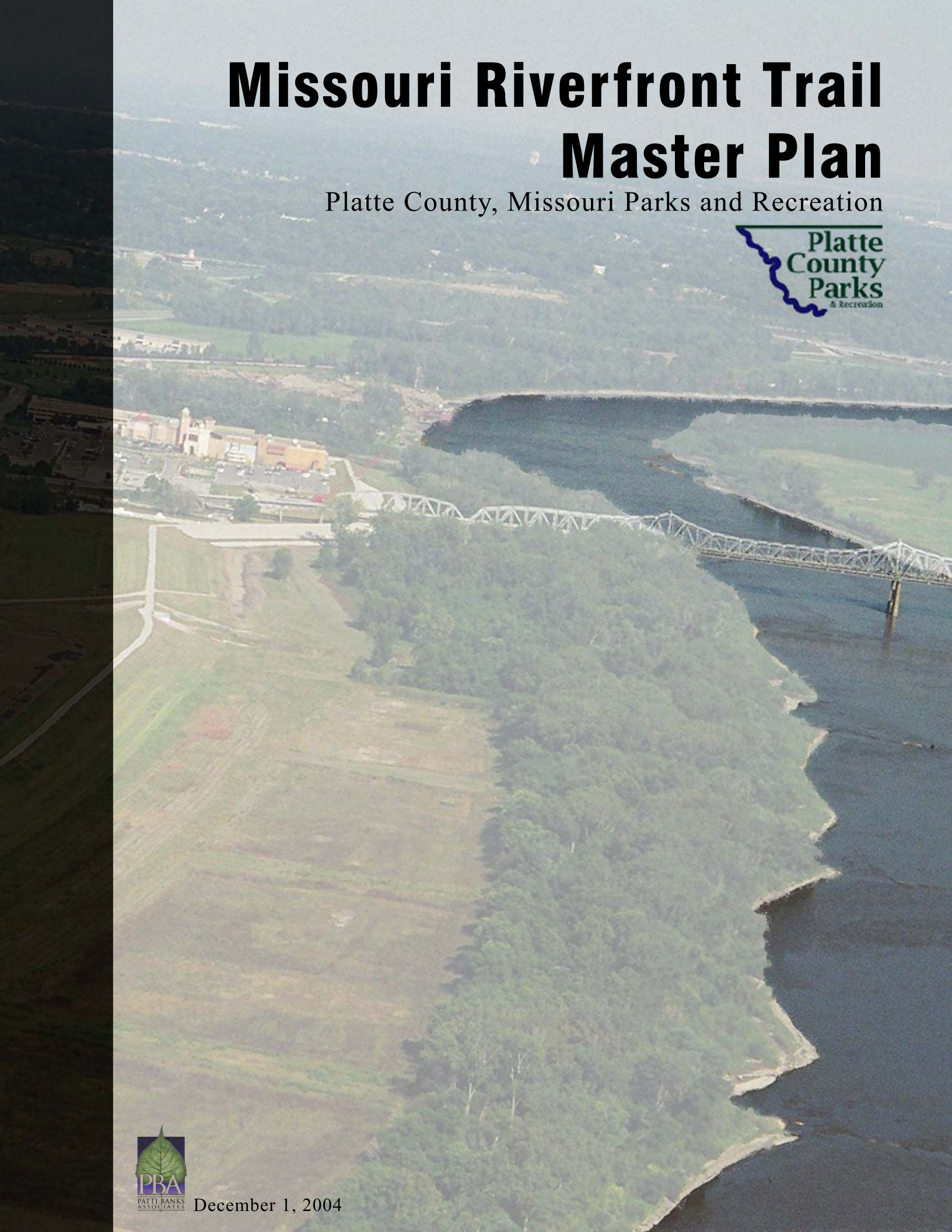
Missouri Riverfront Trail Master Plan

Platte County, Missouri Parks and Recreation



December 1, 2004

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Prepared for:

Platte County Board of Commissioners

A Partnership of:

Platte County Parks and Recreation

City of Riverside, Missouri

City of Parkville, Missouri

Riverside/Quindaro Bend Levee District

Submitted by:

Patti Banks Associates

Affinis Corporation

Acknowledgements

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Platte County Staff

Brian Nowotny, Director of Parks
Forest Decker, Assistant Director - Trails & Greenways

Missouri Riverfront Trail Steering Committee

Neil Davidson, Platte County Park Board
Margie Maasen, Platte County Park Board
Mayor Betty Burch, City of Riverside
Ron Carlson, City of Riverside Park Board
Brent Miles, City of Riverside
Kathy Rose, City of Riverside
Bill Quitmeier, City of Parkville
Mark Sportsman, City of Parkville
Robert Dimmitt, US Army Corps of Engineers
Bob Gieseke, Riverside/Quindaro Bend Levee District
Don Coleman, Riverside/Quindaro Bend Levee District
Gary Creason, Creason Project Management, Inc. - L-385 Levee
Steve Rhoades, Mid-America Regional Council

Contents

Introduction

For thousands of years the Missouri River has drawn people to its banks. First, native cultures set up villages, then Lewis and Clark navigated the river into the heart of the wilderness and made camp on its banks. Traders and pioneer farmers followed them and established the towns that became Riverside and Parkville. Today walkers and bicyclists can follow the river in short stretches on a growing trail system.

Phase 1 of the Missouri Riverfront Trail, one of the high priorities on the Northland Trails Vision Plan, will provide a unified 11½ - mile section of trail along the northern bank of the Missouri River joining Riverside, Parkville, and unincorporated portions of Platte County west to I-435. It will be the longest continuous trail segment on the Missouri riverfront in the metropolitan area. Portions of the trail will be located on and off of the new flood control levee located in Riverside. (See Map Page 9).

Furutre phase of the system include an extension north along Brush Creek and I-435 connecting to Weston, Missouri, an extension north along Line Creek, and an extension southeast connecting to downtown Kansas City, Missouri.

A Partnership

The Missouri Riverfront Trail is a partnership project between the Platte County Department of Parks and Recreation, the Cities of Riverside and Parkville, Missouri, and the Riverside/Quindaro Bend Levee District.

A Legacy of Plans

The Missouri Riverfront Trail is part of a regional legacy of trail planning that includes the ***MetroGreen Regional Greenway Action Plan for Metropolitan Kansas City*** and the ***Northland Trails Vision Plan.*** The Missouri Riverfront Trail Master Plan is an extension of both of these plans.

MetroGreen, as planned by the Mid-America Regional Council, is a proposed 1,144

mile trail system connecting a series of public and private open spaces and greenways designed to link the seven counties, including Platte County, located within the Kansas City Metropolitan area. This section of the Missouri Riverfront Trail is designated as a "Priority 1" for MetroGreen, meaning it will be among the first to be constructed in the entire system. An extension of this trail in Clay County will connect directly to the Riverfront Heritage Trail and downtown Kansas City via the Heart of America Bridge.

The Missouri Riverfront Trail relates to Segments 4, 5 and 6 of the ***Northland Trails Vision Plan***, as prepared by both Platte and Clay Counties for the northland. It recommends a shared-use trail along the Missouri River as a first priority.

Design Principles

The purpose of this plan is to design an 11½ - mile stretch of trail for use by bicyclists and pedestrians. As determined by the Steering Committee and the Project Team, the Missouri Riverfront Trail should:

- Appeal to both recreational and transportation users (commuters);
- Help to protect land and water quality and be located in an environmentally sensitive manner;
- Be designed to take advantage of the new levee alignment and maintenance roads;
- Be designed to allow views to the Missouri River;
- Provide connections between existing and proposed trails and parks;
- Minimize disturbance of existing private property;
- Be designed as a partnership between the county, cities, and property owners;
- Be coordinated with construction of other infrastructure in the immediate vicinity of the trail so as to minimize disruption and duplicate costs;and
- wherever possible, be designed to minimize the cost of trail construction and maintenance.

Plan Process

The Platte County Parks and Recreation Department and the Cities of Riverside and Parkville, Missouri directed the Project Team in a planning and design process for the Mis-

souri Riverfront Trail. Patti Banks Associates lead the Project Team with Affinis Corporation providing mapping and engineering services and coordination with the Corps of Engineers and BNSF Railroad. The Project Team, along with the County, formed a Steering Committee that included key staff, elected officials, Park Board members, and community stakeholders from Platte County and each City. Additional invitees included representatives of the US Army Corps of Engineers and the Mid-America Regional Council.

Open House at Riverside, Missouri, City Hall

Open House at Riverside, Missouri, City Hall

The planning process included data collection, inventory and analysis, research on similar levee top trails in Manhattan and Lawrence, Kansas, and preliminary and final plan preparation. All of the above tasks were integrated with the Steering Committee, property owners, and Levee District meetings. A summary of the planning schedule is in the table below.

February, 2003
- Project Initiation
- Riverside Levee Tour and Meeting

March, 2003
- Data Collection / Inventory
- Meeting with Riverside/Quindaro Bend Levee District

April, 2003
- Continue Data Collection / Inventory; Preliminary Mapping
- Concept sketches
- First Steering Committee Meeting

May, 2003
- Property Owner / Levee District discussions
- Meeting with Riverside/Quindaro Bend Levee District

June, 2003
- Continued Property Owner / Levee District Discussions
- Research on Similar Levee Trails
- Concept Trail Alignment Options

July, 2003
- Second Steering Committee Meeting

August - December, 2003
- Continued Property Owner / Levee District / Railroad discussions
- Discussion on property acquisition and easement attainment
- Refinement of concepts into one alternative

January, 2004
- Steering Committee meeting - focus on private land owners

February, 2004
- Levee agreement finalized and signed

March, 2004
- Draft Plans submitted to County

May - July, 2004
- Property negotiations with private property owners
- Meeting with BNSF Railroad - May 17, 2004

August, 2004
- Final Plan and Report preparation

September, 2004
- Public Open House
- Presentation to Platte County Park Board of Commissioners

October, 2004
- Plans and Report complete
- Presentation to Platte County Board of Commissioners

Project Planning Schedule

Major Issues

Over the planning period the Steering Committee and participants brought out a number of issues concerning the design and development of the Trail that were resolved in the planning process. Some key issues were as follows:

1. Partnership opportunities among the Cities, County, and Levee District
2. Location of trail: top of levee, off-levee on wet-side, or combination
3. Trailhead locations/public access points
4. Coordination with railroad on crossing, trail location in relation to railroad rights-of-way
5. Negotiations with major property owners on trail locations
6. Security
7. Liability, insurance and indemnification
8. Trail design in relation to levee top maintenance facilities: grades and trail surfaces
9. Other maintenance issues
10. Design for the "wet side" and other "spur" trail opportunities through developing areas of the County
11. Parking locations
12. Feasibility of equestrian trail

Levee Top Trail Partnership

The Missouri Riverfront Trail will be the first trail constructed on top of a flood control levee in the State of Missouri that is owned and maintained by a private levee district. Because much of the trail located in the City of Riverside is planned to be located on top of the newly constructed L-385 Corps of Engineers Levee, it was critical to form an agreement between Platte County, the City of Riverside, and the Riverside/Quindaro Bend Levee District that allowed such. The Levee District owns and maintains the levee. After extensive meetings and presentations, a partnership agreement was approved in early 2004, reflecting the resolution of a number of major issues. Major points of the partnership agreement include:

1. Affirmation that the primary purpose of the levee is flood control and all activities related to flood control, including maintenance procedures and trail closure during high water, take precedence;
2. Agreement that the levee can be used by the general public for recreation purposes at no charge, if not preempted by flood control-related activities;

3. Responsibility for trail construction assigned to Platte County;

4. Responsibility for routine trail maintenance assigned to City of Riverside;

5. Responsibility for security patrols and fire suppression for the trail assigned to the City of Riverside; and

6. Provision for security, insurance, and indemnification.

Site visit to L-385 Corps of Engineers levee construction

Overview of Report Content

The remainder of the report includes:

1. **The Plan:** This chapter includes a description of the final trail design and location.

2. **Trail Design:** This chapter includes detailed design recommendations in such categories as surface type, access control, signage, and trailhead design.

3. **Implementation:** This chapter includes a summary on trail phasing with cost estimates, property acquisition, and a financing summary.

Levee trail located in Lawrence, Kansas

Levee trail located in Manhattan, Kansas

The Plan

During the Master Planning process a Steering Committee was formed. Based on discussion and research of key trail issues, this group offered input on the final trail plan, including trail location. It was determined that the trail would be located both on the new Corps of Engineers levee and off the levee. The trail was located on top of the levee wherever possible for several reasons including:

1. Visibility and safety of the trail user.
2. Ability to construct trail efficiently and effectively.
3. The long and flat configuration of the levee top—ideal for connecting to destinations (commuters).
4. Views to Kansas City skyline.
5. Potential to be the first levee top trail in the Kansas City metro area.

Levee top trails are common in other parts of the country. The Project Team researched levee top trails in Manhattan and Lawrence, Kansas, where similar trails have been popular for many years. The research provided approaches to deal with perceived problems and showed that designs similar to those planned for the Missouri Riverfront Trail could be successful. Based on the research and discussions, the Steering Committee decided to make the trail a levee top trail wherever possible, with deviations to avoid ownership and land use conflicts and to provide opportunities for scenic detours on the "wet side" of the levee.

Example of levee trail

Trail Alignment

The trail is comprised of three major segments; the East Segment (Phase 1), the West Segment (Phase 2) and a Secondary Trail system located between the levee and the river. The Secondary Trail system is not part of the County's overall trail master plan (to be funded by others) and is included to show potential future local trail segments (See Map Page 9). Future extensions of a secondary trail system should also be considered for newly developed areas as well as those areas adjacent to the trail slated for development in the next few years. These would inlude new residential subdivisions with public and private secondary trail systems and new master plan development such as the Riverside Horizons project.

East Trail Segment - Phase 1

The East Trail Segment stretches over five miles from the east end of the English Landing Park in Parkville, to Renner Brenner Park across the street from Riverside's City Hall and Community Center (See Maps Pages 11 to 16). About half of the trail is on top of the Riverside/Quindaro Bend Levee and the remainder is on the "wet side" of the levee or navigating through sensitive land use areas.

Trailheads: The Plan proposes two trailheads along the East Trail Segment. The location of a Major Trailhead would be approximately 2/3 of a mile west of the I -635 underpass to serve the proposed Horizons development in Riverside. The Major Trailhead could share employee and customer parking with the Horizons development since the trail demand would tend to be at off hours or come from employees in the Horizon development. A Minor Trailhead is proposed at a levee access point just south of the InterContinental property.

Levee Section: The levee-top section begins south of the private land of InterContinental and is continuous to the east side of the Fairfax Bridge (I-69/169). Portions of the trail are also located on the levee from Argosy Parkway north to Renner Brenner Park.

Non-Levee Section: The western end of the East Trail Segment begins with a short concrete section that passes in front of the Missouri River Boating Association and Ball Enterprises (landscape business). This section of the trail will be located within railroad right of way, therefore implementation will require coordination between both the property owners and the BNSF Railroad. The trail then transitions to asphalt and uses an existing drainage corridor as it moves along the river bank behind the Fuel Tank Farm and crosses Burlington Creek. At that point the trail is located between the levee and the river, continuing through the InterContinental property. Due to security requirements by the property owner the trail is located between two fences and has gates at each end for periodic trail closure. The trail is also located off the levee when it passes north of Argosy Casino within the City street Right-of-Way.

Crossings: As planned, the trail must cross I-635, I-69/169, Highway 9, the BNSF Railroad, other minor streets, and two creeks. For safety, the trail will go under all highways at existing bridge locations, but over the creeks and railroads on new pedestrian bridges.

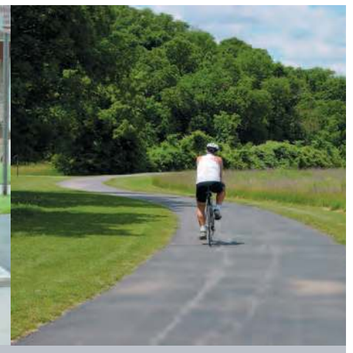
Secondary Trail System

The secondary trail systems shown on the plan are not part of the County's overall master plan, but are shown as potential local trails. One of the trails is located between the new L-385 levee and the Missouri River within the newly constructed wetlands by the Corps of Engineers (See Map Pages 13 &14). As shown on the map, access to the secondary system could use the existing levee maintenance road ramps. Other future systems include trails and sidewalks throughout the planned Riverside Horizons project (located between Hwy 9 and I-635) and future City of Parkville parks and private developments such as 1000 Oaks and a new park located at Union Chapel Road.







Unincorporated
Parkville City Limits

Parma Woods Park

I-435

BNSF Railroad

Future Parkville City Park

Trail Crosses Railroad At-Grade on Existing Drive Crossing

Parkville, Missouri

Trail Located on Existing Farm Levee

Trail Uses Levee to Cross Creek

Levee

Levee

Missouri River

Parkville, MO Downtown

Main St.

Park University

English Landing Park

Hwy. 9

Trail Uses "A" Frame Bridge to Cross Creek

Trail Connects to Existing Trail in Park

Trail in RR R.O.W.

Fuel Tank Farm

Parkville City Limits

KCMO City Limits

Platte Meadows Park

KCMO City Limits

Unincorporated

Green Hills Wildlife

Riverside City Limits

Unincorporated

Riverside, Missouri

Riverside City Hall & Community Center

Renner Brenner Site Park

Hwy. 9

InterContinental

Riverside City Limits

Mattox Rd.

Van De Populier St.

BNSF Railroad

New Pedestrian Bridge Over Railroad

Hwy. 9

New L-385 Levee

Argosy Casino

E.H. Young Park

I-635

New Pedestrian Bridge Over Line Creek

Missouri River

Fairfax Bridge

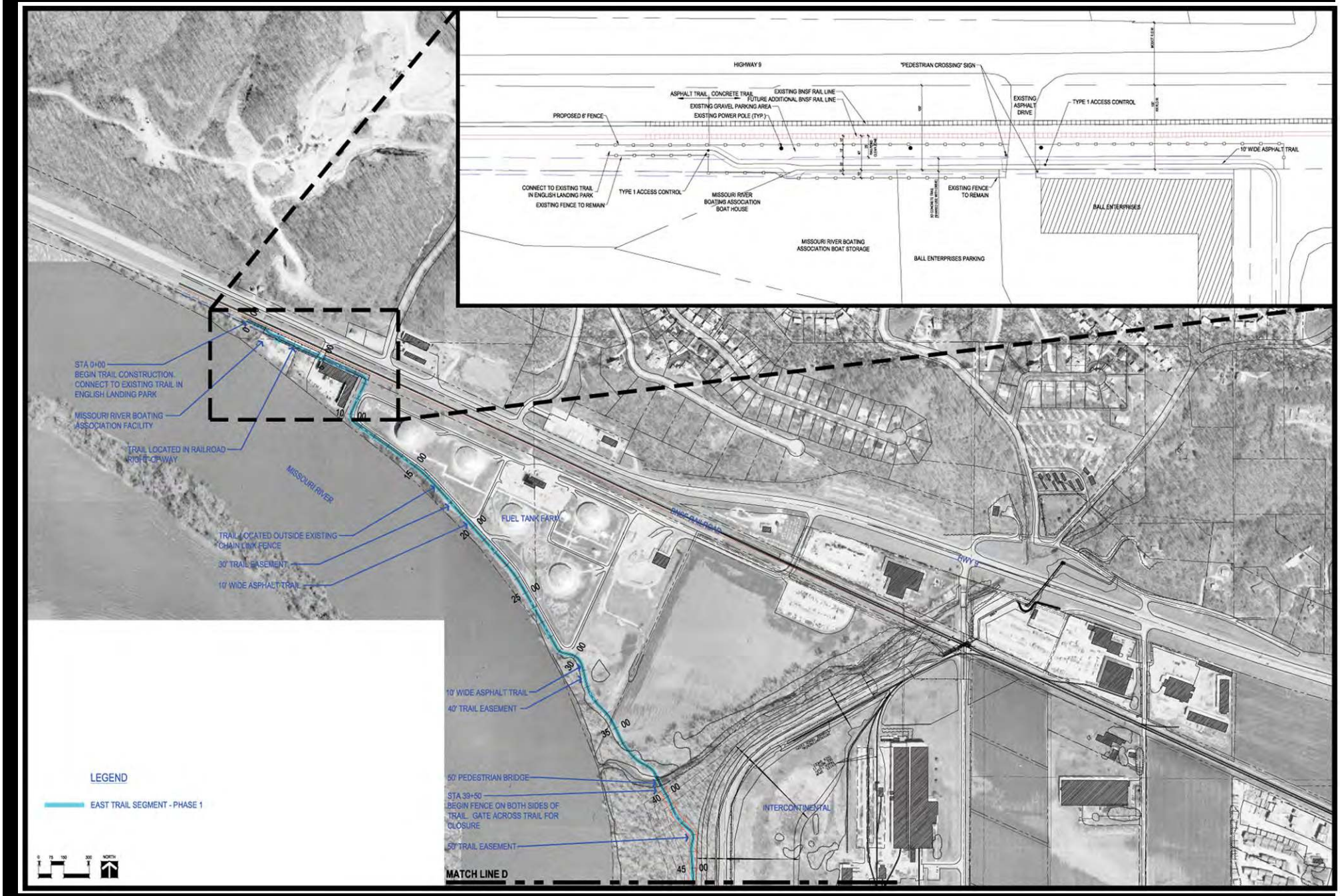
Hwy 69

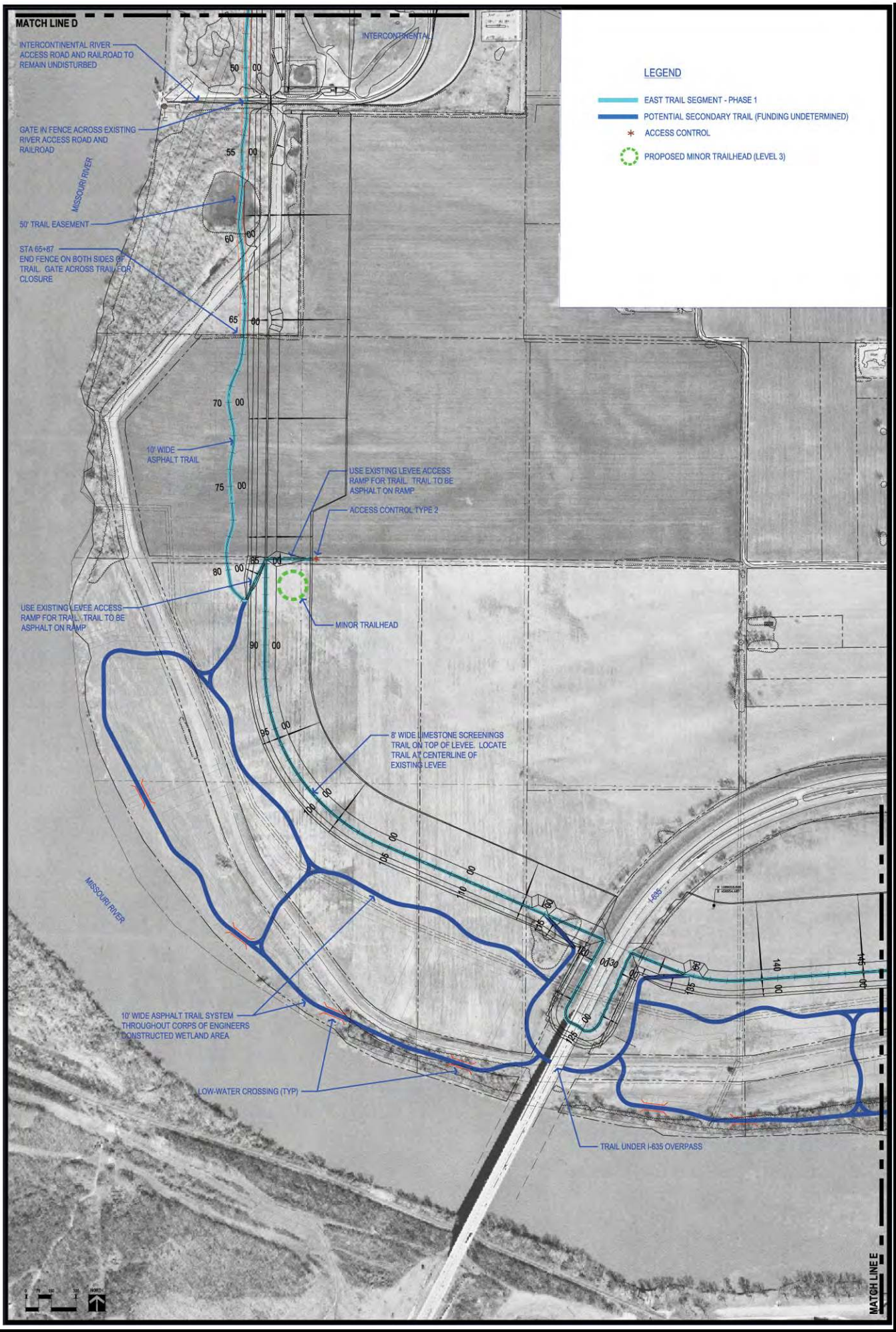
LEGEND

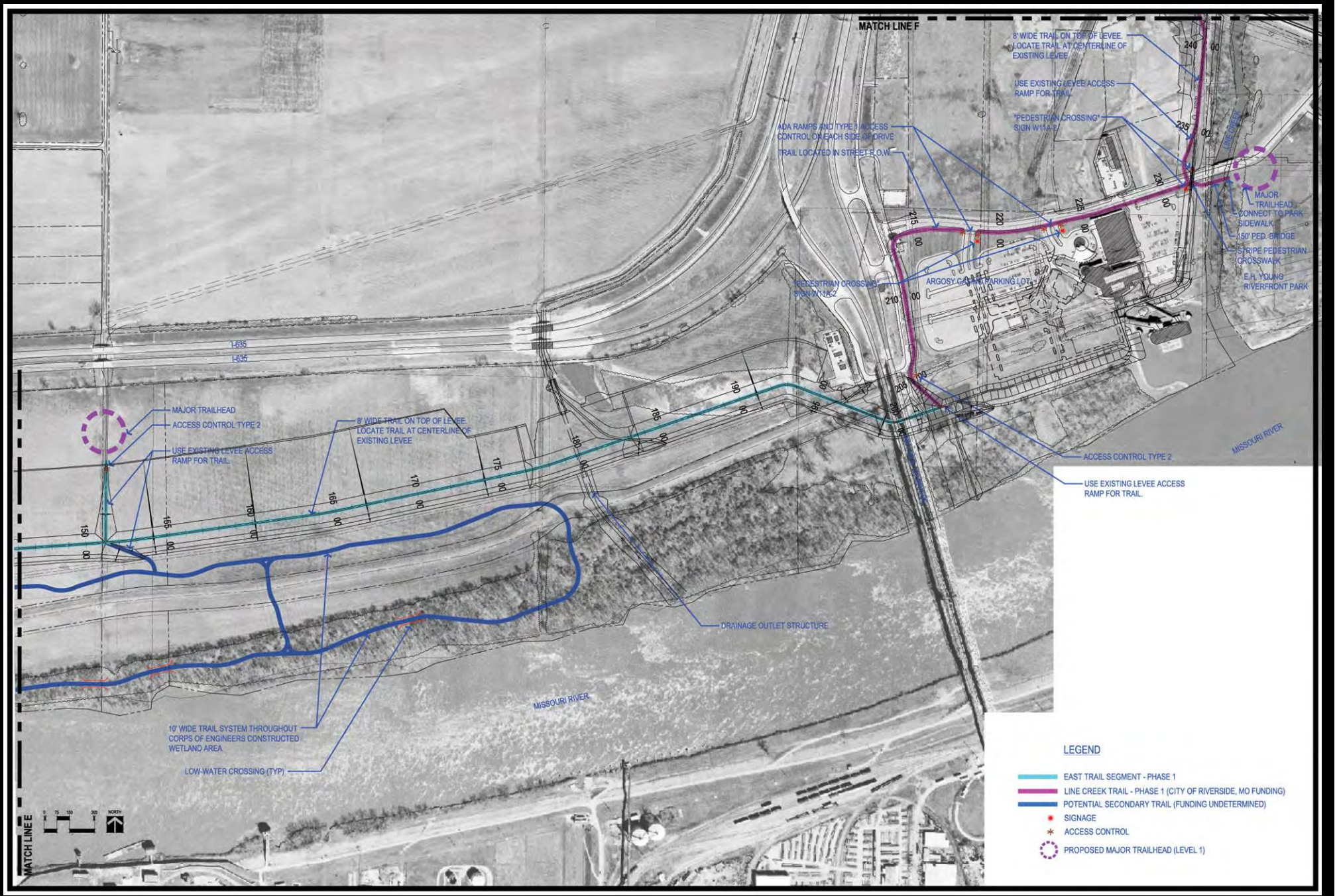
- East Trail Segment - Phase 1
- West Trail Segment - Phase 2
- Line Creek Trail - Phase 1 (City of Riverside, MO Funding)
- Potential Secondary Trail (Funding Undetermined)
- Minor Trailhead
- Major Trailhead

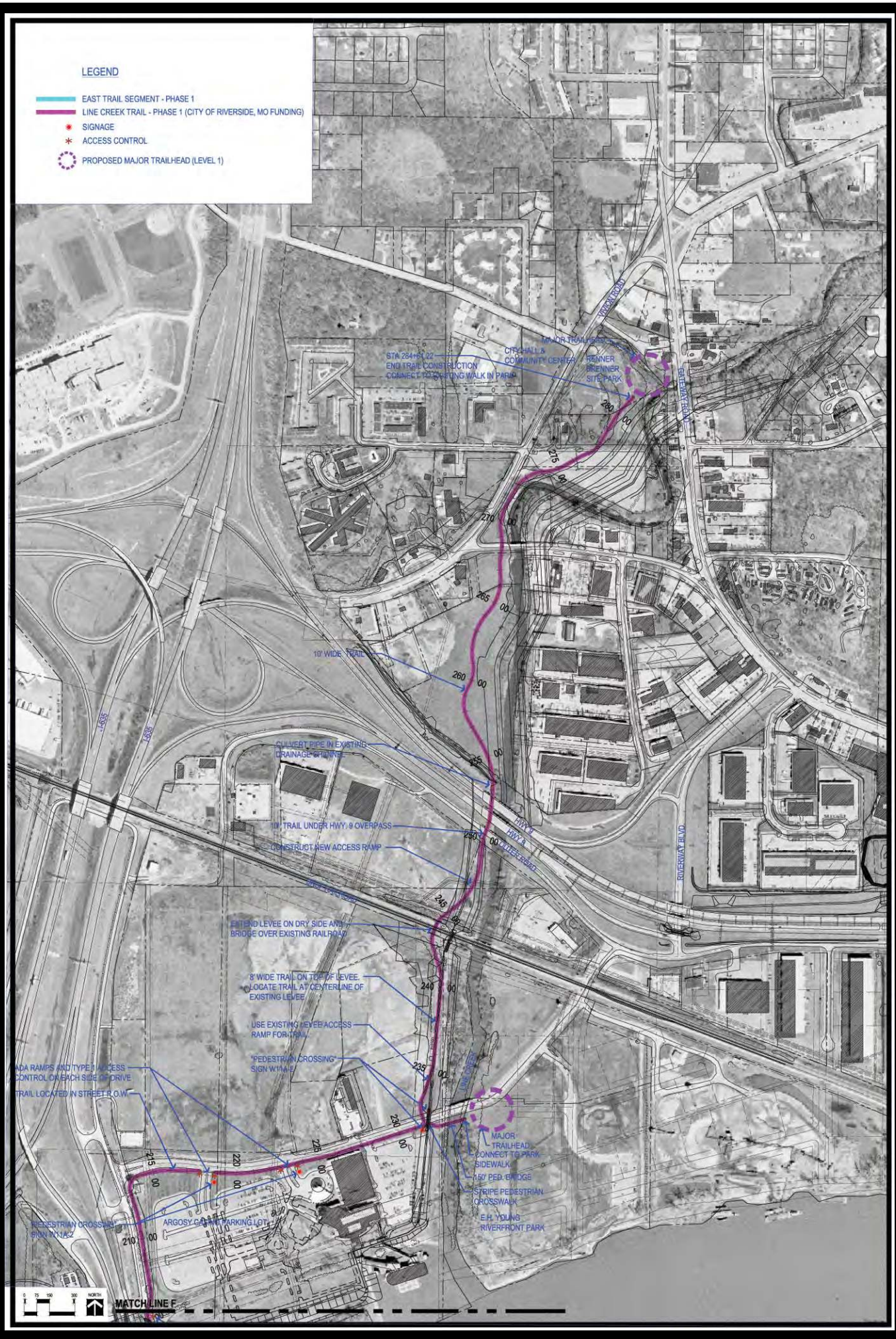
Missouri Riverfront Trail

Platte County, Missouri


HIGHWAY 9
"PEDESTRIAN CROSSING" SIGN
ASPHALT TRAIL
CONCRETE TRAIL
EXISTING BNSF RAIL LINE
FUTURE ADDITIONAL BNSF RAIL LINE
EXISTING GRAVEL PARKING AREA
EXISTING POWER POLE (TYP.)
EXISTING ASPHALT DRIVE
TYPE 1 ACCESS CONTROL
PROPOSED 6' FENCE
10' WIDE ASPHALT TRAIL
CONNECT TO EXISTING TRAIL IN ENGLISH LANDING PARK
EXISTING FENCE TO REMAIN
TYPE 1 ACCESS CONTROL
MISSOURI RIVER BOATING ASSOCIATION BOAT HOUSE
EXISTING FENCE TO REMAIN
BALL ENTERPRISES
MISSOURI RIVER BOATING ASSOCIATION BOAT STORAGE
BALL ENTERPRISES PARKING
STA 0+00
BEGIN TRAIL CONSTRUCTION
CONNECT TO EXISTING TRAIL IN ENGLISH LANDING PARK
MISSOURI RIVER BOATING ASSOCIATION FACILITY
TRAIL LOCATED IN RAILROAD RIGHT-OF-WAY
MISSOURI RIVER
TRAIL LOCATED OUTSIDE EXISTING CHAIN LINK FENCE
30' TRAIL EASEMENT
10' WIDE ASPHALT TRAIL
FUEL TANK FARM
BNSF RAILROAD
HWY 9
10' WIDE ASPHALT TRAIL
40' TRAIL EASEMENT
50' PEDESTRIAN BRIDGE
STA 39+50
BEGIN FENCE ON BOTH SIDES OF TRAIL. GATE ACROSS TRAIL FOR CLOSURE
50' TRAIL EASEMENT
INTERCONTINENTAL
MATCH LINE D
LEGEND
EAST TRAIL SEGMENT - PHASE 1
NORTH


MATCH LINE D
INTERCONTINENTAL RIVER ACCESS ROAD AND RAILROAD TO REMAIN UNDISTURBED
GATE IN FENCE ACROSS EXISTING RIVER ACCESS ROAD AND RAILROAD
MISSOURI RIVER
50' TRAIL EASEMENT
STA 65+87 END FENCE ON BOTH SIDES OF TRAIL. GATE ACROSS TRAIL FOR CLOSURE
10' WIDE ASPHALT TRAIL
USE EXISTING LEVEE ACCESS RAMP FOR TRAIL. TRAIL TO BE ASPHALT ON RAMP
ACCESS CONTROL TYPE 2
MINOR TRAILHEAD
USE EXISTING LEVEE ACCESS RAMP FOR TRAIL. TRAIL TO BE ASPHALT ON RAMP
8' WIDE LIMESTONE SCREENINGS TRAIL ON TOP OF LEVEE. LOCATE TRAIL AT CENTERLINE OF EXISTING LEVEE
MISSOURI RIVER
10' WIDE ASPHALT TRAIL SYSTEM THROUGHOUT CORPS OF ENGINEERS CONSTRUCTED WETLAND AREA
LOW-WATER CROSSING (TYP)
TRAIL UNDER I-635 OVERPASS
MATCH LINE E
LEGEND
EAST TRAIL SEGMENT - PHASE 1
POTENTIAL SECONDARY TRAIL (FUNDING UNDETERMINED)
ACCESS CONTROL
PROPOSED MINOR TRAILHEAD (LEVEL 3)


MATCH LINE F
8' WIDE TRAIL ON TOP OF LEVEE. LOCATE TRAIL AT CENTERLINE OF EXISTING LEVEE.
USE EXISTING LEVEE ACCESS RAMP FOR TRAIL.
"PEDESTRIAN CROSSING" SIGN W11A-2
ADA RAMPS AND TYPE 2 ACCESS CONTROL ON EACH SIDE OF DRIVE
TRAIL LOCATED IN STREET R.O.W.
LINE CREEK
MAJOR TRAILHEAD. CONNECT TO PARK SIDEWALK
150' PED. BRIDGE
STRIPE PEDESTRIAN CROSSWALK
E.H. YOUNG RIVERFRONT PARK
"PEDESTRIAN CROSSING" SIGN W11A-2
ARGOSY CASINO PARKING LOT
I-635
I-635
MAJOR TRAILHEAD
ACCESS CONTROL TYPE 2
USE EXISTING LEVEE ACCESS RAMP FOR TRAIL.
8' WIDE TRAIL ON TOP OF LEVEE. LOCATE TRAIL AT CENTERLINE OF EXISTING LEVEE
ACCESS CONTROL TYPE 2
MISSOURI RIVER
USE EXISTING LEVEE ACCESS RAMP FOR TRAIL.
DRAINAGE OUTLET STRUCTURE
MISSOURI RIVER
10' WIDE TRAIL SYSTEM THROUGHOUT CORPS OF ENGINEERS CONSTRUCTED WETLAND AREA
LOW-WATER CROSSING (TYP)
MATCH LINE E
NORTH
LEGEND
EAST TRAIL SEGMENT - PHASE 1
LINE CREEK TRAIL - PHASE 1 (CITY OF RIVERSIDE, MO FUNDING)
POTENTIAL SECONDARY TRAIL (FUNDING UNDETERMINED)
SIGNAGE
ACCESS CONTROL
PROPOSED MAJOR TRAILHEAD (LEVEL 1)


LEGEND
EAST TRAIL SEGMENT - PHASE 1
LINE CREEK TRAIL - PHASE 1 (CITY OF RIVERSIDE, MO FUNDING)
SIGNAGE
ACCESS CONTROL
PROPOSED MAJOR TRAILHEAD (LEVEL 1)
STA 284+61.22
END TRAIL CONSTRUCTION
CONNECT TO EXISTING WALK IN PARK
CITY HALL & COMMUNITY CENTER
RENNER BRENNER SITE PARK
MAJOR TRAILHEAD
WILSON ROAD
EASTBANK ROAD
10' WIDE TRAIL
CULVERT PIPE IN EXISTING DRAINAGE STRUCTURE
10' TRAIL UNDER HWY. 9 OVERPASS
CONSTRUCT NEW ACCESS RAMP
HWY 9
RIVERVIEW BLVD
EXTEND LEVEE ON DRY SIDE AND BRIDGE OVER EXISTING RAILROAD
8' WIDE TRAIL ON TOP OF LEVEE. LOCATE TRAIL AT CENTERLINE OF EXISTING LEVEE
USE EXISTING LEVEE ACCESS RAMP FOR TRAIL
"PEDESTRIAN CROSSING" SIGN W11A-2
ADA RAMPS AND TYPE 1 ACCESS CONTROL ON EACH SIDE OF DRIVE
TRAIL LOCATED IN STREET R.O.W.
LINE CREEK
MAJOR TRAILHEAD CONNECT TO PARK SIDEWALK
150' PED. BRIDGE
STRIPE PEDESTRIAN CROSSWALK
E.H. YOUNG RIVERFRONT PARK
PEDESTRIAN CROSSING SIGN W11A-2
ARGOSY CASINO PARKING LOT
MATCH LINE F
NORTH

West Trail Segment - Phase 2

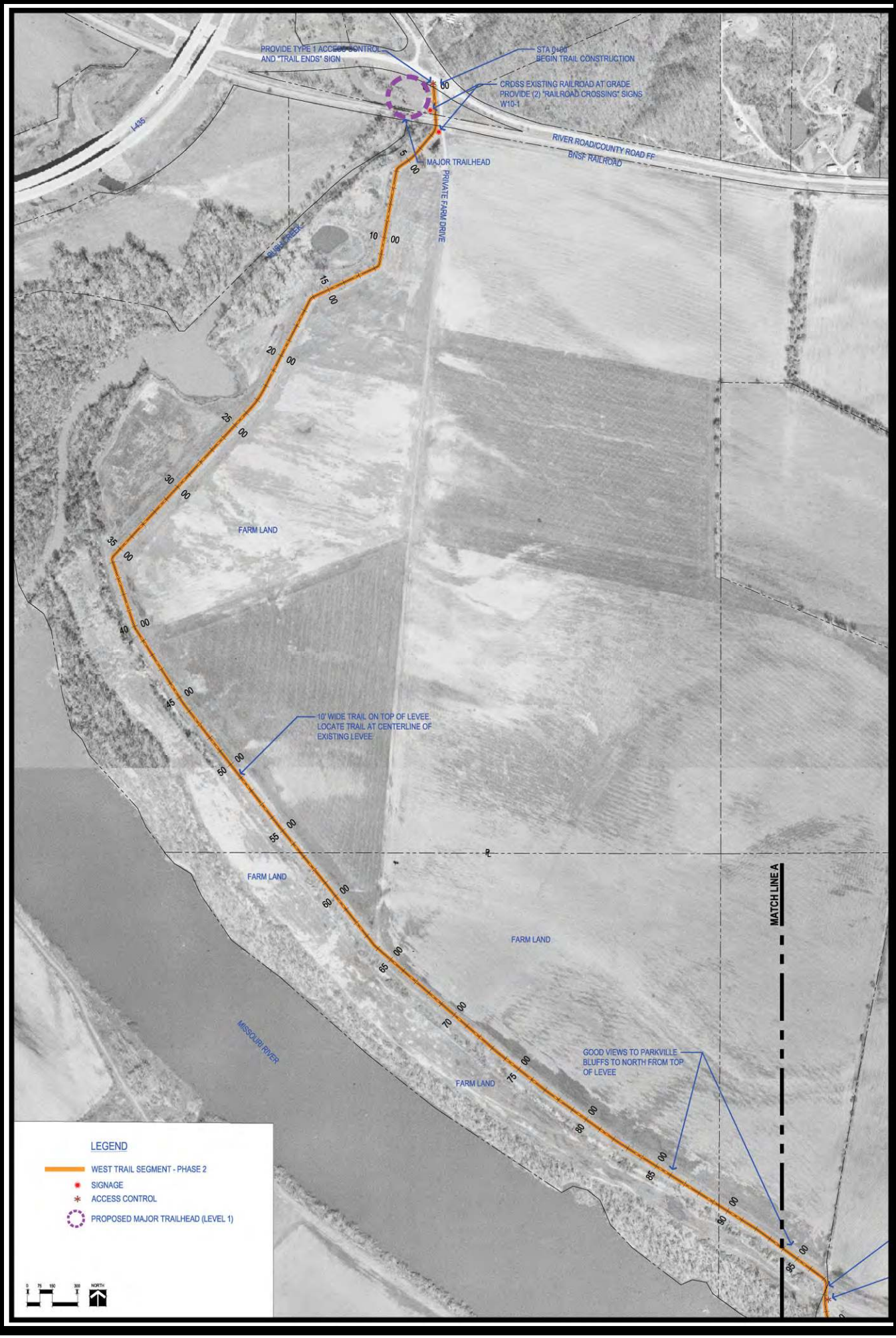
The West Trail Segment stretches over six miles from I-435/Brush Creek to Parkville, with about one-third of the trail being on top of an existing Corps of Engineers levee and two-thirds located along the river bank and on the "wet side" of the levee (See Maps Pages 18 to 22).

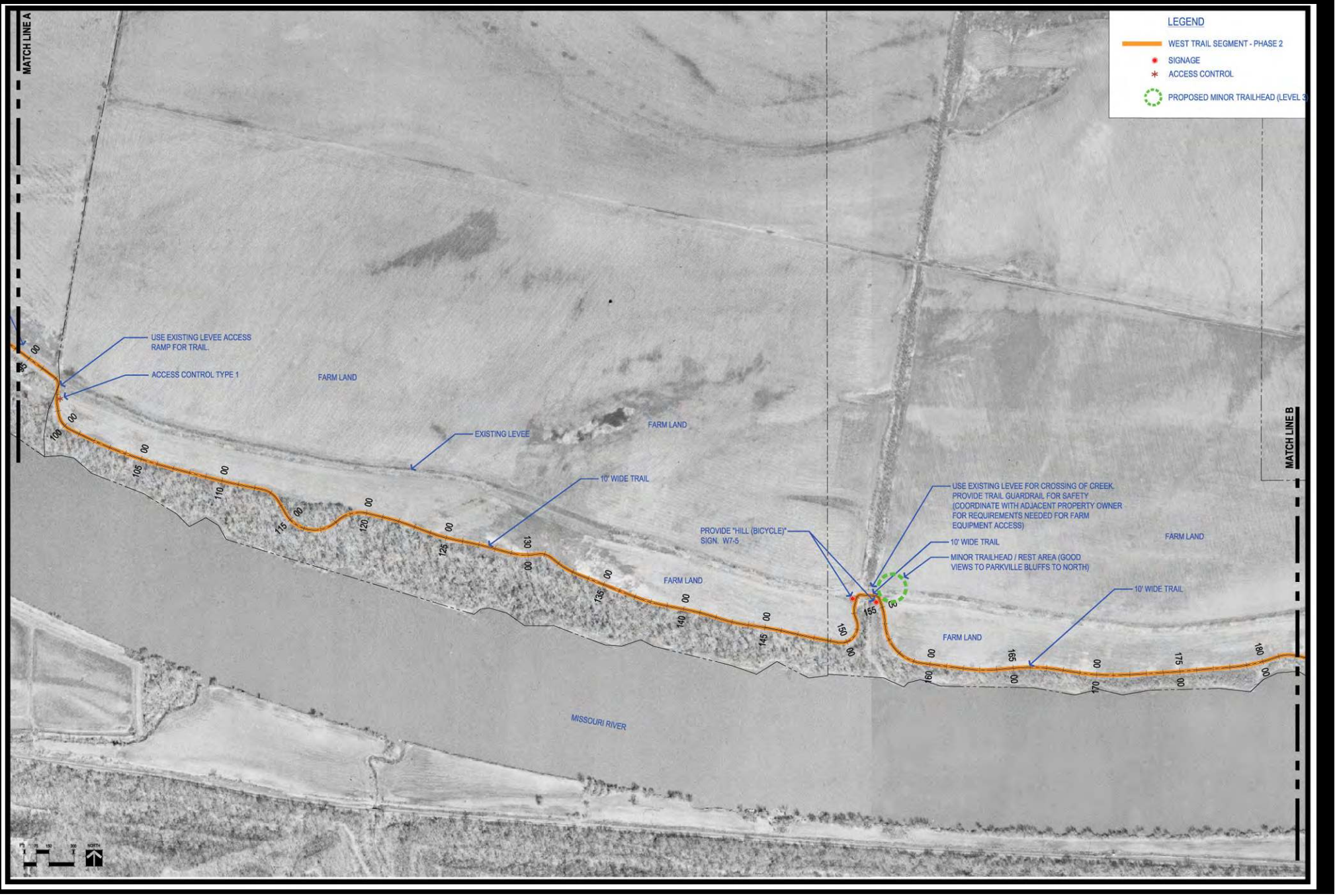
Trailheads: The West Trail Segment begins at a Major Trailhead located off Waldron Road at Brush Creek just east of I-435. A potential Minor Trailhead is planned approximately halfway between I-435 and Main Street in Parkville. This trailhead is important to allow trail access by users and safety vehicles in the more remote areas of the trail. A third trailhead (Major Trailhead) is planned at the south end of Main Street in Parkville. It is understood this may be the potential location for a future river access facility including parking and a boat ramp to the river. To save costs and land, this could be a shared-use with the trailhead.

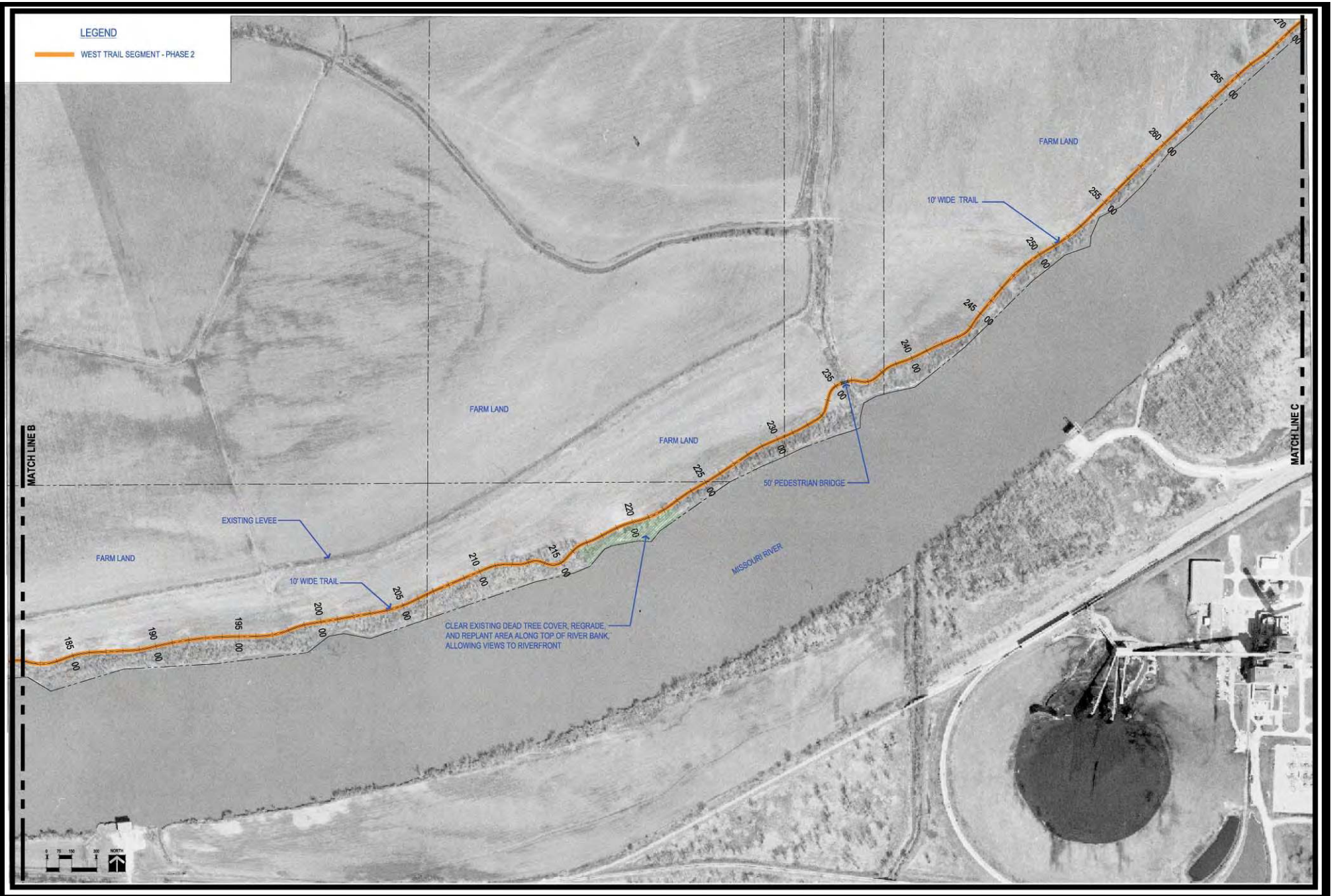
Levee Section: The trail is located on top of an existing Corps of Engineers levee for about two-thirds of a mile from the western end of the trail, southwest toward the River, where it continues east on the levee for another mile. By locating the trail on the levee, it will be simple, cost effective construction and will provide users with views of the Parkville Bluffs to the north and Missouri River to the south.

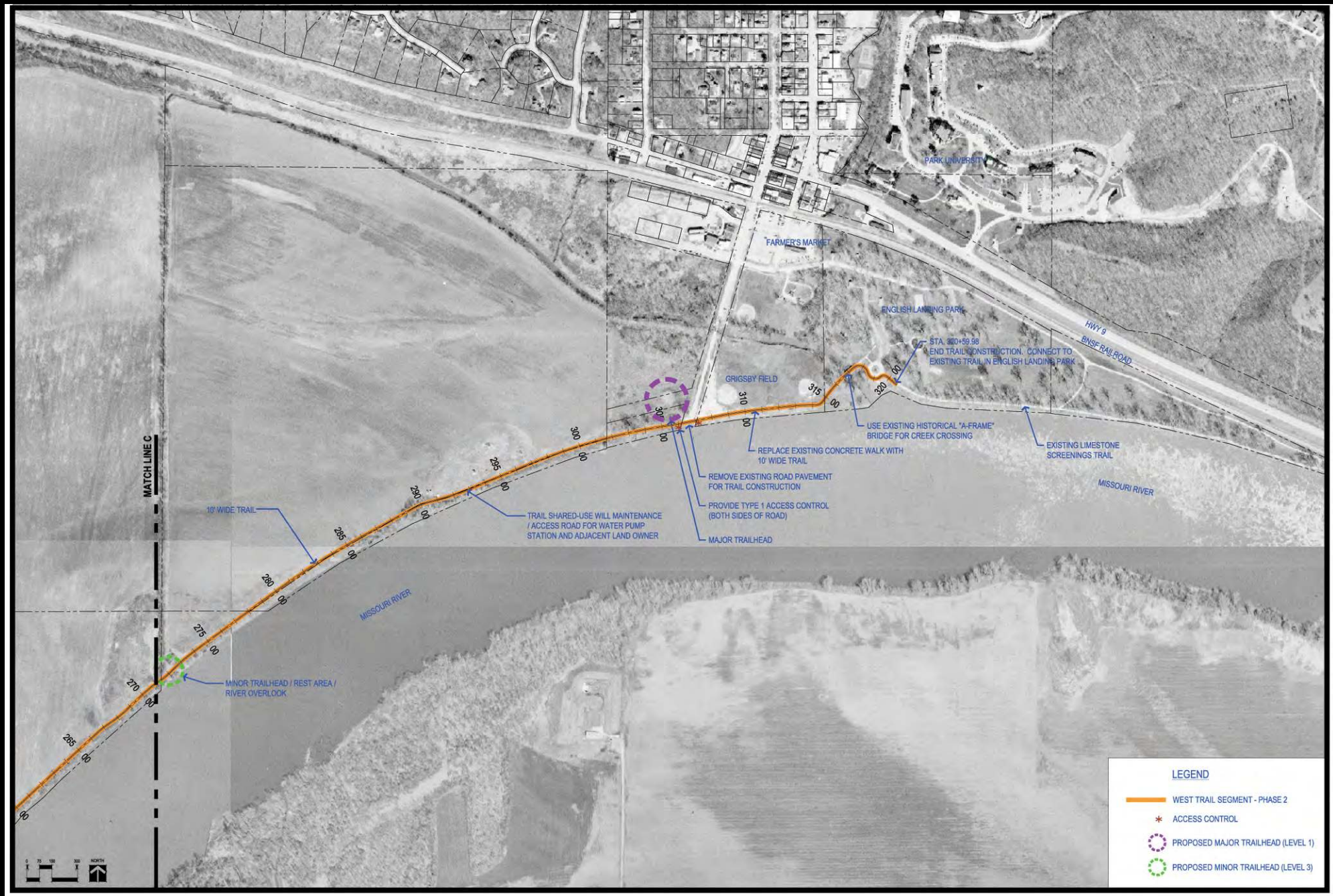
"Wet Side" Section: Using an existing access ramp to descend to the "wet side" of the Corps levee, the trail is located along the river bank for four miles, meandering through trees and crossing three creeks. Through this section the existing levee has not been improved by the Corps of Engineers, is not of sufficient width, and does not appear to be maintained. Because of this, the recommended trail location is closer to the river between the existing wooded area and farm land.

Connection to English Landing Park Trail: The trail replaces the existing sidewalk south of Grisby Field, goes over the historic "A-Frame" bridge and connects to the existing trail in English Landing Park.


PROVIDE TYPE 1 ACCESS CONTROL AND "TRAIL ENDS" SIGN
STA 0+00 BEGIN TRAIL CONSTRUCTION
CROSS EXISTING RAILROAD AT GRADE PROVIDE (2) "RAILROAD CROSSING" SIGNS W10-1
I-435
RIVER ROAD/COUNTY ROAD FF
BNSF RAILROAD
MAJOR TRAILHEAD
PRIVATE FARM DRIVE
RUSH CREEK
FARM LAND
10' WIDE TRAIL ON TOP OF LEVEE LOCATE TRAIL AT CENTERLINE OF EXISTING LEVEE
MISSOURI RIVER
GOOD VIEWS TO PARKVILLE BLUFFS TO NORTH FROM TOP OF LEVEE
MATCH LINE A
LEGEND
WEST TRAIL SEGMENT - PHASE 2
SIGNAGE
ACCESS CONTROL
PROPOSED MAJOR TRAILHEAD (LEVEL 1)
NORTH


MATCH LINE A
MATCH LINE B
LEGEND
WEST TRAIL SEGMENT - PHASE 2
SIGNAGE
ACCESS CONTROL
PROPOSED MINOR TRAILHEAD (LEVEL 3
USE EXISTING LEVEE ACCESS RAMP FOR TRAIL.
ACCESS CONTROL TYPE 1
FARM LAND
EXISTING LEVEE
10' WIDE TRAIL
PROVIDE "HILL (BICYCLE)" SIGN. W7-5
USE EXISTING LEVEE FOR CROSSING OF CREEK. PROVIDE TRAIL GUARDRAIL FOR SAFETY (COORDINATE WITH ADJACENT PROPERTY OWNER FOR REQUIREMENTS NEEDED FOR FARM EQUIPMENT ACCESS)
MINOR TRAILHEAD / REST AREA (GOOD VIEWS TO PARKVILLE BLUFFS TO NORTH)
MISSOURI RIVER
NORTH


LEGEND
WEST TRAIL SEGMENT - PHASE 2
MATCH LINE B
MATCH LINE C
FARM LAND
FARM LAND
FARM LAND
FARM LAND
10' WIDE TRAIL
10' WIDE TRAIL
50' PEDESTRIAN BRIDGE
EXISTING LEVEE
MISSOURI RIVER
CLEAR EXISTING DEAD TREE COVER, REGRADE, AND REPLANT AREA ALONG TOP OF RIVER BANK, ALLOWING VIEWS TO RIVERFRONT
185 00
190 00
195 00
200 00
205 00
210 00
215 00
220 00
225 00
230 00
235 00
240 00
245 00
250 00
255 00
260 00
265 00
270 00
0 75 150 300
NORTH


PARK UNIVERSITY
FARMER'S MARKET
ENGLISH LANDING PARK
HWY 9
BNSF RAILROAD
STA. 320+59.98
END TRAIL CONSTRUCTION. CONNECT TO EXISTING TRAIL IN ENGLISH LANDING PARK
GRIGSBY FIELD
USE EXISTING HISTORICAL "A-FRAME" BRIDGE FOR CREEK CROSSING
REPLACE EXISTING CONCRETE WALK WITH 10' WIDE TRAIL
EXISTING LIMESTONE SCREENINGS TRAIL
REMOVE EXISTING ROAD PAVEMENT FOR TRAIL CONSTRUCTION
PROVIDE TYPE 1 ACCESS CONTROL (BOTH SIDES OF ROAD)
MAJOR TRAILHEAD
MISSOURI RIVER
MATCH LINE C
10' WIDE TRAIL
TRAIL SHARED-USE WILL MAINTENANCE / ACCESS ROAD FOR WATER PUMP STATION AND ADJACENT LAND OWNER
MISSOURI RIVER
MINOR TRAILHEAD / REST AREA / RIVER OVERLOOK
LEGEND
WEST TRAIL SEGMENT - PHASE 2
ACCESS CONTROL
PROPOSED MAJOR TRAILHEAD (LEVEL 1)
PROPOSED MINOR TRAILHEAD (LEVEL 3)

Trail Surface Type

There are generally three different types of trail surfaces which can be used for multi-use trails. They are concrete, asphalt, and limestone screenings. An explanation of each is as follows:

Concrete

Concrete is usually the preferred material for use on sidewalks and in low areas which have high velocity water flows crossing the trail. Although concrete is acceptable by bicyclists, it is considered a very hard surface for walkers and runners and can be damaging on knees and legs.

The minimum thickness for concrete is generally four inches and can be placed over compacted subgrade. An additional gravel sub-base may be required in certain areas depending on soil conditions. Concrete is relatively easy to maintain and repair, but cost is much greater for initial construction and replacement if necessary.

Asphalt

Asphalt is an affordable, acceptable, and often requested hard trail surface alternative to concrete. It is softer and more flexible for walkers and runners, reducing leg injuries.

The minimum thickness recommended for asphalt is four inches and can be placed over compacted subgrade. Surface life will be increased and maintenance reduced if the asphalt is placed over a gravel sub-base. Asphalt is relatively easy to maintain, repair, and replace, and initial construction cost is much lower than concrete.

Limestone Screenings

Limestone screenings is much more affordable in the initial construction costs over both concrete and asphalt. Limestone screenings is a surface made of very fine limestone particles bound together with a liquid calcium chloride mix to reduce dust and maximize compaction. It is installed at a depth of six inches and roller compacted to a final four inch depth. After compaction, a limestone screenings trail is as hard as asphalt with a slight loose gravel dust on the surface. Limestone screenings is a great surface for most users. It is more difficult for small wheeled users, such as roller bladers. Both walkers and runners prefer limestone screenings due to its high flexibility.

Limestone screenings is not recommended for areas of a trail that are prone to flooding and have drainage crossing the trail.

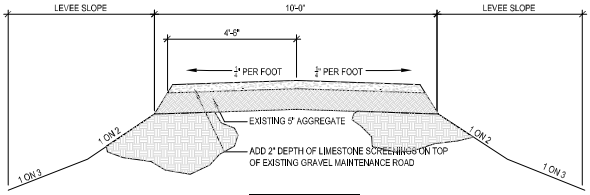
The minimum thickness recommended for limestone screenings is four inches and can be placed over compacted subgrade. It is recommended that trail areas with steep slopes (greater than five percent) not be surfaced in limestone screen-

ings due to the safety of users. These sloped surfaces can become slippery and therefore should be a hard surface. Maintenance and repair of limestone screenings requires filling or raking troubled spots and recompacting. Sometimes additional calcium chloride treatment is required to get proper compaction. Maintenance level will increase if the limestone screenings trail isn't designed properly and water is allowed to drain across the surface.

The Missouri Riverfront Trail is recommended to include two of the above mentioned surface types: asphalt and limestone screenings. These surface types have been selected for their flexibility, low initial cost, and ease of maintenance. Different depths of these surface types are proposed for the Missouri Riverfront Trail.

2" Depth Limestone Screenings Trail

The new flood control levee maintenance road already has a five inch depth gravel surface. By adding an additional two inch layer of more finely graded aggregate, the surface will compact and be smooth, making it a better surface for bicyclists and pedestrians. A detail is shown below.



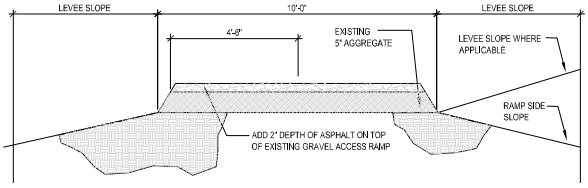
[redacted] *ngs trail section*

4" Depth Limestone Screenings Trail

The Plan recommends construction using a four inch layer of limestone screenings on off-levee trail sections that are not located in flood prone areas.

2" Depth Asphalt Trail

This surface will occur on existing levee access ramps. Asphalt is proposed over the existing gravel surface to make the sloping ramps more user friendly to bicyclists and pedestrians. It is dangerous to have a soft surfaced trail such as limestone screenings at a greater slope than five percent. Many of the existing levee access ramps have a slope of eight to ten percent. A detail is shown below.



2" depth asphalt trail sectio [redacted]

4" Depth Asphalt Trail

Several portions of the trail will be constructed in existing street right of ways or flood prone areas and therefore are recommended to be asphalt.

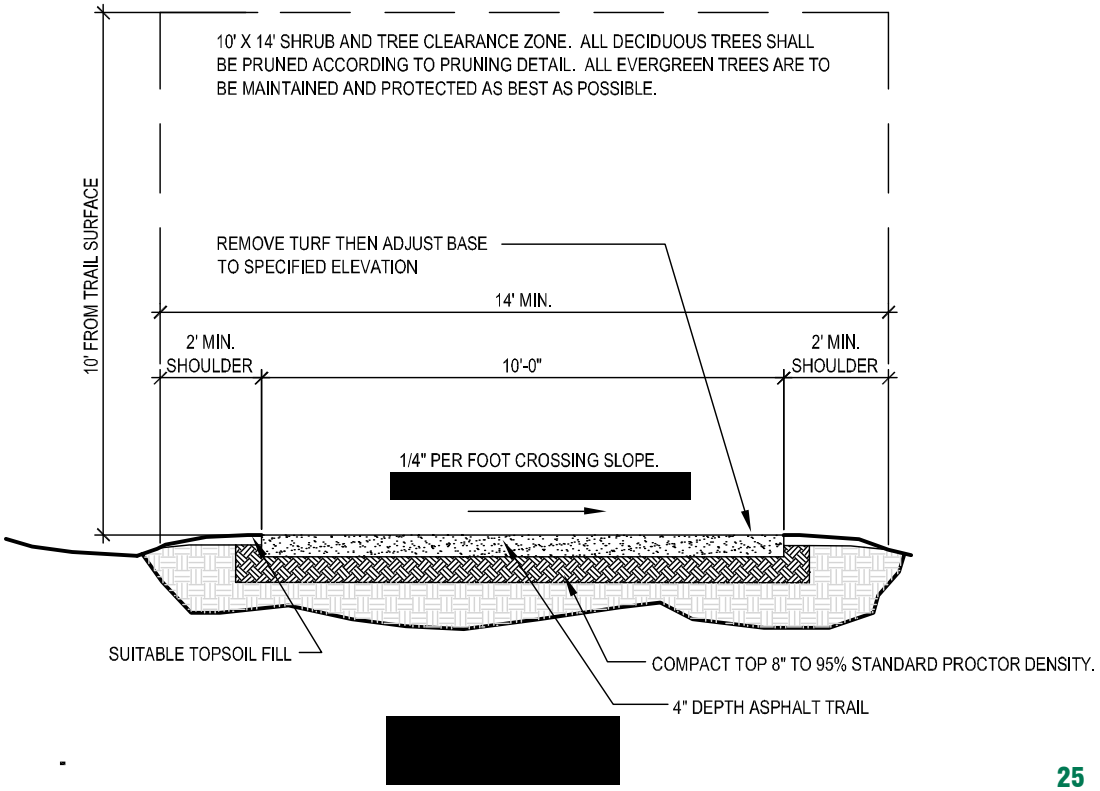
Trail Width

As recommended by the Northland Trails Vision Plan, MetroGreen, and the AASHTO Guide for Bicycle Facilities, minimum trail width for multi-use trails is ten feet, although in extreme cases eight feet is acceptable. Bridges or structures are recommended to have a minimum clear width of twelve feet, but ten feet is usually acceptable. In addition to the trail width, good trail design includes two feet of cleared grass shoulder on each side of the trail with a maximum slope of two percent.

The trail on the new flood control levee will use the existing maintenance road. The existing levee top is ten feet wide with the gravel road eight to nine feet wide, and therefore the trail width can only be eight to nine feet in width. In all other situations there is sufficient space for the trail to be the recommended ten feet wide with two foot shoulders on each side.

Trail Clearance

Along with trail width and clearance, trails should have a minimum vertical clearance from obstructions, bridges, and trees of ten feet. See detail below.

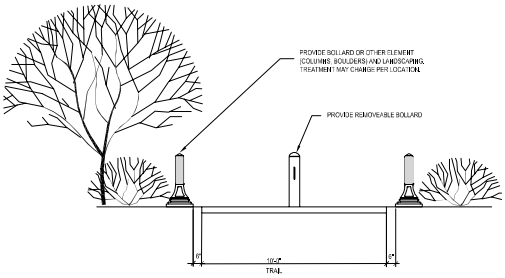


Trail Access Control

For the purpose of the Missouri Riverfront Trail, trail access control has been divided into two different types, Type 1 and Type 2. They are further detailed below.

Type 1 Access Control

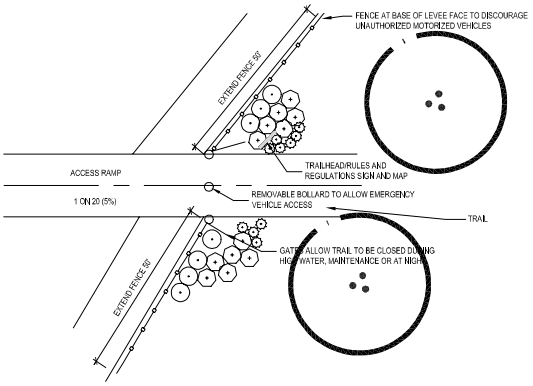
Type 1 is a standard access control treatment using a removable bollard at the center of the trail and a non-removable bollard or other element at each edge. It is recommended that a five foot clear minimum spacing be maintained between each bollard or element. The purpose of the Type 1 access control is to minimize unauthorized motorized vehicles from entering the trail from adjacent roads. The access control, along with landscaping, can also help to act as a trail identity. An example is shown in the figure to the right..



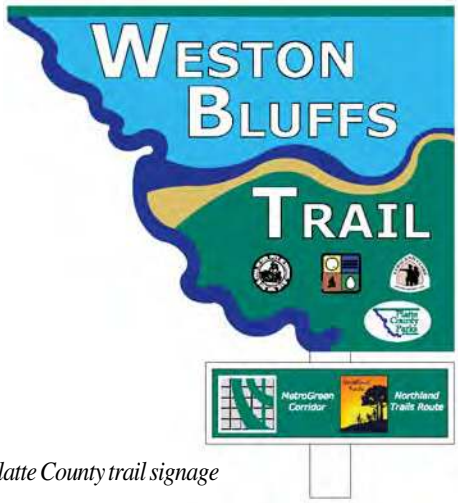
Type 1 access control

Type 2 Access Control

Type 2 is a custom access control treatment specifically designed for the trail segments that are located on top of the flood control levee. As stated earlier, the trail on top of the levee may need to be closed during levee maintenance or high flood situations. To help in controlling access during these times, an access control consisting of a removable center bollard, fencing with gate, and signage with levee regulations is proposed at all entrances to the levee. An example is shown in the figure to the right.



Type 2 access control



Platte County trail signage

MetroGreen Corridor example signage

Access control with signage

Trail Signage

With the exception of intersection treatments, signage along trails is typically minimal. Guide signage may be used to indicate directions, destinations, distances and names of crossing streets.

Warning signs benefit the trail user who is unacquainted with the trail. Warning signs should provide adequate time for the user to perceive, identify, decide and perform any necessary maneuver. Such signs are needed where the trail crosses traffic or railroad lines, or where sharp curves or steep slopes occur.

The Plan also recommends informative signage at trailheads and other access points onto the trail. These signs will be posted to name the trail, include maps, interpretive information, rules & regulations, and where located at levee access points, to educate trail users about the function and importance of the flood control levee.

Trailheads and Amenities

Trailheads are locations that provide amenities along a trail system. The trailhead will be the first point of contact for trail users to the regional trail system and is the gateway to a successful trail system. There are many different levels of trailheads ranging from providing vehicular and bicycle parking and restrooms to only providing signage, benches, and trash receptacles. The ***Northland Trails Vision Plan*** outlines three levels of trailheads but the plan for the Missouri Riverfront Trail proposes only two of these. In addition to the trailheads, small rest areas and river overlook areas are recommended. The trailhead designs were derived from the Northland Trails Vision Plan Trailhead types but were modified to fit this particular trail.

Example of trail kiosk

Major Trailhead (Level 1)

The Plan recommends that major trailheads include parking for both vehicles and bicycles. These trailheads should be located at areas where many trail routes join together, near large retail centers and as trails enter City parks. Major trailheads located along the Missouri Riverfront Trail may include:

1. A shelter/restroom
2. Vehicular parking (10 or more spaces)
3. Bicycle parking
4. Regional map/kiosk
5. Bench(es)
6. Telephone
7. Drinking Fountain
8. Trash Receptacles
9. Landscaping and access control

An example of a Major Trailhead (Level 1) is shown on page 29. The illustration is an example only and must be adjusted per site conditions and user requirements.

Minor Trailhead (Level 3)

Minor trailheads can be located throughout the system providing seating, trash receptacles, and shade for trail user comfort. Minor trailheads located along the Missouri Riverfront Trail will include:

1. Vehicular parking (less than 10 spaces)
2. Small kiosk/local trail map sign
3. Bicycle parking

4. Trash Receptacles

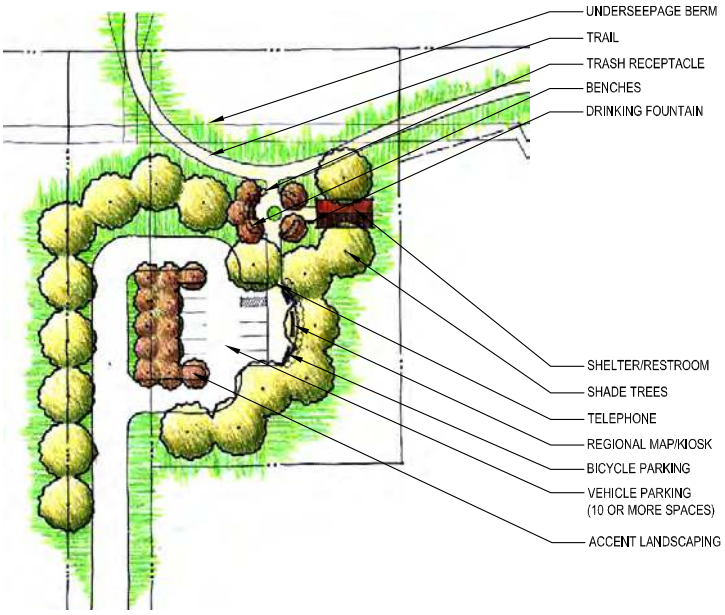
5. Landscaping and access control

An example of a Minor Trailhead (Level 3) is shown below. The illustration is an example only and must be adjusted per site conditions and user requirements.

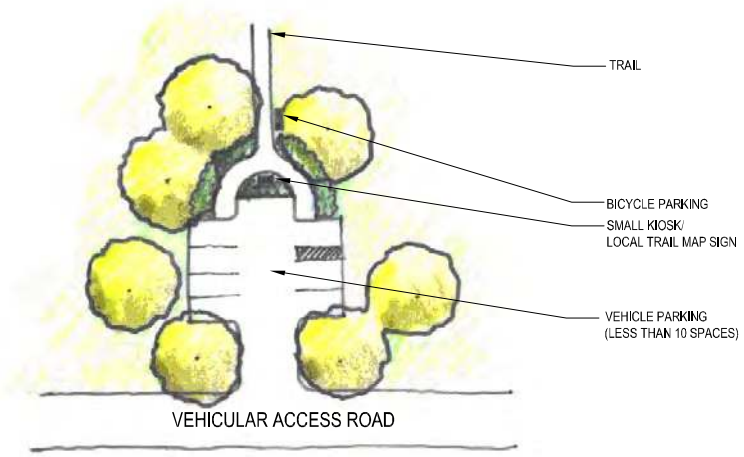
Rest Areas

Rest areas are strategically located between major and minor trailheads to provide areas with shade and benches. Locations for these rest areas are determined based on views, available space and necessity of providing rest points along the route.

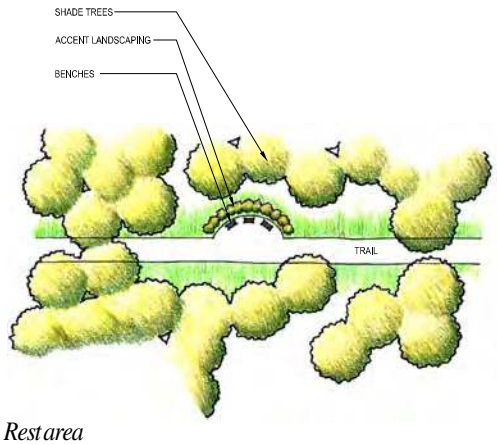
An example of a Rest Area is shown below. The illustration is an example only and must be adjusted per site conditions and user requirements.



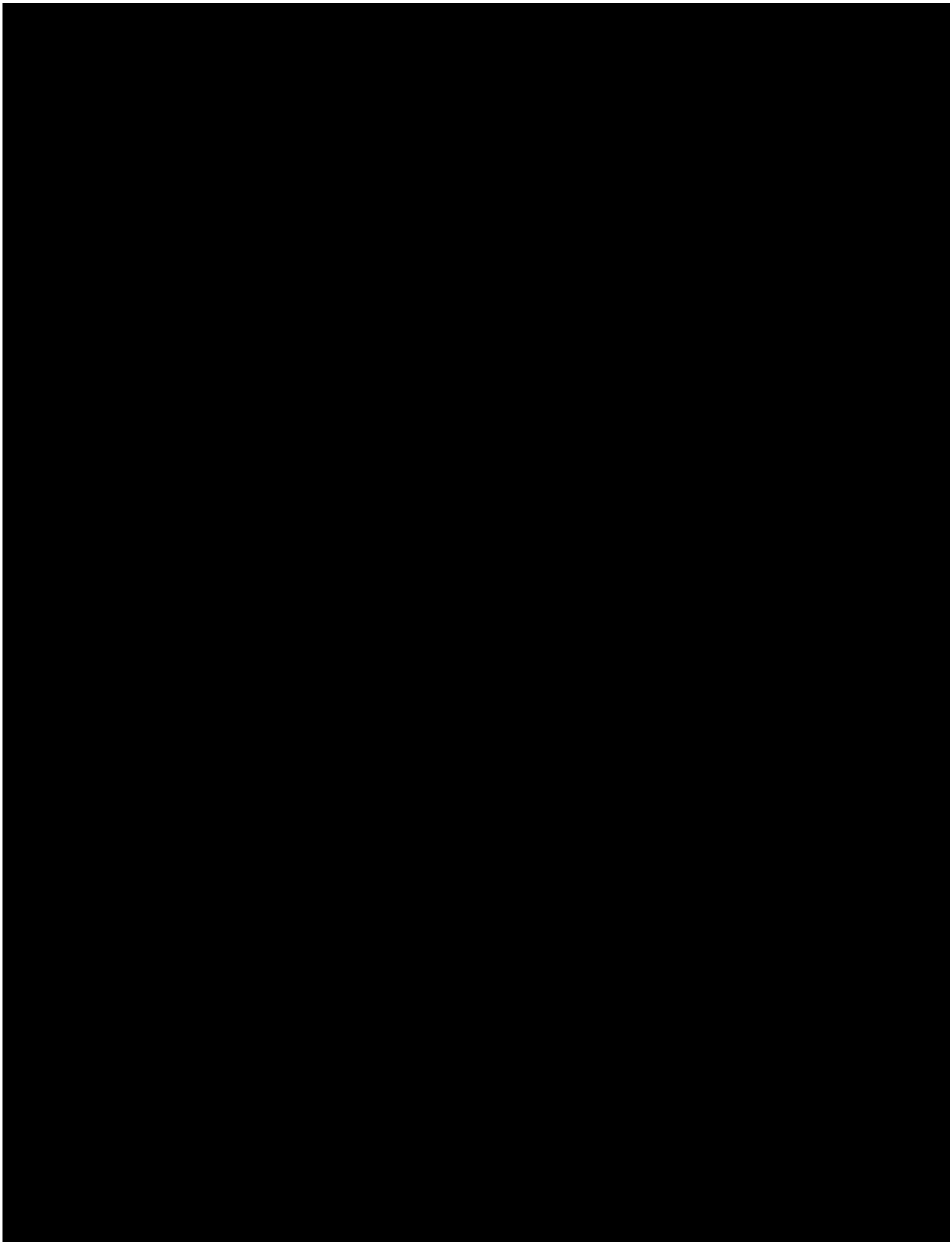
Major trailhead (level 1)



Minor trailhead (level 3)



Rest area



Implementation

With the Plan in place, it is now important to continue with the implementation of the trail construction. Included in this chapter are planned construction phases and estimated costs, property acquisition requirements, and a financing plan.

Phasing and Cost Estimates

The Missouri Riverfront Trail has been divided into two phases, the first phase is the East Trail Segment - from English Landing Park in Parkville east to E.H. Young Riverfront Park in Riverside and north to the Riverside City Hall Complex. The second phase is the West Trail Segment - from I-435 east to English Landing Park in Parkville. The preliminary estimates for each phase are shown on the following pages. Each estimate assumes certain trail surface types and construction methods for estimating purposes and may be altered during the construction document phase.

EAST TRAIL SEGMENT - Phase 1 - English Landing Park to E.H. Young Riverfront Park

	QUANTITY	UNIT		UNIT COST		TOTAL
ARGOSY CASINO SECTION						
TRAIL (4" ASPHALT)	3,200	LF	@	$ 30.00	$	96,000.00
ACCESS CONTROL	3	EA	@	$ 2,500.00	$	7,500.00
LANDSCAPE	1	LS	@	$ 15,000.00	$	15,000.00
				SUBTOTAL	**$**	**118,500.00**
LEVEE TOP TRAIL SECTION						
TRAIL (2" DEPTH LIMESTONE SCREENINGS ON LEVEE)	12,000	LF	@	$ 12.00	$	144,000.00
ACCESS RAMP TRAIL (4" ASPHALT)	1,300	EA	@	$ 15.00	$	19,500.00
ACCESS CONTROL	3	EA	@	$ 5,000.00	$	15,000.00
SMALL TRAILHEAD	1	LS	@	$ 20,000.00	$	20,000.00
LARGE TRAILHEAD	1	LS	@	$ 75,000.00	$	75,000.00
SIGNAGE	1	LS	@	$ 5,000.00	$	5,000.00
SEATING AREAS	4	EA	@	$ 3,500.00	$	14,000.00
				SUBTOTAL	**$**	**292,500.00**
INTERCONTINENTAL/FUEL TANK FARM TRAIL SECTION						
TRAIL (4" ASPHALT)	7,500	LF	@	$ 30.00	$	225,000.00
FENCING (CHAIN LINK)	6,500	LF	@	$ 28.00	$	182,000.00
RETAINING WALL (MODULAR BLOCK)	400	SFF	@	$ 40.00	$	16,000.00
BRIDGE (75' LENGTH)	1	EA	@	$ 90,000.00	$	90,000.00
SIGNAGE	1	LS	@	$ 5,000.00	$	5,000.00
				SUBTOTAL	**$**	**518,000.00**
BOAT CLUB / BALL ENTERPRISE						
TRAIL (4" ASPHALT)	375	LF	@	$ 28.00	$	10,500.00
TRAIL (CONCRETE)	7,000	SF	@	$ 6.00	$	42,000.00
ACCESS CONTROL	3	EA	@	$ 2,500.00	$	7,500.00
FENCING (CHAIN LINK)	700	LF	@	$ 28.00	$	19,600.00
SIGNAGE	1	LS	@	$ 2,500.00	$	2,500.00
				SUBTOTAL	**$**	**82,100.00**
				SUBTOTAL PROJECT	**$**	**1,011,100.00**
CONTINGENCY (20%)					**$**	**202,220.00**
TOTAL PROJECT					**$**	**1,213,320.00**

The above opinion of probable costs was determined based on a conceptual master plan for budgeting purposes only and is in no way intended as a guarantee of construction costs.

LINE CREEK TRAIL - Phase 1 - E.H. Young Riverfront Park to Renner Brenner Site Park (City of Riverside Funding)

	QUANTITY	UNIT		UNIT COST	TOTAL
LINE CREEK TRAIL SECTION					
TRAIL (2" DEPTH LIMESTONE SCREENINGS ON LEVEE)	1,600	LF	@	$ 12.00	$ 19,200.00
TRAIL (4" DEPTH ASPHALT)	2,200	LF	@	$ 30.00	$ 66,000.00
TRAIL (4" DEPTH LIMESTONE SCREENINGS)	1,400	LF	@	$ 22.00	$ 30,800.00
HWY 9 BRIDGE DRAINAGE WORK	1	LS	@	$ 15,000.00	$ 15,000.00
CULVERT NORTH OF HWY 9	1	EA	@	$ 7,500.00	$ 7,500.00
DRAINAGE WORK NORTH OF HWY 9	1,000	LF	@	$ 20.00	$ 20,000.00
ACCESS CONTROL	2	EA	@	$ 5,000.00	$ 10,000.00
LINE CREEK BRIDGE (125' LENGTH)	1	EA	@	$ 150,000.00	$ 150,000.00
RAILROAD CROSSING (80' BRIDGE)	1	EA	@	$ 250,000.00	$ 250,000.00
LANDSCAPE	1	LS	@	$ 15,000.00	$ 15,000.00
SIGNAGE	1	LS	@	$ 5,000.00	$ 5,000.00
SEATING AREAS	2	EA	@	$ 3,500.00	$ 7,000.00
				SUBTOTAL	**$ 595,500.00**
				SUBTOTAL PROJECT	**$ 595,500.00**
CONTINGENCY (20%)					**$ 119,100.00**
TOTAL PROJECT					**$ 714,600.00**

WEST TRAIL SEGMENT - Phase 2 - I-435 to English Landing Park

	QUANTITY	UNIT		UNIT COST	TOTAL
PARKVILLE SECTION					
TRAIL (4" DEPTH LIMESTONE SCREENINGS)	32,100	LF	@	$ 22.00	$ 706,200.00
SMALL TRAILHEAD	1	LS	@	$ 20,000.00	$ 20,000.00
LARGE TRAILHEAD	1	LS	@	$ 75,000.00	$ 75,000.00
BRIDGE (50')	1	EA	@	$ 70,000.00	$ 70,000.00
ACCESS CONTROL	2	EA	@	$ 2,500.00	$ 5,000.00
SIGNAGE	1	LS	@	$ 5,000.00	$ 5,000.00
SEATING AREAS	3	EA	@	$ 3,500.00	$ 10,500.00
				SUBTOTAL	**$ 891,700.00**
				SUBTOTAL PROJECT	**$ 891,700.00**
CONTINGENCY (20%)					**$ 178,340.00**
TOTAL PROJECT					**$ 1,070,040.00**

The above opinion of probable costs was determined based on a conceptual master plan for budgeting purposes only and is in no way intended as a guarantee of construction costs.

Property Acquisition

Due to the trail crossing many different privately owned properties it will require acquisition, easements, or agreements for the trail construction. The current status of property negotiations for each phase is as follows.

Phase 1

- The area at the western end, near English Landing Park, which is located in the BNSF Railroad Right-of-Way is currently under negotiation with the railroad company and needs to be continued during trail construction documentation.
- Negotiations have been conducted with the fuel tank farm property owner and verbal agreement to a 30 foot easement has been negotiated.
- Obtaining an easement through the property east of the fuel tank farm needs to be completed.
- Negotiations with InterContinental have occured and the trail located in a 50 foot easement with fencing has been verbally agreed upon.
- A written agreement has been formed between Platte County, the City of Riverside, and the Riverside/Quindaro Bend Levee district for the trail to be located on top of the L-385 levee extending from the InterContinental property east to Argosy Casino and from Argosy Casino north to Renner Brenner Park (east of Riverside City Hall Complex).
- The railroad crossing south of Highway 9 is currently under negotiations with BNSF railroad and needs to be continued during trail construction documentation.
- The crossing under Interstate 635 and Highways 69 and 9 need to be coordinated with the Missouri Department of Transportation.

Phase 2

- The area west of Main Street in Parkville is located in private property and negotiations and acquisition are still required.

Financing Summary

All Platte County Parks and Recreation projects are supported by the ten-year, ½ cent, sales tax approved by voters in 2000. However, a major goal of the Parks and Recreation Department is to leverage these funds and help stretch these tax dollars. The department has aggressively pursued leveraged funding for the Missouri Riverfront Trail through grants and partnerships.

RECREATIONAL TRAILS PROGRAM (RTP) GRANT: In 2004, the County received a grant in the amount of $100,000 for trail development on the levee portion of the Missouri Riverfront Trail. This grant is matched with County tax dollars and supported by an easement agreement with the Riverside/Quindaro Bend Levee District.

LOCAL PARTNERSHIPS: The County is working toward cooperative agreements with the cities of Riverside and Parkville and the Riverside/Quindaro Bend Levee District for the acquisition of land, easements, connector trails, and parking/trailhead facilities on and adjacent to the proposed trail route.