bannister and 95<sup>th</sup> Street. Multi use and equestrian trails can follow the east side of the river north to the golf course at Swope Park. Adequate land also remains on the bench between the levee and the river to develop a trail from Bannister Road north to Grandview Road. That corridor is narrow enough that separate equestrian/pedestrian trails will be difficult to achieve. Security requirements for the Bannister Federal Complex may be significant and must be considered.

Between Grandview Road and US 71, the slopes on the east side leave little room on the west side of Blue River Parkway for a trail, however the woodland habitat is generally continuous and of fair to good quality. Development on the west side of the river lays very close to the river at Grandview Road and north near US 71. Between these two locations lies a broad flood plain forest.

## Triangle Project/Bannister Mall Area

The triangle area at the interchange of I-435 and I-470 and US 71 was the confluence of the three historic trails that led west from Kansas City. It is also a possible connection to the future KATY Trail and the Three Trails Corridor tracing the historic Oregon, Santa Fe and California trails.

Planned KCMO bike trails will connect the Blue River corridor to the historic trails segment under the Bannister Road Bridge. This connection would also lead to the proposed visitor/education center for the historic trails, which will be located at Bannister Mall. The Bannister Mall area is an employment/shopping/entertainment center on the southern end of the study area.

## US 71/87<sup>th</sup> Street Bridges

A water quality sign had been posted to the south of the US 71/87<sup>th</sup> Street bridges warning of PCBs. The area has already been used for ATV trails. The Dodson levee will begin at this point on the opposite bank of the river. The large bottomland area on the east side of the river, beneath the three bridges offers the opportunity to extend a trail under the highways. This interchange is also the point of connection of a proposed KCMO bike trail along 87<sup>th</sup> and 85<sup>th</sup> Streets. However, the high traffic volumes and wide roadways present significant safety constraints to connecting the trails.

The landfill is the predominant feature on the west bank of the river. The landfill prevents the river from meandering along this stretch, which may be a factor in undercutting of the riverbank next to the Blue River Road. This undercutting condition imposes a significant constraint on the placement of a trail along Blue River Parkway at one point about one half mile north of the Bruce Watkins Bridge. Beyond that point, a relatively broad forested plain provides a continuous habitat with adequate space for trails.

## Blue River Glades

The Blue River Glades is a remnant hill prairie on west facing limestone bluffs overlooking the Blue River valley most of which is on Jackson County Parks property. This existing nature restoration area includes a hiking trail that can be incorporated into the Blue River corridor trail system. Glades are maintained by a volunteer group, which burns the glade area every other year. Directly across a ravine from the Glades a 1200' tower is to be installed. Swaths for the guy wires have already been cut. Unfortunately, the most visible portion of the tower guy wires runs perpendicular to Blue River Parkway.

New commercial development will occupy the ridge south of the tower. There have been discussions indicating that the developer may be open to connecting trails to the Glades and providing trailhead space within the proposed office park. While linkages can connect the Blue River corridor to 83<sup>rd</sup> Street and Hillcrest, east of the Glades, it will be important to keep bicycles out of the Glades area. A link extending from Hillcrest and 83<sup>rd</sup> Street north to Oldham east of the Glades area can tie in to the Blue River Corridor at the Swope Park Golf Course parking lot. The Blue River Road has ample space for trails to the north of the nature park.

## Blue River Parkway

The road is in need of resurfacing for most of its length. In some sections the subsurface appears unstable, which is probably influenced by the river. The parkway has potential for many uses including recreational. Portions of the pedestrian trails could parallel the road on the west side through the bottomland forest. While some portions of this forest appear to be wetland, no area is designated on the National Wetlands Inventory (NWI). Although broken by the road, this zone has some good continuity from bottomland to upland forest. The road itself could be closed to auto traffic for hiking and biking on special occasions. The Blue River Parkway could be extended much farther to the north, through and beyond Swope Park, as the river valley is redeveloped.

The limestone bluffs along the east side of Blue River Parkway offer considerable aesthetic appeal and glade habitat, but constrain development on that side of the road. From the west, a link is possible through the Swope Park Industrial Area, connecting the proposed KCMO bike trail along Paseo, via 75<sup>th</sup> Street, across the river to the trail system along Blue River Parkway.

## Swope Park

Swope Park encompasses over 1,800 acres on both sides of the Blue River, which meanders through the park and the zoo. Swope Park is the premier regional park within the Blue River Corridor, and is currently the subject of a master planning study. This stretch of the river is relatively undisturbed, although erosion threatens one or two road segments and a portion of the zoo. The valley is deeply cut throughout much of its length making access to the river difficult. Currently, little access is available to the river with no trails close to the water. Access to the river is possible in several places and opportunities exist to build trails through significant portions of the valley within the park. Some of this construction could be incorporated into channel improvements to control erosion.

- **Golf Course**  
Several sections of the stream bank exhibit significant erosion as the Blue River meanders through the golf course. The most significant appears to be along Gregory Boulevard, where erosion could threaten the roadway. The meanders of the river, and steep slopes along sections of the river, make it desirable to cross the river at one or more locations in this zone to provide universal access along the river. A utility easement on the opposite side of the river from the Golf Course parking lot could accommodate a trail, but the crossing would have to be further up river due to bank erosion. The road is narrow with very little shoulder in this section. Trails paralleling the road would require some degree of engineering to provide a stable path. Trails should be kept off the rock face and it appears that a trail could come around the east side of the course and terminate into the golf course parking lot.
- **Zoo Butcher House**  
Located between the old Nature Center trails and the Nursery, this site is available for redevelopment. The site is readily accessible from Gregory via an existing curb cut and drive to the Nursery. Utilities are present at the site, as is ample screened open space. Opportunities include use as a trailhead shelter and restroom facility, or possible interpretive center.
- **Nursery**  
The Nursery is in the processes of being vacated; it has a curb cut on Gregory and utilities. Large amounts of trees/limbs have been dumped over the bank on the backside of the Nursery, encroaching on the natural river valley. An abandoned railroad bed parallels Gregory on the south side of the nursery, with a bridge footing on the nursery side of the river. It will allow universal access to the bottomland along the river.  
  
Opportunities exist for this area to be converted for trailhead use, utilizing open, flat spaces for parking. This central location can provide possible short loop trail access to Byram's Ford, Shirling Sanctuary, and the old Nature Center trails. It is also close to the new Nature Center. A trail route is possible along the river north, through the zoo, to the pool building and ultimately to the 63<sup>rd</sup> Street bridge. Steep slopes and existing fencing will maintain zoo security.
- **Work Progress Administration Structures**  
Several Work Progress Administration (WPA) structures from the 1930s exist throughout Swope Park and should be maintained and integrated into the trails system.
- **Nature Center (old)**  
The Old Nature Center sits at a strategic location in the park, at the intersection of Oldham and Gregory. The structure could play a role in trail system, although space for parking is very limited. Trails at the Old Nature Center are in need of renovation to incorporate them into the Blue River corridor trail system. These trails can be a valuable enrichment of the Blue River corridor trail system.
- **Zoo/Swinging Bridge and Shirling Sanctuary**  
Currently the only access to the sanctuary is through the zoo. The sanctuary is overgrown with honeysuckle and needs some work to be restored. Extreme bank cutting on the south edge has moved the bank of the river to within a few feet of the zoo fence, and threatens the connection of the sanctuary and part of the African exhibit to the zoo. A solution to the

erosion is under study. This area offers a great opportunity for restoration and a quiet retreat for trail users. Feral dogs, a potential safety hazard to the public and zoo animals, roam this zone.

- **Pool**

Although it is heavily used in season, there is evidence of illicit off season and after hours activity since the loop road was cut off. The pool is slated for major renovation that will include the addition of a spray park. The pool house has historic interest, and can be adapted to current needs. With increased activity, the pool house area could be a connection point to a section of trail that follows the river through the park and zoo.

- **Nature Center**

The Nature Center has a large volunteer group that aids in river and trail clean up and staff biologists who are very familiar with the river. The center and its staff are very interested in being involved in development of the greenway and trails. The Nature Center can be a significant destination point for trail users.

- **Additional Trailhead Opportunities**

In addition to the opportunity at the Nursery, two locations can serve as trailheads in the northern part of the park. These locations offer connections to linkages to planned KCMO bike trails along 63<sup>rd</sup> Street, Meyer and Cleveland to the west, and 67<sup>th</sup> Street to the east, as well as to the zoo and Starlight Theater. One is west of the river, on a former park entry road (now closed) near the signal at Jackson Street. The east side trailhead is on the east side of Lewis Lane about 1000 feet south of 63rd Street.

Each trailhead would connect to the area to the north differently. From the west trailhead, the best access to the corridor is at the signal of Manchester Trafficway and 63<sup>rd</sup> Street, east of the City buildings. From the east the trail can pass under the 63<sup>rd</sup> Street Bridge, or ascend the bank and cross the bridge to the Manchester Trafficway and 63<sup>rd</sup> Street signal. The east side trailhead offers the best opportunities for access both north and south through the corridor.

## Byram's Ford/Big Blue Battlefield

Byram's Ford is the site of one of the Civil War battles fought in the Kansas City area. Portions of this site are on the National Register of Historic Places. Byram's Ford is identified as a Class B battlefield site by the National Park Service. As such it is afforded a high level of significance for Civil War battlefields. Although much of the land on either side of the Blue River is now in the public domain, only two portions of the site are on the National Register. The Monnet Fund of Kansas City is working with the National Park Service and other agencies to preserve, restore and protect portions of the battlefield. Ultimately, a visitor's center is proposed for the site.

The city has acquired much of the property around Byram's Ford in conjunction with the Corps of Engineers flood control project. The channelized portion of the flood control project will terminate at the as yet to be constructed grade control structure near 59<sup>th</sup> Street, while the flood control project continues to the south into Byram's Ford area. A spoil berm will be extended along the west bank from the grade control structure upstream to the point where Manchester Trafficway crosses the Union Pacific Railroad tracks. The city has acquired the property around Byram's Ford for the spoil berm. The grade control structure demarks the change from a

relatively naturally flowing stream (upstream, south) to a channelized stream (downstream, north).

The area is currently under industrial use. Several modern buildings, which occupy the original battlefield site, will be removed for this project. Corps of Engineers is aware of the historic nature of the site and has designed the system to be as visually unobtrusive as possible. The Monett Fund has prepared an Interpretive and Development Plan for Byram's Ford Big Blue Battlefield. The recommendations in this plan should be incorporated into trail development planning and design.

The concept plan for the Swope to Truman trail proposes a bike/pedestrian trail that begins south of 63<sup>rd</sup> Street and passes through the site. It follows Manchester Trafficway then traverses the west edge of the battlefield site. East of the river, an equestrian trail crosses from Swope Park under the 63<sup>rd</sup> Street bridge then proceeds north along the east bank of the river to the location of the Grade Control Structure where it is proposed to cross to the west side. A full description may be found in the Swope to Truman Trail Concept Plan dated July 2004.

Linkage to the neighborhoods west of the river can be accommodated along 59<sup>th</sup> Street, which has a controlled crossing of the railroad, and possible links to loop trails through the neighborhood.

### **Battlefield Site to Blue Parkway Corridor**

The east side of the river is largely forested, with a band of wetlands within 100 to 150 feet of the river. This band of primarily upland habitat also provides continuous habitat linked (under the 63rd Street Bridge) to Swope Park, and with a cut along Hardesty Avenue to large wooded areas to the east. Most development is set back from the river. These two natural greenways are valuable assets to the regional habitat, and provide natural area frontage along roadways.

City ownership extends from 200 feet to 700 feet from the river. In places, all of the land between Hardesty and the Blue River is city owned. The result is a generally continuous band of riparian habitat, valuable for wildlife and water quality, but limiting for trail development. West of the river are pockets of industrial development along Denver Avenue, with much of the land between the road and the river open, disturbed fields.

A remnant oxbow provides greenway connections west of the Blue River, across the railroad and up two ravines into the adjacent neighborhood as far west as Jackson. While not suitable for trails, this is a valuable wildlife corridor and habitat link from upland forest, through a ravine system, to river bottom forest and wetland. There is evidence of porcupine habitat and use. It also conducts significant runoff to the river, through the oxbow.

The filling of this oxbow with construction debris and general dumping is resulting in the loss of wetlands in the bottom and riparian forest habitat.

There is potential to reconnect this oxbow to the river, which would offer a wide range of positive effects for the corridor including: increased water storage capacity, improved water quality, increased groundwater infiltration, increased wildlife, increased aesthetics, an educational facility, and a natural focus for surrounding economic development (water features sell).

This section will be the upstream limit of the channelized portion of the Blue River. The channelized stream is part of flood control improvements that extend from the yet to be constructed grade control structure to the confluence of the Blue River with the Missouri River. The grade control structure consists of a concrete weir followed by a series of rip-rap spillways and smaller rip-rap weir structures. The channel cross-section changes from a channel that is less than 100 feet wide (from top-of-bank to top-of-bank) in most locations to as much as 300 feet wide downstream of the grade control structure. The bottom channel profile downstream of the grade control structure is significantly lower than the river bottom upstream of the structure. It may be possible to use the grade control structure for a channel crossing of the Blue River.

Along the channelized portion of the Blue River, a twenty foot right-of-way runs parallel to the top-of-bank on either side allowing maintenance access. The City of Kansas City owns the channel from top-of-bank to top-of-bank with the twenty foot access beyond on either side. This right-of-way provides a continuous path for trails on one or both sides of the river. The bench partway down the slope also offers the opportunity for trail construction. Portions of the western side of the corridor adjoin industrial areas (between Denver Avenue and the river) that should be buffered for trail quality and security for the businesses.

## **The Blue Parkway Bridge**

Two bridges currently exist at the Blue Parkway crossing. The upper Blue Parkway Bridge is a four lane structure carrying a major East-West arterial road. The lower Blue Parkway Bridge is a two lane structure servicing local access needs. The upper bridge is to be replaced by a new 4-lane structure with construction expected to begin in late 2005. This new bridge has not been designed to accommodate the pedestrian walkway. However, future expansion of the bridge will include the walkway. The lower bridge will be removed prior to construction of the new upper bridge. A new bridge to replace the lower bridge is under consideration for a location downstream from the current bridge. However no priority for replacement has been determined. The new alignment could create access issues for the surrounding industrial facilities.

While space is limited, the right-of-way will provide north-south access along both sides of the Blue River up to the confluence of Brush Creek.

## **Brush Creek and Blue River Confluence**

The City owned land north of Blue Banks Park and Brush Creek is the northern limit of a desirable trail route for the west side of the river for some distance. Railroad property and salvage yards dominate the west side of the river for up to two miles.

Along Brush Creek, existing trails extend to within one half mile of the confluence with the Blue River, terminating at a location that allows crossing of the creek. The Discovery Center and Country Club Plaza (a major employment/shopping/entertainment center in the central portion of the study area) along Brush Creek will be a destination point for trail users. Connections can be made through Blue Banks Park to the trails north and south of Brush Creek. This link will also connect the corridor to a proposed KCMO bike trail along Van Brunt Boulevard.

Some of the former channel areas are starting to revegetate with native species, particularly where the channel has not been completely filled. These areas provide additional habitat, stormwater detention and water quality treatment, and can add visual interest for the trail user.

Vineyard Park extends northwest from the city owned land north of Blue Banks Park. It consists primarily of a deep ravine and swale that starts at the Blue River and moves westward into the Vineyard Estates. This park provides a habitat corridor to the Blue River valley. Vegetation is mixed, with some forested areas and some meadow areas. A trail link along the north edge of the park ties the neighborhood to the proposed Van Brunt trail, and ultimately to the Blue River Corridor.

Parallel trails are possible along the Blue River at this location in order to separate pedestrian and equestrian uses. The city owns the property between the channel right-of-way and Blue Banks Road, so the trail and plantings do not have to remain in the twenty foot access right-of-way. While trails should extend to the north side of Brush Creek, the best crossing opportunities over the Blue River occur at the future bridge just north of Brush Creek planned as part of the Manchester Road and Hardesty Avenue realignment. A crossing at this point will provide access for neighborhoods east of the Blue River to the Brush Creek corridor and Country Club Plaza.

## **Municipal Farm**

Trail links from the Blue River crossing to the municipal farm area may have to use on street routes from the crossing point to the place where reconstructed section of Coal Mine Road, which is now known as Manchester Trafficway, begins. At this point, more extensive city owned land between Manchester Trafficway and the river offers flexibility for trail routing to the municipal farm property. Manchester Trafficway crosses the site at the north end and roughly parallels the Blue River on the west. It separates much of the farm site from the Blue River, so crossing points will be necessary to effectively link the two.

The former municipal farm consists of several large, relatively flat open areas located on the east and south sides of the Blue River. The site is flexible in its potential use, suitable for a range of activities from passive hiking and fishing to active sports fields or equestrian facilities. It is a potential trailhead location. A set of railroad tracks borders the site on the east, with I-435 beyond. The south side of the municipal farm area is hilly, with scattered woody vegetation.

Several remnant oxbow areas are present on the central part of the municipal farm site. The Oxbows appear to be in poor condition. Roadside dumping is prevalent and exotic vegetation is common. This area should be rehabilitated and returned to more natural habitat.

The neighboring abandoned concrete plant and abandoned quarry has potential as an extreme sports facility, or relocation of existing industrial facilities in the Blue River valley. City owned property in this area offers opportunities for extensive tree plantings. Several municipal buildings are located on the municipal farm area, providing access and surveillance

The property opposite the farm site north and west of the river is owned by a railroad, which may limit any use of that shore of the river. Located on the inside of a meander loop of the Blue River, this area features knob shaped bluff outcrop hills, and is roughly triangular in shape. It is bordered by the Blue River on two sides and several railroad tracks and spurs on the west side. One set of railroad tracks divides the site, cutting through the large, prominent knob that is part of the site. The knob is the end of a promontory projecting into the site. The promontory slopes down to bottomland areas associated with the Blue River.

The areas around the knob are forested, primarily a mix of closed and open canopy, cut by drainage channels. The forest consists of both upland and bottomland species, and is of varying quality. Most of the area is shown as wetland on NWI maps. The land is an attractive open space with good open field, bluff and forest habitat. It is worthy of conservation.

The northern point of the municipal farm area is slightly rolling, bisected by Round Creek. There are a number of meanders created by the creek, and the channel is deeply incised. This area has scattered woody vegetation, with good recreation potential, except for its proximity to the police shooting range on the north side of Coal Mine Road.

## Leeds Industrial Corridor

From Round Grove Creek, the Blue River, bends to the north past the Leeds Industrial complex, under three railroad trestles between industrial sites to Stadium Drive and through an S curve to I-70 and continues around the great bend in the Blue River channel immediately south of the Leeds industrial complex. For much of this reach, bluffs define the west boundary of the corridor. Most of the land is developed, with little natural habitat remaining.

Several railroad tracks cross the Blue River along this stretch of trail. To get under these crossings, trails will have to pass under the trestles. Clearance may be an issue, but a trail could be routed onto local streets and cross the tracks on at-grade crossing points before being routed back to the river.

There are no designated wetland areas, areas of unique vegetation or habitat or any threatened or endangered species in this area, and no known cultural resources.

Possible links to the business areas occur at the south east end of the Leeds industrial complex, adjacent to a water treatment facility. Another link is possible on the south and west side of the Leeds industrial complex. The east link would require approximately 300 to 400 feet of easement, and the west link would require approximately 800 to 1000 feet of easement. Both should be buffered by planting.

Leeds Road extends west from Stadium Drive connecting to residential areas and parks west of Van Brunt. This area is characterized by steep slopes and bordered by industrial development and various types of housing. The slopes are vegetated with an open canopy forest of mixed hardwoods and softwoods of varying quality. The ravine heads westward and provides a greenway link to neighborhoods to the west. The steep slopes turn southward and border the west bank of the Blue River.

A KCMO bike trail connects Van Brunt with Stadium via Leeds Road. The proposed Stadium Drive trail connects with a MetroGreen trail at Manchester, providing a primary link across the Blue River valley over the Stadium Drive Bridge. A trail along the river can connect to this trail at the east side of the bridge, where there is room at the Missouri Department of Transportation staging yard for a trailhead. Another link can occur further north on 35<sup>th</sup> Street as it passes Liberty Park, also a potential trailhead location.

City owned land flanks the river south of the I-70 bridge, however the large tract on the west side of the river is not readily accessible from the south due to the presence of large salvage yards

between it and Stadium Drive. This land (both sides of the river) does have value to the corridor as natural open space, if managed as a successional area or replanted.

## Blue Valley Park

North of the I-70 Bridge, city owned land along the river provides space for a trailhead that can link the Blue River corridor to a proposed MetroGreen trail with good automobile access from US 40. At this location also, the trail can cross the Blue River on the north side of the US 40 Bridge, which has adequate width for a pedestrian crossing.

About a quarter of a mile north of the US 40 Bridge west of the river is Blue Valley Park, with dramatic views across the valley to the east. The park is characterized by rolling hills descending to low bluffs over bottom land meadow and forest, with ball fields near the river at the northeastern corner of the park. An oxbow remains from the channel project; it is relatively deep, and is surrounded by a mixed forest on all sides. The inside of the oxbow is more heavily forested. Small wetlands in this part of the park do not impose significant limitations on trail linkages.

A large wooded area is located to the north across 23<sup>rd</sup> Street, and bald eagles were spotted less than a quarter mile north of the park. Extending north and west from the Blue River north of the 23<sup>rd</sup> Street Bridge, is a deep ravine that is heavily wooded. This ravine adjoins the East Blue Valley and the Central Blue Valley neighborhoods reaching west to Topping Street. The steeper slopes are vegetated with a mixed hardwood forest, of varying age and quality. The non-forested areas are a mix of herbaceous and grassland species, with many non-native species. Slopes are relatively stable, but there are some areas of erosion. Erosion also occurs in the swale running through the valley. This large natural area wraps around J. A. Rogers School and lines most of 23<sup>rd</sup> Street from Topping to the river. It is a valuable habitat area in an otherwise heavily urbanized area, providing wildlife sanctuary and opportunities to improve air quality and water quality discharged into the Blue River. The ravine could also be used for environmental studies and an outdoor laboratory for the School. An opportunity exists to create a trail link from the Blue Valley Park entrance north across the ravine to Bennington Avenue, and further through a residential neighborhood to a proposed MetroGreen greenway along Truman Road.

A trail connects the North side of the park with the adjacent neighborhood near the pond, however pedestrian connections need improvement. The ball fields are not highly maintained, but are lit. Circulation through the park is good, but motorized vehicles and pedestrians must share surfaces. The park master plan may be updated soon.

Linkage opportunities exist to tie the corridor to the neighborhoods west of the park at two points. The first follows the historic route of the alternate Independence-Westport river crossing trail up a ravine along the southern boundary of the park. This link offers the added opportunity to interpret one of the historic westward trails that crossed the region. That trail would cross Topping Street at 27<sup>th</sup> Street, one of the vehicular entrances to the park. This entrance connects through the upland portion of the park to 23<sup>rd</sup> Street east of the J. A. Rogers School.

The second linkage opportunity follows the north side of 23<sup>rd</sup> Street both east and west connecting to the river corridor at the bridge. This link also connects to the park entrance east of Rogers School. These links, combined with a trail along the river through Blue Valley Park and

the existing park circulation expand the walking and bicycling opportunities for the neighborhood as well as connect it to regional trails.

A very large tract of undeveloped land across the Blue River from the park includes wooded bottomland forest, a remnant oxbow and open fields. The meander loop on the east side of the Blue River is shallower than the one in Blue Valley Park, but larger. Part of the loop has been filled in. Bald eagles were sighted in the area. There may be an opportunity to incorporate the land east of the river and another parcel north of 23<sup>rd</sup> Street into a larger park that would span the river, enhancing views from Blue Valley Park, and establishing a large recreational and habitat conservation area at a key location in the corridor. Portions of this land are suitable for offline detention for the Blue River, and recreation of wetland or wet meadow.

## Corrington Park

Corrington Park lies less than a half mile north of 23<sup>rd</sup> Street on the west side of the river, connected to the ravine behind J. A. Rogers School by a corridor of upland forest on the hillsides above the river. This park faces the large wooded area contained by the river, 23<sup>rd</sup> Street and a railroad to the east. It anchors the northern end of the large open space surrounding Blue Valley Park.

This small neighborhood park consists of a ball diamond on a dead end street. It would be an excellent trailhead for the neighborhood. The park provides views of the river and a wooded area with a bald eagle roost. It could have a direct trail connection along the west side of the river to Blue Valley Park.

North of Corrington Park industrial development limits trail and greenway linkage opportunity on the west side of the river.

## Centropolis Loop

The river channel improvement project cut off a large oxbow known as the Centropolis Loop. The oxbow itself is a wetland mitigation site. The oxbow has been cut off from any channel flow from the Blue River, and has limited hydrologic inputs. Its main hydrologic input is overland flow. The land within the loop sits at a lower elevation than surrounding land, and majority of the oxbow is currently an auto parts storage area. Preliminary investigations suggest that there is some level of contaminated soil.

The oxbow needs a number of measures in order to achieve water quality and ecological benefit. Autos are stacked right to the edge of the banks. There appears to be toxic runoff coming from the auto parts yard and entering the oxbow. Currently, the banks are entirely lined with riprap. Cattails and other emergent aquatic vegetation are invading along with beaver. There is no riparian zone or vegetation.

To achieve significant improvements on the site that would also improve the corridor several actions are necessary.

- remove the auto parts business and remediate soil contaminated due to spills
- remove or bury riprap
- lower the elevation inside the oxbow and connect the oxbow hydraulically to the river creating a pulsed wetland

- add walkways and interpretation exhibits
- plant both upland and embankments with diverse plant species.

Funding opportunities could include a mixture of Brownfield and ecological restoration monies and possibly sale of wetland mitigation credits to developers. A possible option would be to prepare and sell a portion of the interior area for commercial development to help fund the recommended improvements to the balance of the site.

Benefits will include: removal of a blighted site, increased water storage capacity, improved water quality, increased groundwater infiltration, increased wildlife, increased aesthetics, an educational facility, and a natural focus for surrounding economic development.

## Northern Reach Industrial Development Area

Salvage yards and industrial facilities dominate the northern section of the river corridor. Some salvage yards are encroaching on City-owned property. Salvage yards are also a visual blight. Industrial facilities are not necessarily incompatible with the landscape, but many acres of underutilized or abandoned facilities could be redeveloped into employment centers that are more suited to the landscape and hydrology of the river valley. Despite the abandoned land, this area remains a major employment center. Security for chemical plants may be an issue for any trail development, or some landscape/habitat replacement. Potential exists for additional ecologically sensitive landscaping during the long-term redevelopment of the area.

- **The Paved Reach**

Most of factories are vacant or in the process of being vacated. Water in channel appeared to be very calm, but was moving at a high velocity, at a depth of 1.5 feet. This section of the river could provide a unique view of the history of the river valley. If the land in the vicinity of the paved reach is redeveloped, this paved reach could remain as an interpretive element/park on the industrial history of the city.

- **Trestle Bridges**

Located to the east of the water treatment plant and south of I-435, these bridges are railroad property. While the current owners may be reluctant to allow public use, the smaller trestle would make a good crossing and interpretive point. This area is visible from the highway and could be developed to make a statement about the direction of the relationship of industry and the resources of the valley.

- **Levee No. 7**

Near Bayer property is an open area in the floodway, across the highway from the trestle bridges. This is an important link to tie the Blue River corridor to the Missouri River corridor and the planned trails along the Missouri. The bench below the levee has adequate room for trails. However, there may be security issues with trails on the bench because of the proximity to the Bayer plant.

## Blue River and Missouri River Confluence

The confluence of the Blue River with the Missouri River is characterized by bottomland forests on the east side of the Blue River and remnant forest and industrial development on the west side. The bottomland forest consists primarily of an elm-maple association, interspersed with willows, cottonwoods and sycamores. The vegetation is of poor to average quality, but has potential to evolve to a higher quality. The area is valuable for roosting avian species.

The industrial area on the west is dominated by the Bayer chemical plant, which has significant security concerns that could affect trail connections along the Blue River. This area is a critical link in a greenway and trail system along the Missouri River and the Blue River. It should be preserved in a natural state to the greatest extent possible. Public access along the rivers and to the point of the confluence will provide valuable recreational and educational experiences, particularly the interpretation of the Lewis and Clark expedition.

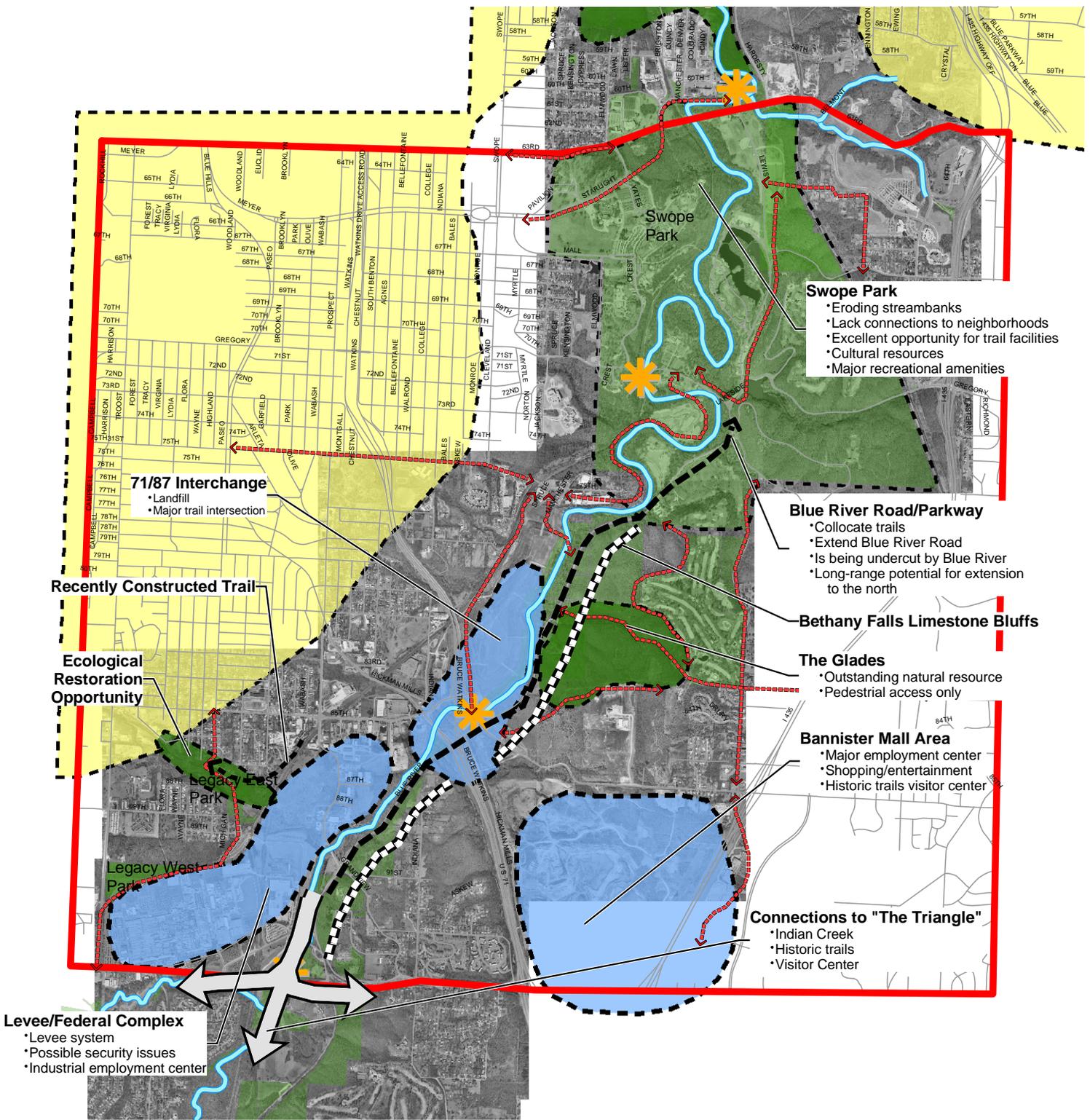
## General Environmental Notes

There are a number of important environmental concepts that need to be incorporated into planning and design considerations. There are specific areas where some of these concepts are directly applicable and have been mentioned. These concepts include:

- **Wildlife Corridors-** This concept implies a continuous belt of greenway or vegetative cover that allows wildlife to migrate along the entire Blue River corridor. Species that would use this could include deer, opossum, raccoon, mink, and a host of other animals. Interruptions in the cover and dead ending at major thoroughfares are undesirable. The width of the belt is dictated by what can reasonably be achieved and the vegetation that comprises it. The addition of a corridor to the project will increase the quantity and diversity of wildlife and increase the natural experience for visitors.
- **Wildlife Islands-** These are, as the name implies, an area that offers food, cover, and protection from nature and human elements. Corridors can connect them. An example would be an area of adequate mature trees to allow for a heron rookery.
- **Pulsed Wetlands-** These are areas that are inundated whenever the Blue River rises to a certain elevation. They can be carved into the bank or connected hydraulically through culverts or pipes. There are a number of oxbows that currently serve this function. These have many uses including: increased water storage capacity, improved water quality, increased groundwater infiltration, increased wildlife, increased aesthetics, an educational facility, and a natural focus for surrounding economic development (water features sell).
- **River Channel-** Very strict requirements for the channel are incorporated into the maintenance agreement. The channel is brush-hogged periodically to prevent the establishment of woody vegetation. Cover on the banks of the channelized section varies. Much of the channel is currently planted with turf type grasses such as fescue. Annual mowing is required from 12<sup>th</sup> Street downstream, where fescue type grasses were planted from stream edge to top of bank. Upstream of 12<sup>th</sup> Street fescue, with an annual mowing requirement was planted from stream edge to the toe of the upper 1:3 slope. Native grasses were planted from the toe of the 1:3 slope to the top of bank as well as in the access right-of-way. Most areas planted in native grasses are mowed on a three year cycle. The access right-

of-way areas planted in native grasses are mowed yearly. Some sections of the channel are completely lined with rip-rap. The majority of rip-rap offers very little habitat. Woody vegetation could be incorporated into the rip-rap areas, if this would not interfere with channel flows and flood protection. Incorporating woody vegetation would provide increased habitat, increased wildlife value and water quality benefits. Mowing within the channel should be minimized where possible, and should be coordinated with nesting cycles of avian species.

- **Auto Parts / Salvage Operations-** There are a multitude of auto salvage operations located adjacent to the Blue River. A few of these operations are very well managed and viable. There are also operations that are encroaching on the channel, discharge toxic runoff, burn toxic materials as a disposal method, and use the river as a disposal site. The majority of operations fall somewhere between these two extremes. Enforcement of environmental laws and codes governing these operations will likely drive the marginal businesses to consolidate with more well managed operations. It is also a consideration that the highest and best use for land along the river is now most likely a different land use. The city will need to consider this during the master planning process.
- **Water Quality-** The water quality of the Blue River is impacted by the urbanized nature of the watershed. Currently, the water is unsafe for contact after storms due to combined sewer overflows. The sediment contains chlordane, a persistent, toxic pesticide that bioaccumulates in fish tissue making it unsafe to consume. Pathogens such as fecal coliform are present in unsafe levels. It should be a stated policy that any design, improvements, recreation, or education keep the public separated from the water and informed of the dangers.
- **Invasive Species-** There are a number of areas that are currently impacted by invasive species, especially bush honeysuckle. With a large portion of the corridor newly disturbed from the flood control project, this becomes an even greater concern for the future. A number of people interviewed during site visits expressed concern for this. Any comprehensive plan for this corridor will need to address this issue from a technical and administrative approach.
- **Dumping-** Dumped trash and debris was observed in large quantities throughout the study corridor. A comprehensive plan to get this under control will be necessary to stop this blighting factor. Design issues include the design and installation of measures that prevent roadside dumping, the introduction of more people using the corridor who will report dumping, and increased municipal services to police and clean up the trash. Volunteer groups may be able to help in this area.
- **Funding –** The Blue River Corridor offers a number of funding opportunities to achieve the multiple goals desired. A concerted effort to identify these monies, how to leverage matches, and combine it with in-kind services will result in a more successful project.
- **Areas for consideration should include:** water quality improvement, stormwater management, habitat restoration, brown field cleanup, economic development, and others.
- **Feral Pets-** During the course of the field investigation, packs of feral dogs were observed at numerous locations. This affects public safety, as well as wildlife. A long-term management plan will be needed to deal with pets that are continuously released or escape into this corridor.



**Blue River Greenway Legend**

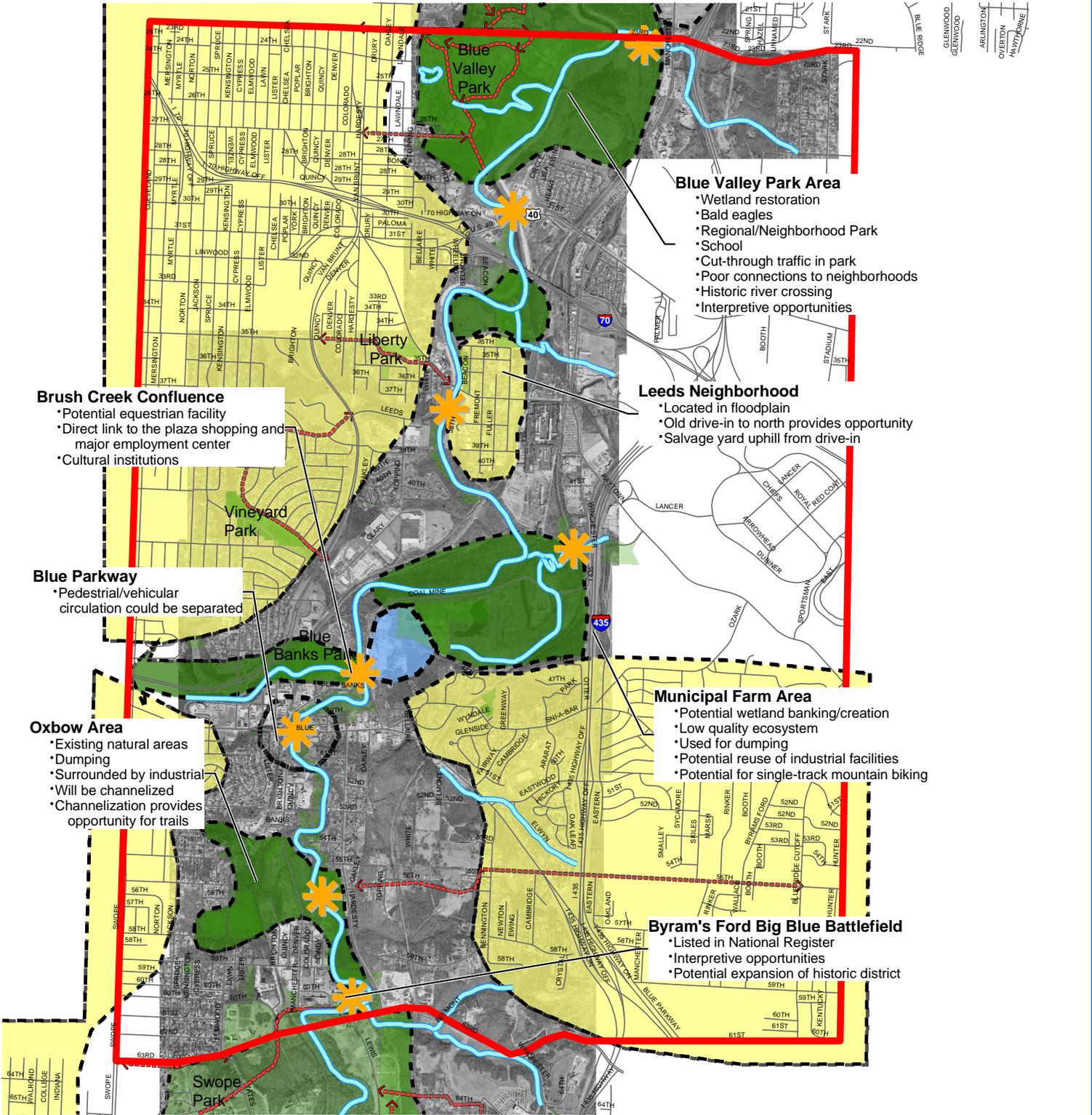
- Blue River
- Residential Areas
- Proposed Linkages
- Potential Trail Connections

**Issues and Opportunities South Study Area Figure 14**



Source: Data obtained from City of Kansas City, MO

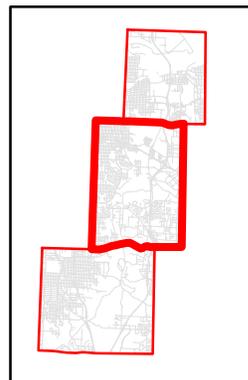
# Blue River Greenway Master Plan



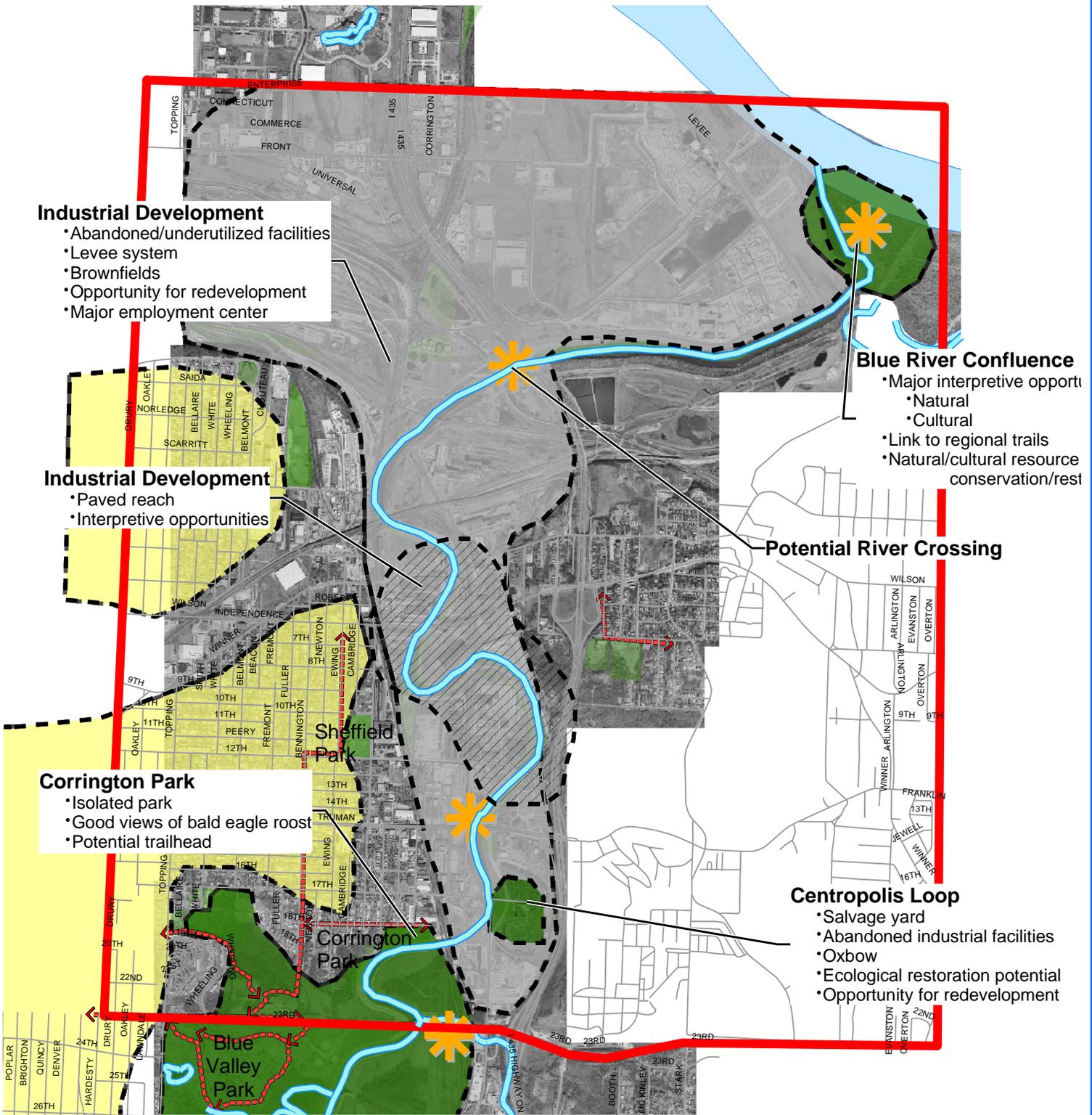
## Blue River Greenway Legend

- Blue River
- Residential Areas
- Proposed Linkages
- Potential Trail Connections

## Issues and Opportunities Central Study Area Figure 15

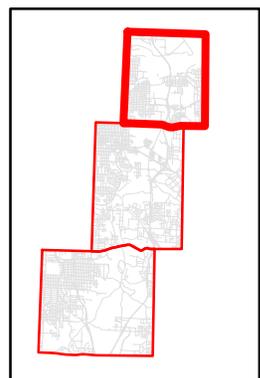


Source: Data obtained from City of Kansas City, MO



**Blue River Greenway Legend**

- Blue River
- Residential Areas
- Proposed Linkages
- Potential Trail Connections



**Issues and Opportunities  
North Study Area  
Figure 16**



Source: Data obtained from City of Kansas City, MO

## 6. PUBLIC INVOLVEMENT

### Introduction

A series of three public workshops were conducted on consecutive evenings in three locations throughout the corridor in September 2003. The sites were the Hillcrest Community Center in the South Study Area, the Brush Creek Community Center in the Central Study Area and the J. A. Rogers School in the North Study Area.

Workshop objectives were to:

- Learn the benefits of Greenway systems
- Identify key issues associated with the Blue River corridor
- Help formulate a future vision of the lower Blue River corridor

Participants listened to a presentation of data gathered and site reconnaissance investigations summarized by a discussion of issues and opportunities identified to date for the lower Blue River corridor. The workshops then broke into groups to identify goals and concerns for the study, potential trail linkages and potential greenway projects. The groups recorded their ideas on flipcharts and directly on base maps of the corridor.

The workshops concluded with a summary discussion of the ideas recorded by each group, and addition of any further ideas or information stimulated by that discussion.

Many ideas were raised by multiple groups at each workshop, and several themes stood out. There was considerable discussion on access to the river and the need for and opportunity to link the community with trails through the Blue River corridor connecting to trails already in place or planned elsewhere in the community. There was considerable discussion about environmental enhancements to improve water quality, habitat, and visual quality of the corridor. General cleanup and pollution control was a prevalent theme. Many ideas involved recreational use and cultural enhancements, from park linkages to new parks to sculpture and preservation of Byram's Ford battlefield and the historic trails.

The discussion can be summed up in nine themes under which most of the comments fall. Detailed comments are included in the appendix.

### Trail Connections

The theme that received the most comments at each of the workshop meetings was the opportunity to connect the community through trails and trail connections. Destination places, such as the Glades, Swope Park, Blue Banks and Blue Valley Parks and the Brush Creek corridor were emphasized along with potential destinations, such as the confluence with the Missouri, the municipal farm and Byram's Ford. An overriding desire is for significantly improved access to the river corridor, both from adjoining neighborhoods and the community as a whole.

There was a lot of discussion about the many opportunities for the Blue Valley Corridor to link the many city, regional MetroGreen and statewide trails that converge on Kansas City. Opportunities to connect the Blue River corridor with virtually all of the major trails in the region

were recorded and evaluated at the workshops. Trail connections across and through the Blue River valley were identified as key alternative transportation assets for the region.

Additional discussion involved expanding trails in parks, enhancing Kansas City's draw as a leading mountain biking center and incorporation of scenic roadways (such as Blue River Parkway) into the recreational circulation system. The workshops also confirmed the local interest in extending equestrian trails north along the corridor.

Some of the input included standards and guidelines for trail development, trail routing, crossing points, and trailhead locations. These standards and guidelines will be useful as segments of the trail system are designed and constructed.

## **Habitat Improvements**

Habitat and wildlife protection and improvement was one of the predominant themes of discussion. There is considerable interest in reforestation of disturbed areas, preservation of existing wetlands and reestablishment of wetlands for habitat, flood storage, water quality improvement and aesthetic and recreational enjoyment. Participants cited the importance of continuity of habitat and wildlife corridors, as well as continuity of natural settings for trails and parks. The remnant oxbows present good opportunities for upland and wetland as well as aquatic enhancements. Several suggestions dealt with use of native prairie species to stabilize and enhance the slopes of the new channel improvements, and native trees to shade the edges of the improvement area and buffer future trails from adjoining land uses.

## **Clean Up and Pollution Control**

Illegal dumping and encroachment of salvage yards onto public lands and the river corridor were major concerns at all of the workshops. Some of the dumping involves actual filling of riparian areas. There is strong interest in removal of the scrap and junk yards and in enforcement of dumping laws. There is also a significant interest in clean up projects that would include volunteers, community service time and prison labor to clean up the corridor.

Closely related to trash is the issue of pollution. Water quality in many places is unsafe for contact, in large part due to untreated non-point runoff from private property, leaching of toxic material from salvage yards and combined sewer overflows. Discharge from Johnson County into the lower reach of the Blue River was identified as an issue as well.

Water quality improvements are needed for habitat, wildlife and recreation. Habitat improvements are seen as a means to reduce some pollution to a certain extent. The City and Corps of Engineers are addressing the combined sewer issue, which will be very costly to resolve. In addition, public education was cited as critical to clean up success.

## **Recreation and Aesthetic Enhancements**

Increased access to the Blue River corridor for recreation is a major theme discussed at the workshops. Trails for biking, walking and jogging and even horses are a top priority. Many suggestions were made for facilities to support the trails, ranging from vendors to picnic areas, sitting/resting areas, restroom, water and trash facilities and parks and playgrounds and parking. Suggestions included specific locations for trail access facilities, ball fields and play areas. Many

envisioned improved trails in parks linked to the greenway as well. The concern was expressed that after spending around \$300 million of public money on the Blue River and flood control, that the river needs to be considered a valuable public resource and that public access to the river and along all points of the river, should be considered an overriding public interest.

Closely related to recreation facilities is a desire to beautify the corridor. Recommendations include planting to buffer industrial and business areas and the landfill, planting to soften the new channel improvements and provide shade for trail users. Creation of wetlands and wooded areas is seen as both a natural systems benefit and a value to recreation.

A number of comments identified boating as a desire for the Blue River. Boat launch ramps, canoeing and float routes and facilities were recommended for a time when water quality can be improved.

## **Cultural Enhancements**

Closely related to recreation is the interest in preserving and improving access to and interpretation of two primary historical assets, Byram's Ford and the remnants of the historic westward trails. Sites should be clearly marked, with safe pull offs; to emphasize and focus on the history of the area, and to bring people back to the river.

There is also interest in enhancing the corridor with added cultural assets such as a sculpture park or industrial history interpretation that will attract people back to the Blue and Missouri rivers. Hiking and biking trails can double as nature and cultural/historical interpretive trails.

## **Flood Control**

Several comments related to specific flood control questions. One comment raised an interest in a weir system, similar to Brush Creek that could also serve as an amenity.

## **Security**

Security came up at each workshop. The issue focused on safety for trail users and included references to surveillance of trails, lighting, police presence and good, safe access and parking.

## **Partnerships**

Partnerships are seen as a way to clean up the Blue River corridor and enhance recreational opportunities. Suggestions included an Adopt a Site (stream teams) concept sponsored by scouting groups or corporations, and local neighborhood volunteer patrol and maintenance programs to develop a sense of local ownership. Currently, the Blue Valley Watershed Association sponsors stream teams. This practice should be encouraged and continued to better enhance the sense of local ownership.

Gifts and donations are another possibility as well as partnerships to provide concessions and recreational facilities along the corridor for public use. Partnerships with Parks and Recreation departments could draw together the resources needed to develop regional recreational assets in the corridor.

## Economic Development

Some discussion identified economic development as both a means to improve the corridor and a potential benefit. There is interest in redevelopment through the corridor to bring in restaurants and new equity users to redevelop Brownfield sites. San Antonio and Brush Creek may serve as examples of opportunities for portions of the Blue River.

## **7. RECOMMENDED GREENWAY ELEMENTS**

### **Introduction**

A number of potential greenway elements are proposed for 24 sites along the Blue River corridor. They are divided into two categories, those that focus on specific locations and those that are generic and are applicable at many locations throughout the corridor. The corridor will require further study to determine specific locations for this second group of projects.

Goals for ecosystem or habitat outcomes must be established at the start of any project. These goals will help to identify success criteria. Because many parts of the Blue River corridor are highly disturbed, it will likely not be possible to restore habitat to a pre-settlement level of quality. Lesser goals that achieve habitat and water quality improvements may be acceptable.

The quality of vegetation can be measured by the ratio of non-native to native species. Because so many non-native species thrive in disturbed areas, it will not be possible to eliminate all non-native species. An acceptable goal would therefore be to prevent the establishment of a monoculture in an ecosystem or habitat area. Another goal would be to eliminate the presence of noxious invaders. Finally, a goal would be for the dominant species in a habitat area to be native.

A number of the projects call for the reestablishment of flood plain connectivity with the Blue River by connecting cut-off meanders or oxbows to the main channel.

### **Site 1 – Bannister Road Complex**

#### **Description**

Immediately north of the Bannister Road Federal Complex is a tributary stream of the Blue River that flows through Legacy East Park. This area is of mixed vegetative quality. The channel has several meanders, and has eroding banks in some locations. The western edge of Site 1 is bordered by several neighborhoods.

#### **Projects**

Erosion control and stabilization measures should be implemented to prevent degradation of the tributary. Vegetation should be managed to promote native species and control noxious invaders.

### **Sites 2 and 3 – The Glades and Blue River Parkway, Swope Park South**

#### **Description**

The Glades is a heavily wooded area that is east of the Blue River Parkway. Part of the Glades area is within Swope Park and part is under the jurisdiction of Jackson County, Missouri. The Glades area is so named because of the naturally occurring glade area, a unique habitat for this part of Missouri.

The Blue River Parkway skirts the edge of The Glades. Immediately west of the parkway, between the parkway and the Blue River, is an area of bottomland forest, some portions of which are wetland woods. Across the Blue River from this area is another narrow strip of riparian vegetation. West of this area is landfill.

### Projects

The Glades should be protected, with only limited development allowed. An ecosystem management plan should be developed that protects and enhances the quality of the glade areas. Due to the fragile nature of the glades, only limited pedestrian access should be permitted.

The north part of this area, the southern edge of Swope Park, can allow limited development. Limited development could take the form of single-track trail for off road biking, or limited equestrian trails.

Bottomland forest areas between the parkway and the Blue River should be protected. Efforts in this area should focus on removal of noxious vegetation and enhancement with supplemental planting.

The riparian border on the west side of the Blue River should be protected. This functions as a buffer between the landfill and the Blue River. It will also help to trap sediment from the landfill. This buffer area visually helps to screen the landfill from adjacent park areas. Once closed, the landfill slopes should be graded to a more natural form and planted as prairie habitat rather than in fescue. This is a potential site for public art, possibly crop or agricultural art, using native plant materials.

The upland and bottomland forests of these areas should be protected.

## Site 4 - Swope Park Area

### Description

Swope Park is the premiere regional park within the corridor. A master plan is currently being developed for Swope Park.

### Projects

Ecosystem and habitat projects in the Swope Park area should focus on preservation and enhancement of the habitats that are in place. Stabilization of the stream channel is critical in some areas of Swope Park. Bio-stabilization measures should be used in lieu of hard armor where possible.

Stabilization should also extend to steep slopes of highly erodible soils along the Blue River in Swope Park.

Implementation of the Swope Park Master Plan is recommended. The master plan includes recommendations for trailhead/parking areas, rehabilitation of the old nature center, bike/pedestrian trails, reuse of the former nursery, boat launch and fishing access.

## Site 5 - Byram's Ford Big Blue Battlefield

### Description

Byram's Ford is the site of one of the Civil War battles fought in the Kansas City area. Portions of this area include some industrial development. This area is also the limit of the U.S. Army Corps of Engineers flood control project along the Blue River. The flood control projects include a grade control structure located in the channel and a levee built around the battlefield site and encompassing part of the industrial area. Portions of the industrial area are slated for removal.

A large area of wetland woods exists on the east side of the Blue River at Byram's Ford.

### Projects

Habitat and ecosystem projects proposed for the Byram's Ford area include the protection and enhancement of vegetation, particularly wetland woods and other forested areas. Once the industrial facilities are removed, consideration should be given to establishing vegetation that was present at that time of the battle.

The Interpretive and Development Plan for Byram's Ford Big Blue Battlefield should be implemented. This plan calls for short, intermediate and long-term projects. For the purposes of this plan physical development actions such as interpretive and directional signage, pedestrian trail through the site are recommended.

## Site 6 – North of Byram's Ford Big Blue Battlefield

### Description

This area consists of relatively steep topography on the west side of the Blue River. It is north of Byram's Ford Industrial Park. Several scattered industrial/salvage operations occur on part of this site. Vegetation is mixed, with the slopes being wooded. Forest quality is not exceptional. The bottomland areas adjacent to the Blue River are open.

### Projects

The forested areas should be protected and enhanced through supplemental planting and management. Non compatible land uses should be relocated, and the area restored to a prairie habitat.

This area can provide vital trail links to several neighborhoods. The areas of steep topography would be suitable for single-track trails.

## Site 7 - South of Blue Parkway

### Description

Site 7 is located just south Blue Parkway. Hilly topography characterizes the eastern edge of this site, which borders the Blue River Valley. The western edge of this area is very steep. The area is forested, of varying quality.

The hilly portion of this site is connected by a long, narrow strip of land on either side of a tributary of the Blue River. This area is flat. The creek has many meanders, and is deeply cut. Bottomland forest of varying quality borders the creek. An industrial area occurs to the north of this site, and a residential area borders the south side.

### Projects

Vegetation should be protected and enhanced in this area. The creek channels should be stabilized, to prevent further degradation. Site 7 can provide a vital link to adjacent neighborhood and neighborhoods beyond the Blue River Valley.

## Site 8 – Brush Creek Confluence

### Description

This is a relatively large area primarily at the north side of Brush Creek at the confluence with the Blue River. This area is located directly across from the southern tip (Site 10) of the municipal farm site. Some industrial land uses existed on part of this site. Vegetation is mixed with grass and herbaceous areas being of limited quality. This area is proposed for development as a park.

Several small riffle complexes are present in the channel of the Blue River just upstream from the confluence with Brush Creek.

### Projects

This area should be developed as a park, with a mix of active and passive land uses. Channel slopes of both the Blue River and Brush Creek should be stabilized.

Equestrian trail linkages from the Blue River trail to the equestrian facility should be established. Bike trail linkages to the Brush Creek corridor should be established at Blue Banks Park.

## Site 9 – Vineyard Park

### Description

Vineyard Park consists primarily of a deep ravine and swale that starts at the Blue River and moves westward into the Vineyard Estates.

Emanuel Cleaver II Boulevard separates the neighborhood from an industrial area along the Blue River.

Vegetation is mixed in this area, with some forested areas and some meadow areas.

Most of these properties are publicly owned.

### Projects

Eroding portions of the slopes of the ravine should be stabilized. Channel slopes of the swale should be stabilized.

Vegetation should be enhanced through supplemental planting.

This area links directly with the Blue River and Blue Banks Park at the confluence of Brush Creek with the Blue River.

## Sites 10 and 11 - Municipal Farm Area

### Description

The central part of the municipal farm area consists of several large, relatively flat open areas located on the east and south sides of the Blue River. Coal Mine Road crosses the site on the north end and roughly parallels the Blue River on the west. A set of railroad tracks borders the site on the east. The site is partially bordered by I-435 on the east. Several remnant oxbow areas are present on this central part of the municipal farm site.

The northern point of the municipal farm area, is slightly rolling, and is bisected by Round Creek. There are a number of meanders created by the creek, and the channel is deeply incised. This area has scattered woody vegetation.

The south side of the municipal farm area, Site 10, is hilly, with scattered woody vegetation. A former quarry borders this site.

Several small, municipal buildings are located on the municipal farm area.

### Projects

The municipal farm area would be suitable for several uses. Ecologically, several areas are suitable for habitat restoration and wetland creation. A management plan would have to be developed to promote desirable species and to control undesirable species.

Some uses potentially are non-compatible with recreation and habitat oriented activities. The police firing range is located in this area, and could potentially be a hazard as people use the area. Site 10 would be suitable for single-track trail use.

Site 11 could be used for off-line detention, particularly if associated with the cut-off meanders of the Blue River. The distance and physical separation of these from the Blue River by Coal Mine Road must be taken into consideration. Connectivity could be restored via culverts.

More active uses can occur at these locations. In particular, fishing may be allowed at the oxbow lakes that were created, if water quality is not an issue. It may be possible to extend the proposed equestrian trail to the municipal farm area, and create another trailhead. Several loop trails could be created within this area.

## Site 12 – Knob Hills

### Description

The Knob Hills area is located on the inside of a meander loop of the Blue River, and is roughly triangular in shape. It is bordered by the Blue River on two sides, and several railroad tracks and spurs on the west side. One set of railroad tracks divides the site, cutting through the large, prominent knob that is part of the site. The knob is the end of a promontory projecting into the site. The promontory slopes down to bottomland areas associated with the Blue River.

The areas around the knob are forested, primarily a mix of closed and open canopy. The forest consists of both upland and bottomland species, and is of varying quality.

Most of this property is under the control of railroads.

### Projects

The forested areas are of sufficient quality that they warrant preservation and enhancement. A management plan should be developed to promote desirable species and for controlling undesirable species.

Several small drainage channels cut through the site. These should be stabilized to prevent erosion. Eroding areas elsewhere on the site should be stabilized.

Any improvements or preservation projects must be coordinated with the railroads.

The proposed Swope to Truman trail is on the east bank of the Blue River, opposite this site. If access is allowed or ownership of portions of the site are transferred to the City, a loop trail can be provided at this location.

Single track trails would be suitable for portions of the site.

## Site 13 - Leeds Road Site

### Description

This area is characterized by steep slopes and bordered by industrial development and various types of housing. The slopes are vegetated with an open canopy forest of mixed hardwoods and softwoods of varying quality. The ravine heads westward and provides a greenway link to neighborhoods to the west. The steep slopes turn southward and border the west bank of the Blue River.

Most of this property is publicly owned.

The undercover is dominated by English ivy and euonymus that have escaped cultivation. These plants are spreading groundcovers, but are also climbers. They will ultimately damage and lead to the death of trees where the vines have spread into the canopy.

## Projects

This area should be preserved. Any slopes that are eroding should be stabilized. Supplemental planting should be used to encourage habitat diversity. A vegetation management plan should be implemented to control undesirable species. Once the vines are controlled, this area can become an open savannah habitat with meadow and prairie species.

## Sites 14 and 15 - I-70/US-40 East Bank and West Bank Sites

### Description

Site 14 is located along the east side of the Blue River, directly across from Site 15. A deeply cut tributary crosses the site and enters the Blue River at this point. The tributary has several small meanders through the site.

Site 15 is located along the western edge of the Blue River, and is crossed by I-70/US-40. Some automobile salvage operations border the western edge of the site. North of I-70/US-40 is a small industrial area bordering the site on the west side.

Only remnant vegetation remains at these two sites. The soils are disturbed, but have some hydric indicators.

These sites are publicly owned.

### Projects

These two areas are suitable for habitat restoration. The west bank site is most suitable for wet meadow or emergent wetland creation. This area could also be used for off-line detention.

The east bank site should be preserved and enhanced through supplemental planting and habitat management. A savannah type open forest and prairie habitat would be suitable. The remnant channel meanders should be stabilized.

## Sites 16 and 17 - Blue Valley Park East and Blue Valley Park West

### Description

Remnants of two meander loops occur on either side of the Blue River adjacent to Blue Valley Park. Blue Valley Park is located on the west side of the river. Both meanders were cut off from the Blue River with the channelization project.

The western oxbow is relatively deep, and is surrounded by a mixed forest on all sides. The inside of the oxbow is more heavily forested. The meander loop on the east side of the Blue River is shallower, but larger. Part of the loop has been filled in. Limited forestland adjoins this loop. A mobile home park is adjacent to this area.

Almost all of the land at these two sites is city owned.

## Projects

Both of these areas should be considered as potential areas for the expansion of Blue Valley Park into a regional park. This is particularly true of the meander loop area on the west side of the Blue River.

On the west side of the Blue River, the water quality of the oxbow should be tested to determine the suitability of this area for a fishing lake. The bottomland forest area should be preserved, with limited trail development. This area may be enhanced with supplemental planting, and with removal of noxious species.

On the east side of the Blue River, the connectivity of the oxbow to the Blue River should be restored. Portions of the land between the river and the oxbow should be developed into an off-line detention area or pulsed wetland area. The off-line detention area can be revegetated. The remainder of the area on the east side of the Blue River should be developed into a wet meadow or other emergent wetland habitat. A limited trail system, including boardwalks may also be developed in wetland areas, depending on conditions.

The Independence-Westport Road river crossing and the road leading up to the 27<sup>th</sup> and Topping intersection could be interpreted. The river crossing area could be interpreted through signage and a bike trail linkage from the crossing to the 27<sup>th</sup> and Topping intersection could provide a neighborhood linkage and the opportunity to further interpret the historic road.

These sites are the first large areas of natural habitat upstream from the confluence of the Blue River with the Missouri River. They are of sufficient size that a variety of habitat types can be introduced. These sites are sufficiently large to accommodate recreation development within the park as well.

## Sites 18 and 19 - J. A. Rogers School and Blue Valley Conservation Area

### Description

The area immediately behind the J.A. Rogers School is a deep ravine that is heavily wooded. This ravine adjoins the East Blue Valley and the Central Blue Valley neighborhoods. The steeper slopes are vegetated with a mixed hardwood forest, of various age and quality. The non-forested areas are a mix of herbaceous and grassland species, with many non-native species. Slopes are relatively stable, but there are some areas of erosion. Erosion also occurs in the swale running through the valley.

On the east side of the Blue River, bordered by 23<sup>rd</sup> Street, and railroad tracks is an area that is heavily wooded. The vegetation is of varying quality, and is dominated by bottomland softwoods. Bald eagles have been observed roosting in this area. Approximately 25 percent of this site is open field of mixed herbaceous species.

The majority of the land in this area is in some form of public ownership, interspersed with pockets of private land. Consideration should be given to acquiring remaining privately held parcels.

## Projects

The main projects for this area should focus on protection, stabilization and restoration. The areas of higher quality forest should be protected, particularly on steep slopes. Areas where the side slopes are eroding or where the swale channel is being down cut should be stabilized. Finally, some of the grassland and herbaceous vegetation areas may be suitable for restoration as a prairie habitat. These measures combined will contribute to improved water quality by trapping and holding sediment, thus reducing the sediment load in the Blue River.

The east side of the channel loop should be preserved and the vegetation enhanced. This can be accomplished with a program of removal of noxious species, followed by planting of selected species to encourage diversity. The open area can be excavated to create a wet meadow or wet habitat. The open area could also be used to provide off-line detention.

These areas could be used for environmental studies and an outdoor laboratory for the nearby J.A. Rogers School. A trail spur can be provided that links the school with the proposed trail along the Blue River. This will provide a continuous loop trail that will link the school with neighborhoods and neighborhoods with jobs.

Some aquatic habitat restoration measures could be introduced into the Blue River channel at this point. Woody vegetation, such as wetland shrubs, can be used to provide shade for the stream and for bank stabilization. Riffle and pool complexes can be introduced to provide additional habitat. These measures will help to reduce erosion within the channel, and will also help to reduce sediment. The riffles will help to aerate water.

It is possible to achieve both flood control and improve aquatic habitat in the channelized sections of the Blue River, particularly in the non-concrete lined sections. The paved reach of the channel is only 3500 lineal feet, and is a small component of the overall flood damage reduction project. The flood channel reduction project provides protection for up to a 30-year storm event, equated to a flow of 35,000 cubic feet per second (cfs). Normal flows and more frequent storm events with less than 35,000 cfs do not pose a significant flood threat to nearby businesses and residents. A channel bottom can be designed for normal flows and for minor storm events that could incorporate measures to improve aquatic habitat.

The Corps of Engineers has incorporated some habitat restoration through use of hard points in the channel. Other measures potentially may be incorporated. For example, the channel bottom can be modified to create a meander pattern. Additional riffle and pool complexes could be added. Large woody tree trunks and root wads could be anchored to the channel bottom and sides at key locations to help slow sediment transport, provide shade and cover for aquatic species. However, the hydraulics of the channel improvement project is critical. Any measure that produces an impediment to storm flow has the potential to reduce the level of flood protection. Such measures should be evaluated to determine what, if any, impact they would have on the channel hydraulics and the level of protection that is provided by the flood damage reduction project.

Most habitat restoration measures are relatively minor in size and scope compared to the channel cross-section and the level of protection that is provided. It is likely that the impact of compatible habitat restoration measures on channel hydraulics will diminish as the storm flow volumes increase. Herbaceous vegetation can be introduced into these sections of the channel to

supplement the native plantings introduced by the Corps of Engineers at various locations. Woody vegetation, primarily wetland shrubs, can be included at key locations where hydraulics will not be affected. The impact on channel hydraulics and the level of flood protection must be evaluated before vegetation, particularly woody vegetation, or other measures to restore habitat are introduced into the channel.

## Site 20 - Centropolis Loop

### Description

The Centropolis Loop area is a former oxbow that has been cut off from the main channel of the river. The oxbow and 17<sup>th</sup> Street form the physical boundaries of the Centropolis Loop. It sits at a lower elevation than much of the surrounding terrain.

Currently, the Centropolis Loop area consists of several automobile salvage yards and scrap metal dealers. The area is full of trash and debris. Preliminary investigations indicate the presence of contaminated soil. The oxbow itself is a wetland mitigation site, with limited success. The oxbow has been cut off from any channel flow from the Blue River, and has limited hydrologic inputs. Its main hydrologic input is overland flow.

The Centropolis Loop area represents one of the few areas available for ecological restoration between Independence Avenue and 23<sup>rd</sup> Street. The Blue River Corridor between 23<sup>rd</sup> Street and Independence Avenue is almost completely developed.

The Economic Development Council has proposed redevelopment of the Centropolis Loop for commercial purposes. As a brownfield site, this could be an appropriate use.

### Projects

The Centropolis Loop area has potential to be developed as a wetland site and for off-channel detention for the Blue River. There is some evidence that hydric inclusions may have existed on the site at one time. Once the scrap metal and automobile salvage operators are relocated or removed, any contaminated soils should be removed as part of the clean up process.

The elevation of the Centropolis Loop will be lowered as part of the clean-up process. Fill material should not be brought back in. A hydrologic connection should be made with the Blue River, so that during periods of high flow, water will overflow into the Centropolis Loop area. This will promote the establishment of wetland vegetation.

There is sufficient land in the Centropolis Loop to allow for creation of several types of wetlands. These could include emergent wetlands as well as wetland woods. Some upland areas could be created as a result of grading operations. Interpretive trails and boardwalks could be incorporated into any wetland creation project.

Wetland vegetation should consist of native species. Eliminating monocultures or noxious weed species invaders should be an acceptable goal of wetland development in this area. A monitoring and maintenance plan should be put in place to determine any potential problems with the establishment of wetland mitigation, and to suggest corrective measures.

The other option for the Centropolis Loop will be to redevelop the site for commercial purposes. The site has good highway access, and other infrastructure is readily available. Sale of development rights could help to fund cleanup at the site.

There are many sites along the industrialized areas of the lower Blue River. The merits of the Centropolis Loop site for redevelopment must be compared to the merits of other potential redevelopment sites in the corridor. Job creation is one of the primary reasons for redevelopment. However, given the fact that there are many potential sites along the Blue River corridor, jobs that would be generated by redevelopment of the Centropolis Loop could likely be created at other sites in the Blue River Corridor. Development patterns in the Blue River Corridor and in nearby areas suggest that there is not sufficient development pressure to create a shortage of suitable sites for redevelopment.

Because different stakeholder groups have proposed different uses for the Centropolis Loop area, an alternative analysis should be conducted to determine if there are practicable alternatives for redevelopment.

The benefits and costs of redevelopment should also be weighed against the benefits of creating habitat and open space in an area where it is limited. There are economic benefits to open space in urban areas.

A compromise to development for ecological restoration may be to allow limited development within a setting of restored habitat.

## **Sites 21 and 22 - Armco Steel North and South**

### **General**

North of Independence Avenue (US 24), the Blue River enters the bottomland area of the Missouri River. This former flood plain of the Missouri and Blue Rivers is levee protected. Much of the flooding is due to interior drainage problems.

This area is predominantly industrialized, interspersed with areas of agriculture production. From Independence Avenue to the confluence with the Missouri River, there is little opportunity for habitat restoration. However, the U.S. Fish and Wildlife Service has noted that even pockets of isolated habitat are critical to the movement of species through a corridor. Isolated wetlands and pockets of bottomland forest are particularly useful for foraging birds.

Many of the industrial areas or adjacent parcels north of Independence Avenue have become contaminated from the past industrial uses and poor waste management practices. The contamination has been in the form of soil contamination or ground water contamination with plumes of volatile organic compounds (VOCs) floating above the ground water. In addition to VOCs, pesticides have been located on some sites.

There is a desire by some stakeholders to develop or redevelop many of the former industrial areas along the Blue River. This is especially true of the area north of Independence Avenue, where significant investments in infrastructure are already in place. Access to this area will be greatly improved once the South Riverfront expressway project is complete. The area north of Independence Avenue is also the location where the most extensive flood control improvements

were made on the Blue River by the U.S. Army Corps of Engineers. Many stakeholders would like to take advantage of the investment in flood protection and utilize these areas for redevelopment.

### General Recommendations

Any Blue River Greenway projects in the area north of Independence Avenue should take into account the potential for economic development of the area, the soil and ground water contamination at many sites in the area, as well as the lack of habitat in the area. The area is extensively contaminated so the potential for brownfield redevelopment is great, particularly after sites are remediated. However, a compromise should be developed among various stakeholders that would allow development of appropriate land uses, including habitat restoration.

Projects identified in Sites 21 through 24 represent some opportunities to create or restore habitat in this area of the Blue River corridor. These pockets of habitat can become part of a vital link for terrestrial and species as they move upstream from the confluence with the Missouri River. Avian species in particular will benefit from the introduction of additional habitat and of trees in the corridor for roosting and foraging.

Wetland restoration can occur at several sites north of Independence Avenue. Many of the natural drainage areas and depressional areas have hydric soils. It may be possible to utilize the seed bank in existing soils. If soils are contaminated, however, clean topsoil should be brought in, ideally from a wetland or former wetland site in the Missouri River bottoms. The key to wetland restoration will be to ensure that correct hydrologic inputs are available.

In addition to the specific Sites 21 through 24, there is the opportunity for supplemental tree planting along the Blue River itself. This will provide some shade for the trail users, but also provide potential roost trees, and provide some shade to a largely non-existent aquatic habitat.

The South Riverfront Expressway should be designed and constructed to include bicycle and pedestrian access. This will allow crossing the Blue River at one of the widest points in the concrete lined channel section. There are limited opportunities for crossing the Blue River downstream of Independence Avenue.

### Description

These two sites are located adjacent to the Armco Steel facility, and are completely surrounded by industrial development. A railroad trestle separates these two sites. Remnants of industrial use occur on both sites. These sites, and other nearby sites have been undergoing remediation for contamination from previous land uses and inappropriate waste management of facilities previously located on or nearby to Sites 21 and 22.

### Projects

Sites 21 and 22 have the potential to be developed into an industrial interpretation park. A park of this type could interpret how the surrounding area has evolved over the past one hundred years from the turn-of-the-century recreation area along the Blue River to its current uses. It could also interpret the impacts of industrial development, and how it is continually improving. Interpretation of the remediation process would be appropriate. Finally, this site could interpret

the evolution of the Blue River from a natural stream to the controlled concrete lined channel that occurs at these points. Industrial sculpture could be introduced if suitable.

Little habitat development could be developed at these sites, other than some potential wet prairie or wet meadow areas on Site 22. Tree planting is recommended, as part of a park development. Some areas would be suitable for restoration as a bottomland forest or flatwoods, to be interspersed with the emergent wetlands.

Portions of these sites and adjacent sites are under consideration for redevelopment, once remediation is complete. Development of these sites would take advantage of infrastructure that is already in place. Development should be interspersed with pockets of habitat and linear corridors of habitat where practical.

## Site 23 - I-435 North

### Description

This triangular site is located on the west side of I-435 where it crosses the Blue River. The Blue River borders the site on the north and railroad tracks border the site on the west. This area was formerly agriculture, and is adjoined by industrial land uses beyond the railroad tracks on the west and south. There are several depressions with hydric manifestations that indicate the potential for wetland hydrology.

Since the initial site visit, portions of this property have been filled with gravel, and the site is being used for trailer storage. Even if this area were to develop, consideration should be given to providing and enhancing wetland and bottomland forest habitat.

### Projects

Potentially, this area is suitable for wetland development or other habitat associated with a bottomland area. Even though soils have been disturbed, some hydric manifestations remain. Development as an emergent wetland would be an appropriate wetland type. Prior to placement of the granular fill, this area would have been suitable for an off-line detention basin. Portions of this site can also be used for detention and wetland creation for runoff from adjacent developments.

## Site 24 - Missouri River Confluence

### Description

The confluence of the Blue River with the Missouri River is characterized by bottomland forests on the east side of the Blue River and remnant forest and industrial development on the west side. The bottomland forest consists predominantly of an elm-maple association, interspersed with willows, cottonwoods and sycamores. The industrial area on the west is dominated by the Bayer chemical plant and an electrical power plant. Security of the industrial area is a concern. Most of the bottomland forest consists of a narrow band along the bank of the Missouri River, and adjacent to the Blue River at the confluence. Even though there is industrial development in this area, eagles use the large trees as perches while foraging in the winter. Herons and other species roost in the larger trees as well as use them for perches while foraging.

## Projects

This area should be preserved as much as possible. The vegetation is of poor to average quality, but has potential to evolve to a higher quality. The area is valuable for roosting avian species. This area is a critical link in a riparian greenway and future trail system along the Missouri River and the Blue River. The areas of riparian vegetation and bottomland forest should be expanded as much as possible, especially areas located on the river side of the levee along the Missouri River. Levee protected areas should be re-vegetated as well. Areas selected for revegetation can be graded and supplemental planting used so that is representative of the various types of bottomland forest that was once prevalent along the Blue River and Missouri Rivers.

An observation platform could be developed to view the confluence area. Parking should be provided, at a safe, secure location, and at a location that does not pose a security risk to the nearby power plant or to other industries in the area. This area could become a future trailhead that could serve several trails. In addition to the development of trails, a boat landing with access to a trailhead and parking lot should be developed at the confluence of the Blue River with the Missouri River. This will improve boating access to the Missouri River.

## Bike Route Linkages

**1a** - The planned KCMO bike route along Bannister Road (and old Bannister Road) provides an opportunity to link the Linden Hills and Indian Heights neighborhoods south of the Federal Complex to the KCMO bike route, Blue River Greenway, Indian Creek Greenway and the overall MetroGreen systems. Lydia Avenue is an appropriate linkage between Bannister Road and the I-435 trail.

**2a** - Grandview Road also provides linkages to the Oakwood neighborhood, Hidden Valley neighborhood and neighborhoods south of I-435. Commercial and industrial businesses along Grandview Road are accessible. Grandview Road intersects with Bannister Road and extends north to the Blue River Road and eventually 85<sup>th</sup> Street.

**3a** - A linkage from Bannister Road to KCMO bike routes along The Paseo and 85<sup>th</sup> Street provides pedestrian access to Legacy West Park, Legacy East Park, the Federal Complex and the Legacy East neighborhood. This linkage creates a loop from the Blue River trail.

**4a** - Hillcrest Road links the proposed Bannister Road bike route, 87<sup>th</sup> Street bike route, and terminates at the Oldham Road bike route at the southern end of Swope Park. This potential trail linkage provides access to the Bannister Mall area, the historic Three Trails, golf courses, Swope Park and the Hillcrest neighborhood.

**5a** - A bike route along 83<sup>rd</sup> Street would provide access to The Glade Nature Park, the Hillcrest Road bike route and the Oldham Road bike route. A short spur to the west on Goodman Road takes bicyclists to the entrance to The Glades nature area.

**6a** - Establish bike route from The Paseo to the Blue River trail along 75<sup>th</sup> Street. The trail would connect the Marlborough Estates, Noble and Gregory Ridge neighborhoods with the Blue River trail and provide an opportunity for people employed in the 75<sup>th</sup> Industrial Park to bike to work.

**7a** - Extend the bike route along 63<sup>rd</sup> Street to connect the Blue River trail to Swope Parkway. This will connect the Swope Parkway, Elmwood, Mount Cleveland and Sheraton Estates neighborhoods.

**8a** - Establish bike route on 59<sup>th</sup> Street that extends from Swope Parkway to the Blue River trail. This linkage will enhance access to the Swope Parkway and Elmwood neighborhoods.

**9a** - Create a bike route along 58<sup>th</sup> Street to Bennington Avenue to 55<sup>th</sup> Street. This linkage would provide access to the Brown Estates, Eastwood Hills West neighborhoods. The I-435 overpass also provides access to neighborhoods east of the highway. The bike route should continue to the Blue River Trail.

**10a** - Establish a loop trail from Emanuel Cleaver II Boulevard that links Vineyard Park, Cleveland Park and Seven Oaks Park with access to the Blue River trail. Emanuel Cleaver II Boulevard to Leeds Road provides direct access to the Blue River trail. This route would enhance access to the Vineyard Estates and Dunbar neighborhoods.

**11a** - Extend KCMO bike route along Stadium Drive to 35<sup>th</sup> Street. The bike route extends along 35<sup>th</sup> Street to Emanuel Cleaver II Boulevard. This bike route links the Dunbar and Vineyard Estates neighborhoods to the Blue River trail.

**12a** - Establish a bike route from Blue Valley Park to Emanuel Cleaver II Boulevard bike route. The bike route connects to the Blue River trail through Blue Valley Park.

**13a** - Establish a continuous bike route/trail from Blue Valley Park north to Independence Avenue. A trail would be established through the open space north of Blue Valley Park, the trail would connect at the south end of Bennington Avenue. From that point it would become a bike route until it intersects with the proposed KCMO bike route at Independence Avenue. This linkage enhances access to the South, Central and East Blue Valley neighborhoods, and the Sheffield neighborhood.

## Potential Generic Projects

There are a number of in-channel projects that can be implemented that would improve and enhance water quality and aquatic habitat throughout the river corridor. Several goals can be established for these projects. Foremost among them is the reduction of stream degradation, through stabilization of the channel and other methods. It should be noted that a stream channel is in a constant state of change. However, the rate of change is relatively slow, and a channel will reach a state of dynamic equilibrium. Changes in land use will accelerate the rate of change, frequently through increased volume and rate of runoff, among other factors. The channel will adjust, usually through processes that lead to degradation, until it again reaches a state of dynamic equilibrium. At this point, the channel is relatively stable, and the rate of change decreases.

The number and complexity of the applicable projects increases moving up stream. A project identified for one section of the river may be useful in another section further upstream. However, certain projects that could occur in an upstream section of the river will not necessarily be applicable in a downstream section.

In certain areas of the corridor, it may be possible to improve flood plain connectivity. Flood plain connectivity could also be considered as part of habitat restoration areas. Flood plain connectivity must be designed so as not to have an adverse impact on adjacent property owners.

Limited projects can be developed along the channelized concrete section. Projects can include re-vegetation and restoration of habitat along the top of bank. A riparian corridor can be established in some areas. Tree planting would be of benefit in this section as an aesthetic improvement and by providing some roosting habitat for certain avian species.

Opportunities for improving aquatic habitat are much greater in the channelized section. Large rip-rap lines much of this section. Even though the rock depth is significant in areas, the rip-rap will ultimately trap soil and sediment. In select areas, these banks should be allowed to re-vegetate. This can be done through natural processes, or can be accelerated by using live stakes. Re-vegetating using live stakes involves driving large stakes of certain riparian species such as willows into crevices and openings through the rip-rap, until they make contact with the soil. The stakes are then allowed to sprout, helping to stabilize the bank. Revegetation should only be considered after evaluating the channel hydraulics and if it is determined there would not be a reduction in flood protection.

There is potential for the introduction of riffle and pool complexes in this section of the Blue River, particularly upstream of the confluence with Brush Creek. Riffle and pool complexes have several benefits, including allowing for various depths of water within the channel, helping to aerate the water and to reduce water temperature, among others. These combine to help improve water quality for aquatic species.

Establishing new and protecting riparian corridors can occur in many areas of the channelized section of the Blue River. This will result in a strip of vegetation that will help to reduce overland flow into the channel, help to reduce erosion of the stream bank and help to trap sediment and other pollutants. Providing a riparian corridor will also link large areas of habitat that exist or are being proposed for portions of the Blue River. This link will facilitate the movement of wildlife along the Blue River.

Critical projects for the natural section involve stabilization of the stream banks. Many stream banks in this area are very steep, and are being undercut at the toe of the slope. This ultimately leads to slumping of the bank and increased sediment load.

Stabilization can take several forms. In severe cases, hard armoring such as rip-rap may be necessary. This should be used in conjunction with live stakes or brush packing to encourage re-vegetation. The use of vegetation will help to hold the soil. Where possible, the banks should be graded to a less steep slope, which is easier to stabilize. In many cases, the toe of the slope must be stabilized using rip-rap or coir rolls or other methods, as this is the area that absorbs the brunt of the energy from most storm events. Once the toe of the slope is stabilized, vegetation along may be able to stabilize the remainder of a slope. This can be done using live stakes, brush packing or other methods.

An alternative to rip-rap for hard armoring for steep slopes is the use of wrapped earth in combination with brush layering. Wrapped earth involves stabilizing the toe of the slope, then layering the earth wrapped in coir or jute fiber mats. Each layer of wrapped earth is approximately eight to twelve inches thick. Willow branches or branches of other suitable riparian species are placed on each layer before the subsequent layer is laid. The live branches will quickly root, helping to stabilize the slope.

Stabilization of the banks must be done in conjunction with stabilizing the channel slope. This can be accomplished by developing riffle and pool complexes, using various types of weir structures. Riffle and pool are particularly effective for the most frequent storm flow events.

Further upstream in the natural section, the introduction of root wads and large woody debris into the channel banks will help to stabilize slopes. A root wad is a root mass of a large tree, with approximately eight to twelve feet of trunk remaining. The root wad is then anchored into the bank, with the root mass pointing upstream. This serves to adsorb energy, deflecting the force of the water away from the bank. These are most effective when a series of root wads are placed at the start of an outside meander bank. Root wads are also effective at trapping sediment. This technique should be evaluated to determine the effect on channel hydraulics and whether or not there would be an adverse impact on the level of flood protection.

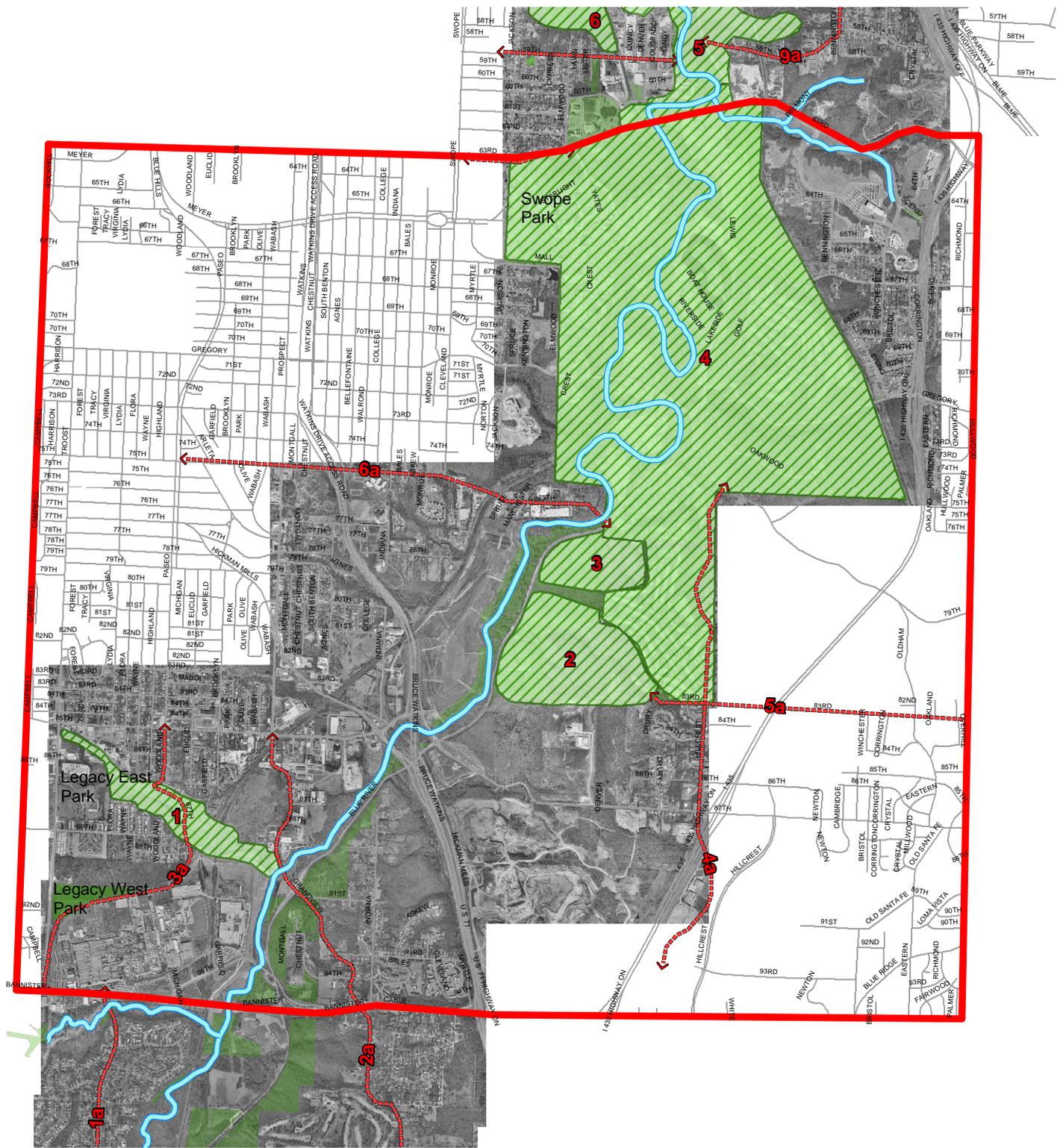
Riffle and pool complexes should be more prevalent in this section of the river, and are more effective in improving water quality and aquatic habitat in this section. This section of the river is undergoing a rapid change due to the urbanization of the upper portions of the Blue River

watershed. If measures are not taken to protect the channel, it will continue to degrade, with a resultant decrease in water quality and aquatic habitat not only in this section of the river, but also further downstream.

Best management practices should be implemented throughout the Blue River corridor, but particularly in the rapidly urbanizing upper reaches of the watershed.

Throughout the Blue River corridor are unique natural and cultural resources that are not necessarily known by residents in the metropolitan area. To enhance the knowledge of such important elements of the natural and cultural history of the river valley, interpretive signage and/or public art should be incorporated into the greenway project. Some potential locations for interpretive signage and public art include:

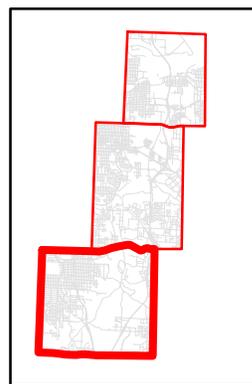
- Blue River Road to tell the story of George Kessler's design of the Blue River Parkway.
- The Swope Park trailhead to interpret the former park nursery and zoo structures.
- The bank stabilization project at the Swope Park Zoo.
- The Shirling Sanctuary in Swope Park.
- Byram's Ford Big Blue Battlefield and other locations along the Blue River where Civil War encampments or skirmishes occurred.
- The location of historic river crossings.
- Ecological restoration projects.
- The concrete channel section of the river and "industrial park".
- Confluence with the Missouri River.

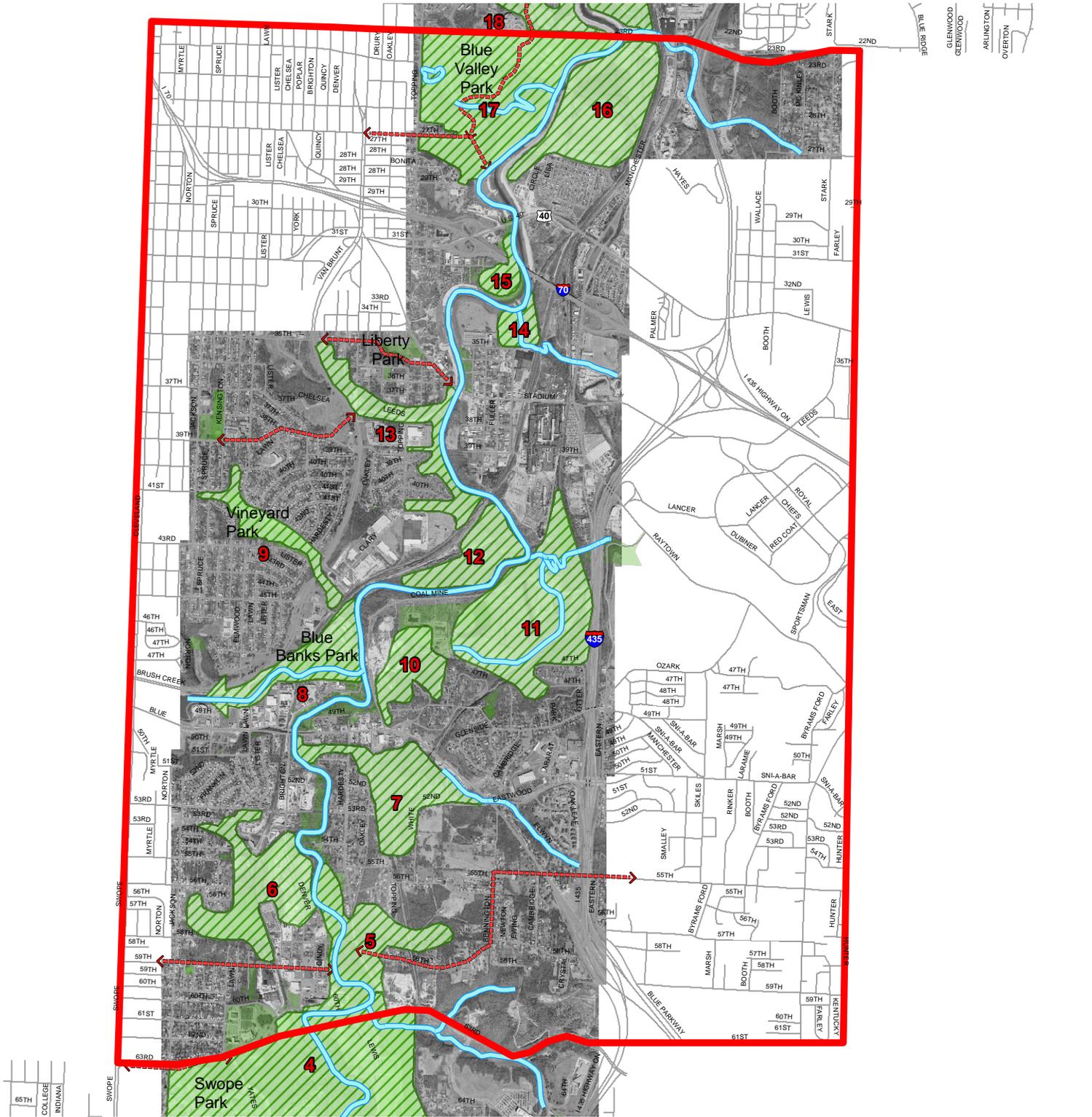


**Blue River Greenway Legend**

-  Blue River
-  Proposed Linkage
-  Proposed Projects

**Recommended Greenway Elements  
South Study Area  
Figure 17**

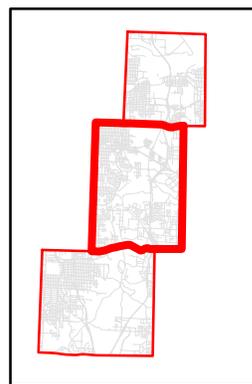


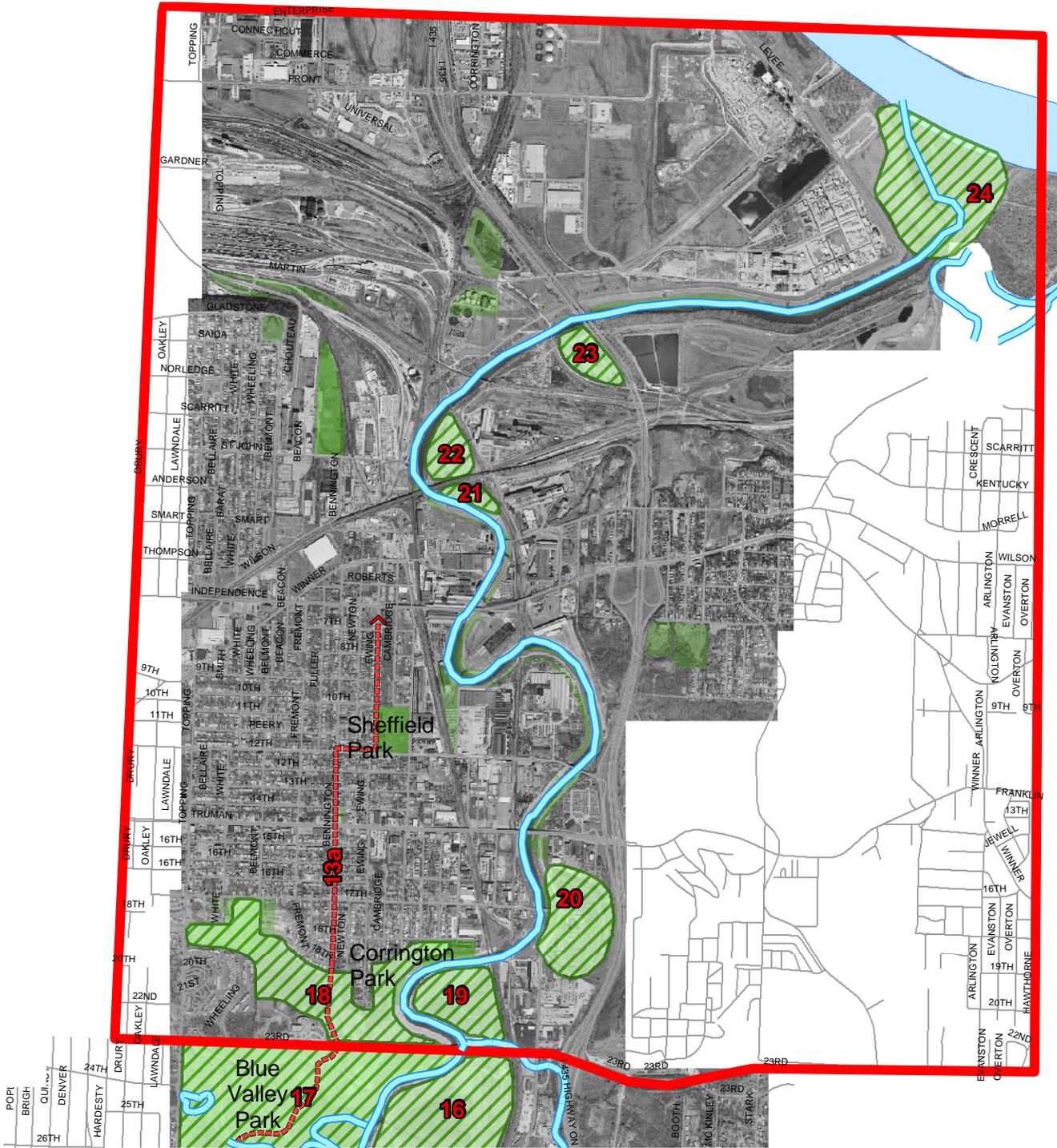


**Blue River Greenway Legend**

-  Blue River
-  Proposed Linkage
-  Proposed Projects

**Recommended Greenway Elements  
Central Study Area  
Figure 18**

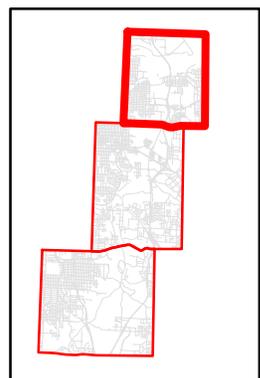




**Blue River Greenway Legend**

-  Blue River
-  Proposed Linkage
-  Proposed Projects

**Recommended Greenway Elements  
North Study Area  
Figure 19**



## 8. SWOPE TO TRUMAN TRAIL SUMMARY

### Trail Concept

The multi purpose Swope to Truman Trail will be the first of the Blue River Greenway Master Plan projects to be implemented. The trail will begin at two trailheads in Swope Park (one on each side of the Blue River), and proceed north along the west side of the river through the Big Blue Battlefield site, under Blue Parkway to a point just south of Blue Banks Park, where Blue Banks Road is proposed to extend across the river to connect with the realigned Coal Mine Road. The trail will then follow the east bank of the river north to the US 40 highway bridge, where it will cross back to the west side, and continue north under the 23<sup>rd</sup> Street Bridge. The trail will then move off the river following Winchester Avenue to a trailhead on the school property at Truman Road. The proposed Truman Road bike path will connect the trail to a trailhead on the east side of the Truman Road Bridge over the Blue River.

Blue River crossings are limited to one at the Blue Parkway Bridge, and one at US 40. This routing allows connections to most neighborhoods and business areas, and each of the public parks along the river. It also provides access to underdeveloped public lands that have potential for recreational use. Trailhead locations are spaced to allow reasonable access throughout the length of the trail, where public property can accommodate secure off street parking and safe access.

This first segment of trail along the Blue River will provide access to and connections between several parks along the corridor, the historic Civil War Big Blue Battlefield at Byrams Ford, and several areas of natural habitat. An equestrian trail can traverse both sides of the river south of Brush Creek, to allow a loop for riders. The west side leg will be constructed on the bench below the top-of-bank, and the east side leg will trace the top-of-bank, curving into wooded areas on public property.

In addition to river crossings, engineering challenges occur at some bridges, where clearance is restricted, or where the width of the bridge limits the area available for the trail to cross adjacent to traffic. Other challenges involve crossing of major drainage outfalls or tributaries, which require bridges or deflection of the path away from the Blue River to a narrower crossing point, or to land uphill from a headwall.

Since a major portion of the trail length will follow the top of the channel improvements (twenty foot wide right-of-way), or public right-of-way, most of the land needed for the trail is already in public hands.

### Multi-purpose Trail

The trail should be multi-use, built with a ten foot wide paved surface, and two foot wide unpaved shoulder on either side. It will be sufficient to support emergency vehicles. The multi-use trail will follow the top-of-bank where possible to reduce construction costs and provide maximum views and a safe horizontal and vertical alignment. Connections (linkages) to neighborhoods and to other proposed and existing trails are spaced along the entire trail

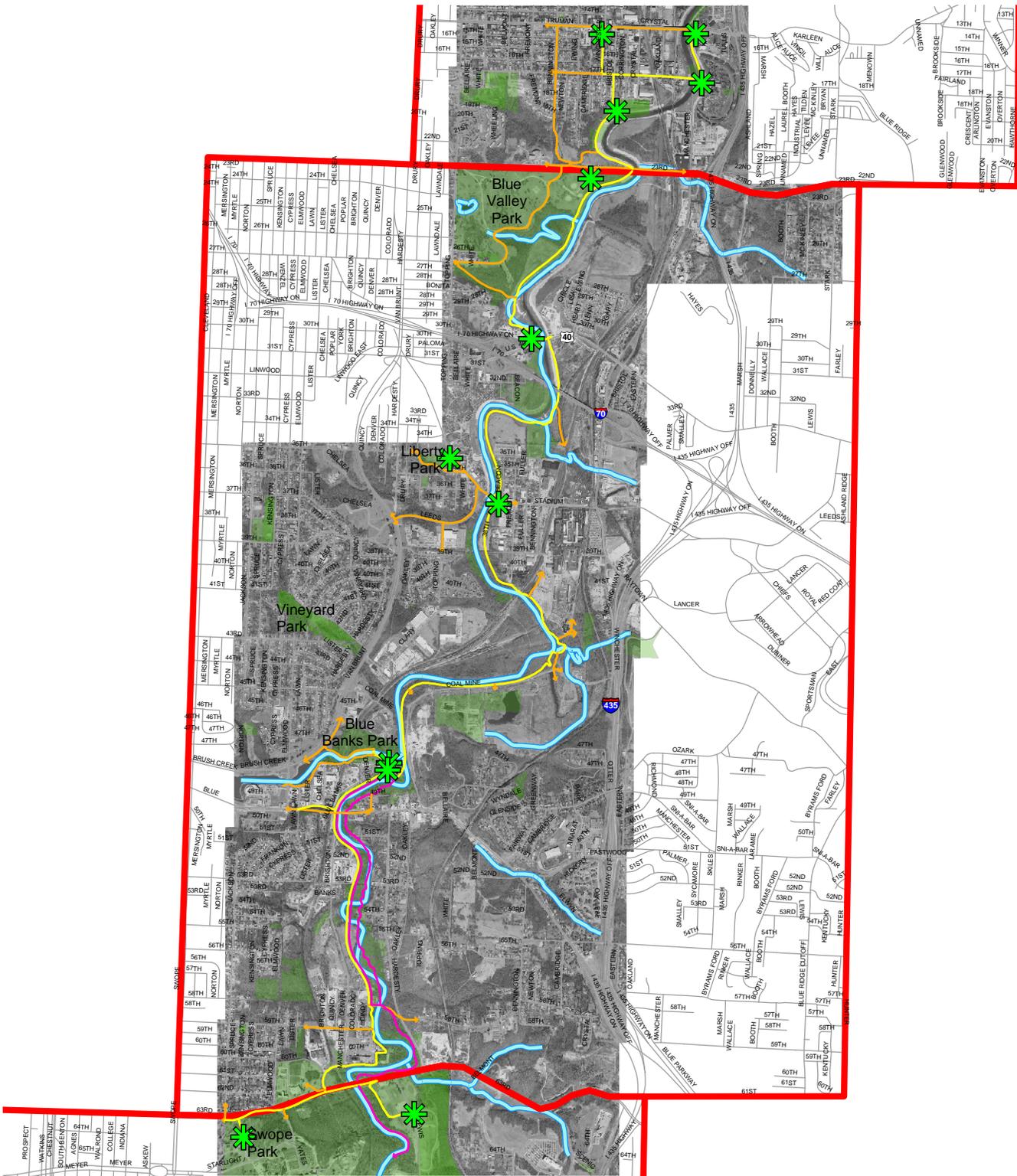


### Equestrian Trail

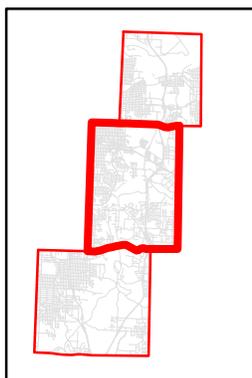
A conceptual plan for an equestrian trail also begins in Swope Park, where a trailhead may be developed. It then crosses under the 63<sup>rd</sup> Street Bridge and turns north on the east side of the river, weaving through the woods along Hardesty Road, to skirt the edge of the Big Blue Battlefield historic district. Once north of the historic district, the trail crosses the Blue River on a proposed new bridge designed to accommodate horses, bicycles and hikers. The preferred location for this bridge is at or near the location of the Grade Control Structure. The equestrian trail then continues north along a bench on the west side of the upgraded channel.



The equestrian trail continues north to an area south of Blue Banks Park, at the confluence of Brush Creek where a second trailhead may be established. The equestrian trail also crosses the Blue River at this point, and a return loop can be developed along the east bank, heading south. A possible extension to the north could terminate at a trailhead on the Municipal Farm site.



- Blue River Greenway Legend**
- Blue River
  - Swope to Truman Trail**
  - Preferred Bike/Ped Alignment
  - Equestrian Alignment
  - Potential Linkages
  - ★ Potential Trailheads



**Swope Park to Truman Road Trail Route  
Central and North Study Area  
Figure 20**



# Appendix 1

## Public Input Meeting Notes

### WORKSHOP NOTES ORGANIZED BY TOPIC

1. Security
  - Security
  - Fire lines on trails
  - Eliminate secluded areas. Encroaching trees on trails (crime)
  - Safety concerns (parking, lighting, phones, etc.)
  - Safety
    - No dead end trails
    - Lighting
    - Access and Parking
    - Increase penalties in park for inappropriate behaviors
    - Police presence
  
2. Habitat improvements
  - Environmental barriers (on the North end)
  - Reforestation (Trees)
  - Wetlands
  - Improve aquatic habitat and water quality
  - Wetland creation/restoration
  - Reestablish connection to forest
  - Current flood control project removing all vegetative cover. Natural forest should be preserved or restored
  - Protect existing wildlife (deer, waterfowl) features of area: Mines off 63<sup>rd</sup> Street, Coal Mine Road
  - Existing wetland where old Municipal Farm is; city is considering a tow lot there.
  - Wildlife protection and support in vicinity of Blue Valley Park
  - Plant some trees and grasses, fruit bearing bushes
  - Landscaping/erosion control – what will be planned (in a grand manner) and what if we use wild native plantings for erosion?
  - Plant trees where they will not conflict with flow
  - Plant new slopes with prairie grasses – self maintaining
  - Native vegetation (grasses, plants, etc.); active restoration
  - Pocket development for habitat
  - Preservation of existing habitat
    - Confluence
  - Habitat Development
    - Ox-bows
  - Restrict size of boats on river – laid back character
  - Consider transplanting trees from improvement areas
  - Plant wildflowers and grasses
  - Plant trees to recreate natural areas

- Oxbow lakes
  - Connection from green space west of Winchester between 12<sup>th</sup> and 10<sup>th</sup> to Blue River
  - Wildlife area south of Blue Valley park to Santa Fe Trail; east of BV Park to Manchester, north of 23<sup>rd</sup> to 18<sup>th</sup>, and south to Blue River
3. Trail connections
- Dead end spur on south side of river to the confluence
  - Connections for residents from adjoining neighborhoods
  - Trails from shelter house, baseball diamond, parking lots
  - Handicapped accessible
  - Tie to downtown for trail access
  - Utilize rail line for activities
  - Cross country trails
  - Trail from Missouri River to the Kansas State Line, connect to Kansas trails (headwaters)
  - Link to Kansas River Trail
  - Create trails to link existing Parks and trails
  - Link to Berkley – MARC (Missouri River Heritage Trail)
  - Link to Brush Creek
  - Link to Independence Trails
  - Indian Creek
  - Link to Trolley Trail
  - Link to Rock Creek – Cliff Drive w/Blue
  - Add more primitive trails throughout the corridor
  - Jogging/bike path from 63<sup>rd</sup> to Blue Parkway
    - Preferably just gravel not asphalt or concrete
    - Access at every street 51<sup>st</sup>, 53<sup>rd</sup>, 54<sup>th</sup>, 55<sup>th</sup>
    - Parking at end of streets a concern – “I don’t want a parking lot at end of my street.”
    - Would like play equipment (ropes, swings, obstacle course, bars for pull-ups, etc.)
    - Place toward 59<sup>th</sup> – 63<sup>rd</sup> St along with parking. If trail on west side of river – footbridge to access from east side of river.
  - Old Byram’s Ford Road by Battlefield
  - North Leeds (north of Stadium Drive)
  - Coal Mine Road
  - Connect Corrington and Blue Valley Parks
  - Preserve Santa Fe Trail and Big Blue Crossing
  - Connection along 23<sup>rd</sup> St. to Blue Valley Pavilion
  - Parking at Truman Road
  - Connect neighborhood parks to trail system
  - Access, Access, Access
  - Strengthen connections to neighborhoods
    - Linkages to local schools, faith community, commerce
    - Develop patronage through these connections
  - Multi-use trail along entire river
    - Avoid dangerous intersections with major roads by using underpasses, etc.
    - Interconnect with existing trails, roads, neighborhoods
  - Network of single-track mountain biking/hiking/equestrian trails; these could be interconnected via the “master” multi-use trail
  - Trail Map – better trail markings; better parking lots for trails

- Better bike/pedestrian access on major roads leading to the river. 63<sup>rd</sup>, Gregory, Blue Parkway, etc. Also improve neighborhood street access.
- Connected bike trails, mountain bike (single track) trails linked to other trails (Earthriders.com – links to trails)
- Dedicated bike lanes on road, where appropriate
- Paved paths/single track along river; transportation links
- Trails built by groups – volunteer manpower; partnerships
- Bus service, etc. to trail heads
- Bike trails – if you build them, and people know about them, people will use them.
- Video tour of trails – let people know they’re there
- Horse/Equestrian
- Connection of Blue to Missouri River
  - Railroads
  - Connect around area from Missouri River to Blue Valley Park
- Develop Byrams Ford as a center and jumping off point for system
  - Trolley link to zoo
- Improve RR bridges for trail underpasses
- Trailwoods Elementary School has its own established hiking trails – possible connection to Greenway Master Plan (map marked at 17<sup>th</sup> near Fremont and Belmont)
- Connection from intersection of Beacon and Bennington to Blue River
- Trailhead parking east of Blue River at Truman Rd.
- Connection from green space that sits between 35<sup>th</sup>, 34<sup>th</sup>, Oakley, and Stadium to Blue River
- In Blue Valley Park possible cycle-cross-type trails connect to multi-use trail
- Put channel back where it used to be (top right of map near MO Missouri River)
- Connect trail to levee system to go back to I-35 (top middle of map)
- Openings to coal mine near intersection of Blue and Coal Mine Roads
- Connect Trolley Track Trail to Blue River Corridor
- New 87<sup>th</sup> St. trail to connect to Blue Ridge/Old Santa Fe corridor then north to Sugar Creek per MetroGreen Plan
- Drawn on the map - vehicle road along the railroad tracks; around landfill area to connect to a trail along Blue River.
- Implement more primitive trails for biking, hiking, and equestrian use. The more users you have, the less crime there will be. Develop neighborhood watch type programs for the trails.
- Form more partnerships with existing organizations with ongoing projects such as Parks and Planning.
- Turn Kansas City, MO into a mountain biking Mecca. There are 100 miles of single track trails – would like to see this double over the next five years. Could allow marketing the trails as a national tourist attraction. Earthriders.com has mapping of trails in Missouri and Kansas.
- Connect potential trails to other trail systems (e.g., end of Trolley Track Trail; new construction at 87<sup>th</sup> St. project over to Three Trails Corridor).
- Bring trails inside of Interstate 435 instead of the outside perimeter.
- The trail systems are poorly communicated.

4. Cultural enhancements
  - Provide cultural opportunities that aren't in place (bring people back to Missouri River)
  - Sculpture park North near Missouri River – brownfield site
  - Blue River Road should receive Scenic Bypass designation – slower speed limits, park access, bike/pedestrian friendly
  - Historical markers/trail head signs (Civil War, Santa Fe Trail; clearly marked, safe pull offs; emphasize/focus on the history to get people in)
  - Three historic trails will cross the Triangle, from Bannister Mall. The historic trails are the Santa Fe, California and Oregon Trails.
  - Limestone mine – mine openings near intersection of 63<sup>rd</sup> and Belmont
  - Byrams Ford Road Bed marked between 50<sup>th</sup> and 58<sup>th</sup> near Manchester
  - Preserve Byrams Ford
  - Byram's Ford and Old Bridge – historical interest
5. Partnerships
  - Adopt a site (stream teams) – boy scouts/girl scouts, sponsorship from corporations
  - Establish partnerships with the Parks and Recreation Departments – work together
  - People adopt areas to patrol and maintain – local sense of ownership
  - Consider gift/donation (memorial) to fund fields or facilities
  - Develop concessions and facilities to attract attention/usage
  - Adopt-a-River or Trail program for clean up
  - Need organized/unified jurisdiction to control trash
    - Put under the county – more resources to patrol
  - Consider dedications to provide trees and benches
  - Solicit community involvement to help clean up sections of the corridor.
6. Big picture
  - Show entire watershed – integrate the several plans
  - Look at the entire corridor in each of the meetings for next round
  - Park system is poorly communicated to general public. How will that change? What is the grand vision?
7. Boating/ river use
  - Interest in boat ramps/canoe launch
  - Any possibility of canoeing or boat access?
  - Restore pedal boats and row boats at Swope Lagoon
  - Float trips – canoes, rafts, kayaks
  - Missouri River boating
    - Ramps, Marina on Blue
  - Boat ramp – connect along Missouri Riverfront
8. Pollution
  - Need to deal with pollution
    - Combined sewer overflow
    - Lack of habitat
    - Industrial non-point source (lower)
    - Johnson County development waste water treatment plant effluent and storm water
  - Improve water quality for wildlife, canoeing, biking, hiking trails
  - Existing brownfields/pollution along old GM Plant on area still owned by GM

- Improved water resource quality; possible boating
  - What pollution/Brownfield remediation can be developed in industrial areas?
  - Improve water quality
  - Sewer overflow – current problem needs to be addressed, especially if near greenway
  - Concerns over pollution caused by the City due to sewer problems.
    - Combined sewer overflows and water quality issues due to non-point source pollution.
    - The upper Blue River watershed is a problem due to discharge from Johnson County.
    - Problems are greater than combined sewer overflow—effluent waste water is a major contributor to pollution of the Blue River. There is also discharge from separated sewer systems.
  - Continue water quality monitoring at Brush Creek.
9. Public education
- Public education is critical in addition to stenciling efforts for storm drains
  - Hiking and biking trails could double as nature trails.
10. Recreation and aesthetic enhancements
- Walking trails in parks
  - Look at models for multiple recreation use as in County Parks
    - Plant native grasses and wildflowers between concrete where able to do so. This increases visual gratification and wildlife, is self-sustaining, etc.
  - Beautification of existing industrial areas (e.g., salvage yards) by planting trees, fencing, mowing
  - Improve aesthetics in paved reach; trees, picnic area
  - Lighting; as public art
  - Reflecting pools; fountains
  - What are plans for the area south of Swope Park, north of 87<sup>th</sup> St, east of Blue River Road? What is the zoning? Could this become park land? (It's a rugged, underdeveloped area)
  - We're very concerned that after spending around \$300 million of public money on the Blue River and flood control, that this be considered a valuable public resource and that public access to the river and along all points of the river, be considered an overriding public interest.
  - Water fountains, benches, places to rest
  - Fishing areas, etc.
  - Athletic fields at appropriate locations with parking
  - Trees along corridor to buffer trails from industry in lower (north) reach – green corridor
  - Potential confluence park near Missouri River
  - Support facilities and vendors along trails
  - Add a park east of Blue Valley Park, north of 28<sup>th</sup>
  - Possible playground equipment in areas along the Blue River between 63<sup>rd</sup> and 55<sup>th</sup>
  - Area that sits inside the loop of Coal Mine marked “wetlands”, should be park, trails
  - Can the landfill area be planted/beautified?
11. Cleanup
- Control illegal dumping
  - Clean up corridor
  - Trash containers big enough for use

- Prevent dumping trash
- Rid junk cars, heavy trash, etc., scrap yards, etc.
- Address law enforcement aspects of dumping/littering; police dept. support; City Hall jurisdiction needs to be eliminated – police have much more power
- Community service hours as clean-up labor
- General cleanup (adopt a highway idea)
  - Enforcing dumping laws
  - Provide legal/easy and user friendly places to get rid of trash
- Cleanup area east of Manchester between Truman Rd. and 23<sup>rd</sup> St TRFWY
- Dumping in area around the intersection of Leeds and Stadium at Blue River
- Possible illegal filling in area north of Blue River Road between Hardesty and Oakley
- Dumping in the Blue River between 58<sup>th</sup> and 55<sup>th</sup> and between 51<sup>st</sup> and 53<sup>rd</sup>
- Illegal dumping is a huge issue along Blue Ridge

12. Flood control

- Any possibility of dam or weir to help impound waters? Similar to Brush Creek.
- Flood control south of Blue Parkway
- Flood Protection
  - Revised Mapping

13. Economic development

- Redevelopment; restaurants
- Highlight land use and tenure along corridor, use as capacity building for Brownfield development and other economical and equity issues
- Development
  - San Antonio model with vendors at key locations
  - Restrooms

## Appendix 2

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