

LITTLE BLUE RIVER FLOOD RISK MANAGEMENT/ ECOSYSTEM RESTORATION STUDY

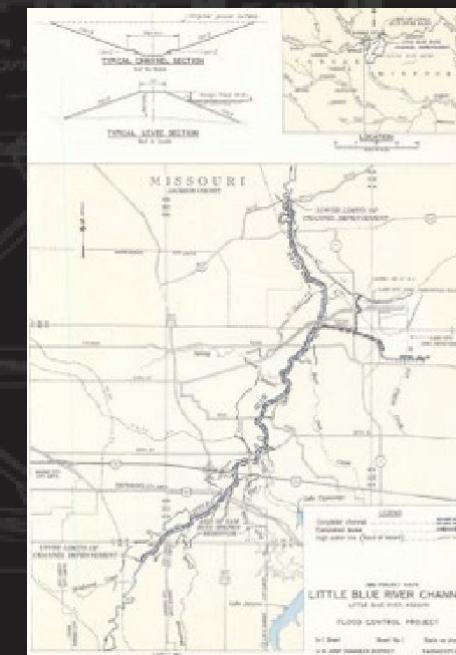
August 2025

U.S. Army Corps of Engineers,
Kansas City District



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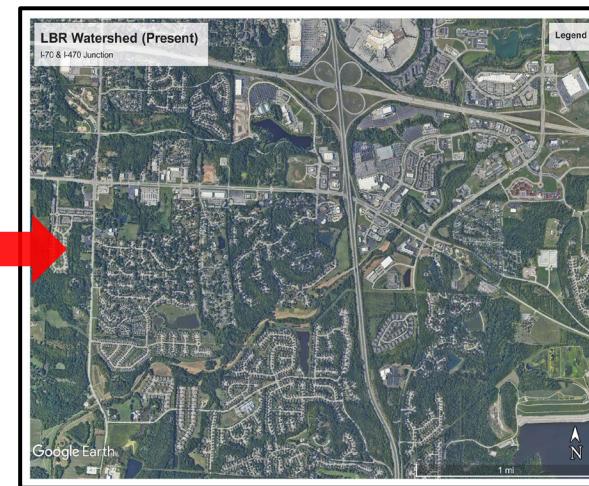


WHY IS THIS STUDY NEEDED

Problems in the Basin

Flood Risk Management:

- **Increased development** in the basin since last flood control project.
- Increased population and **value** of infrastructure, structures, properties.
- Increased **flooding** since 1961 (18% increase in 100-year flood).
- Flood **damages** in 1977, 1982, 1990, 2007, 2010, 2017, 2020, 2024.
- 1982 flood of record claimed **4 lives**.
- **Projected > \$1 billion in damages** over the next 50 years.



Ecosystem Degradation:

- Rapid **erosion** threatening the mainstem Little Blue River and public infrastructure.
- Increased **sedimentation** of aquatic habitat.
- **Loss** of habitat connectivity.
- **Decline** in acres of high valued habitat.



Flooding along Little Blue River (Aug 2017)

Opportunities:

- **Unite to form a basin coalition** to identify local interests.
- Secure Federal and non-Federal **funding**.
- Long-term **security and resiliency** for the basin.



Channel degradation along Little Blue River

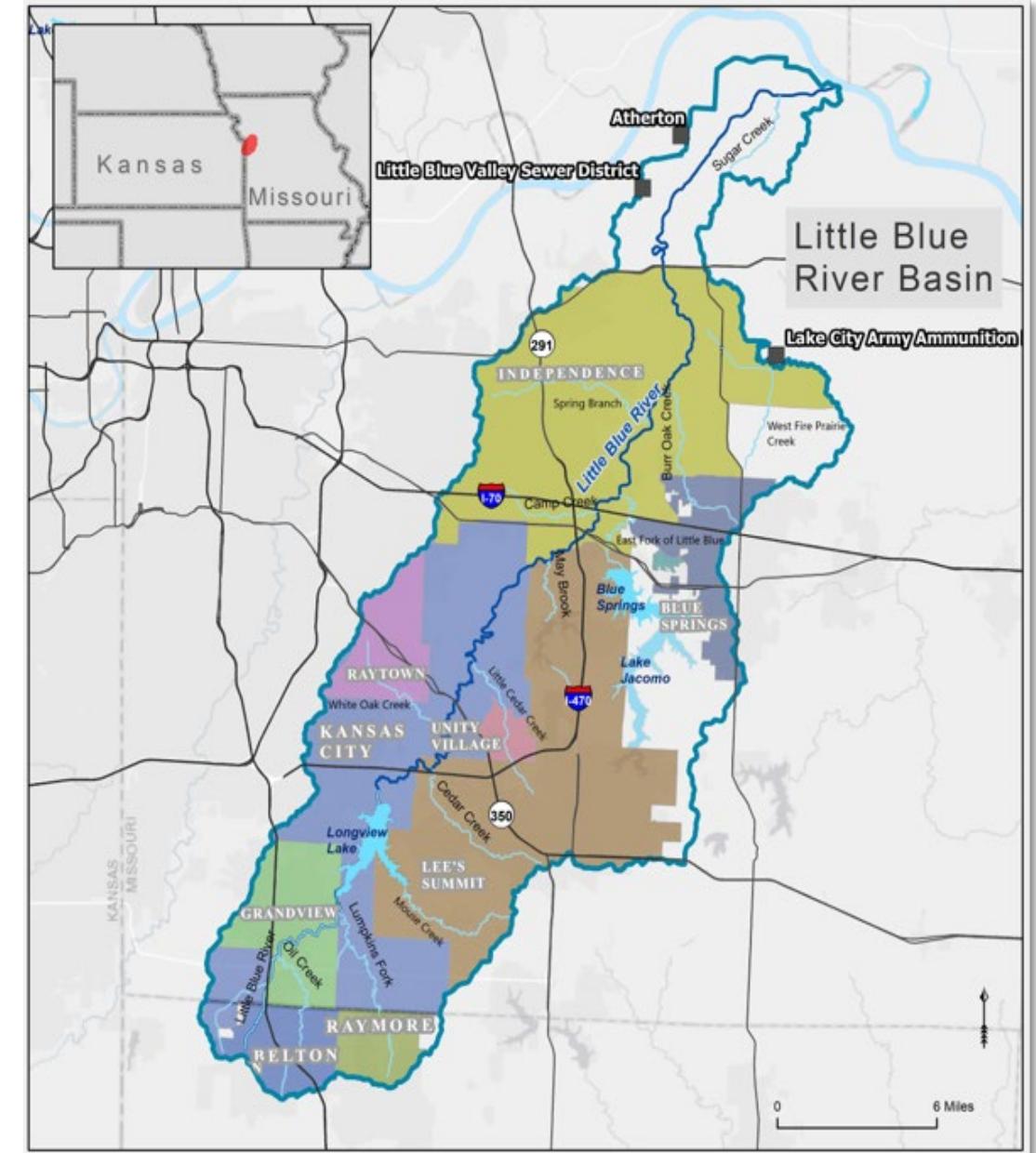


BASIN COALITION

Study Partners:

- Mid-America Regional Council
- U.S. Army Corps of Engineers
- Blue Springs, MO
- Grandview, MO
- Independence, MO
- Jackson County, MO
- Kansas City, MO
- Lee's Summit, MO
- Raytown, MO

*USACE, municipalities, and Jackson County are providing funding for the study.





PREFERRED ALTERNATIVE OVERVIEW

REACH 1 – Grandview, MO

Non-Structural Buyouts + Elevations:

- 33 Residential Buyouts
- 20 Residential Elevations
- 10 Commercial Buyouts

Restoration of an old golf course:

- 16.1 acres herbaceous plantings
- 7.9 acres of wetlands



REACH 3 – Lee's Summit, MO

Restoration of riparian corridor:

- 17.2 acres of forest plantings
- 22.5 acres herbaceous plantings
- 2.0 acres of wetlands



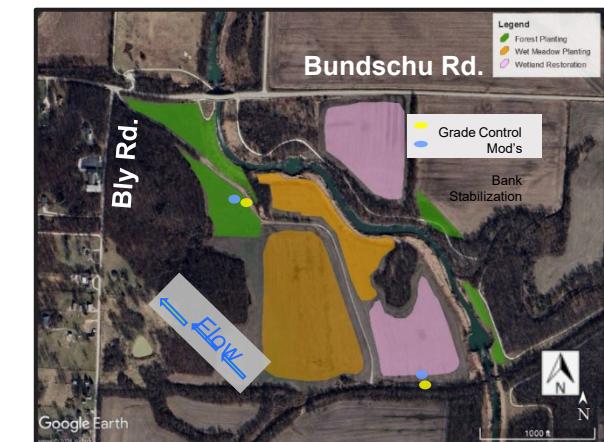
REACH 5 – Mainstem, Little Blue River, Downstream of Longview Lake

Dry Dams 3, 5a, 5b + Meander + Nonstructural

- 183 acres of ponded area
- 2,900 acre-feet ponded volume
- 5 Commercial Buyouts, 25 Residential Elevations

Restoration of riparian corridor, bank stabilization, and connectivity:

- 131.5 acres of forest plantings
- 134.4 acres herbaceous plantings
- 33.2 acres of wetlands
- 9 bank stabilization sites
- 14 grade control structure modifications





REACH 1 PREFERRED ALTERNATIVE - GRANDVIEW

Flood Risk Management

Alternatives

Alt 1: No Action

Alt 2: Non-Structural – Buyouts + Elevations

Alt 3: Dry Dams 1, 1a, & 1b (individual or in combination)

Alt 4: Dry Dam 1b



Ecosystem Restoration

Alternatives

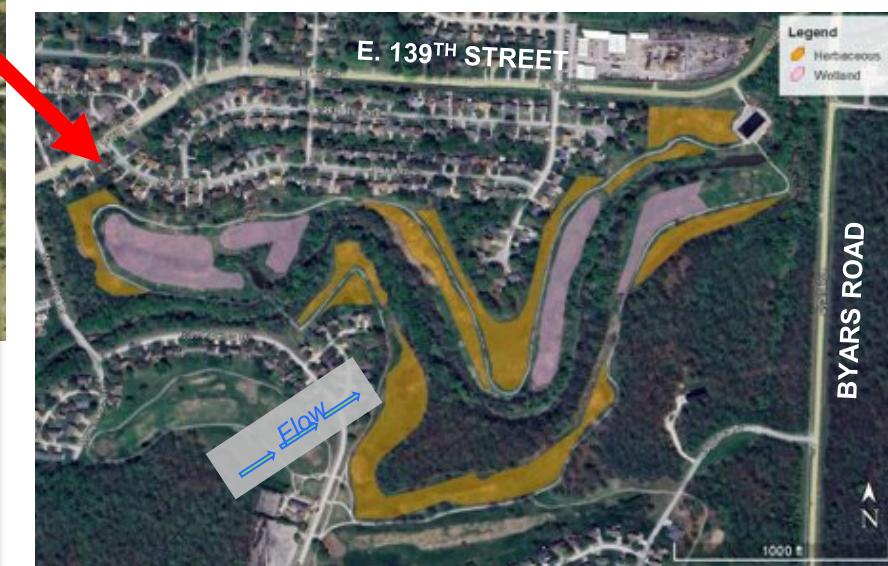
Alt R1-0: No Action

Alt R1-1: Herbaceous Plantings

Alt R1-2: Herbaceous Plantings + Wetlands*

*Herbaceous + Wetlands

Herbaceous – 16.1 acres
Wetlands – 7.9 acres





REACH 3 PREFERRED ALTERNATIVE – LEE’S SUMMIT

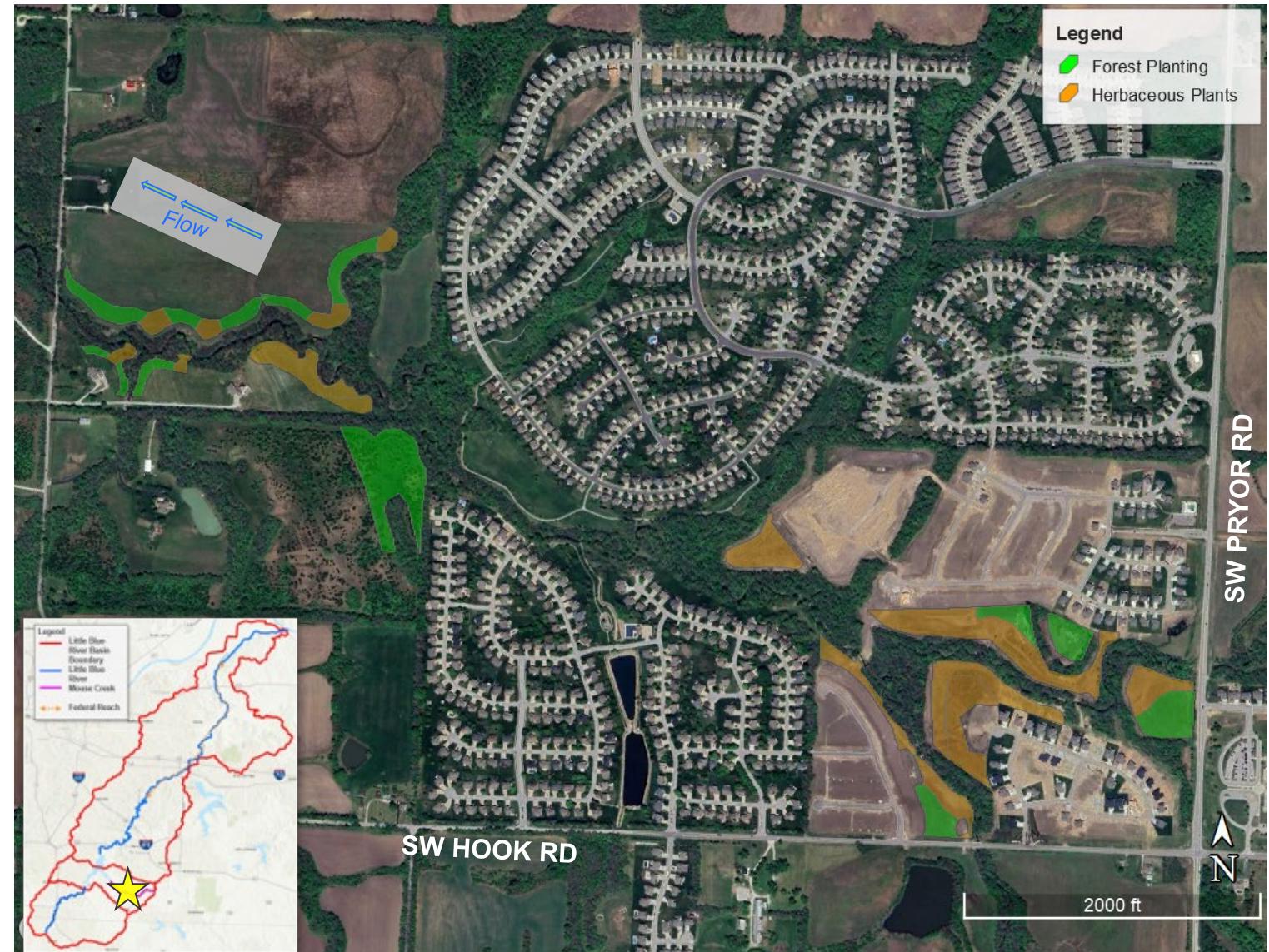
Ecosystem Restoration

Alternatives

- Alt R3-0: No Action
- Alt R3-1: Herbaceous Plantings
- Alt R3-2: Forest + Herbaceous Plantings
- Alt R3-3: Forest + Herbaceous + Wetlands*

*Forest + Herbaceous + Wetlands

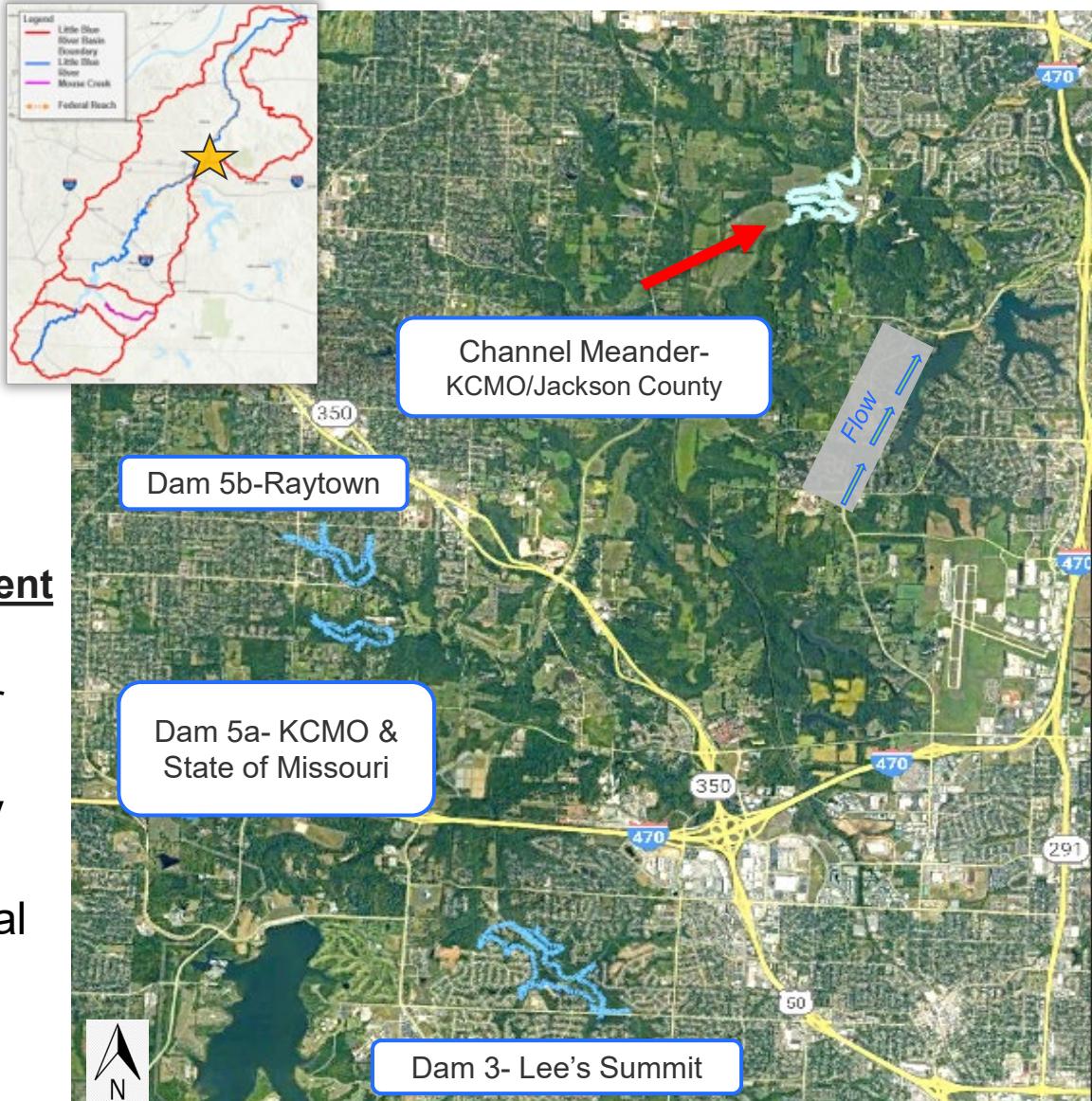
Forest – 17.2 acres
Herbaceous – 22.5 acres
Wetlands – 2.0 acres





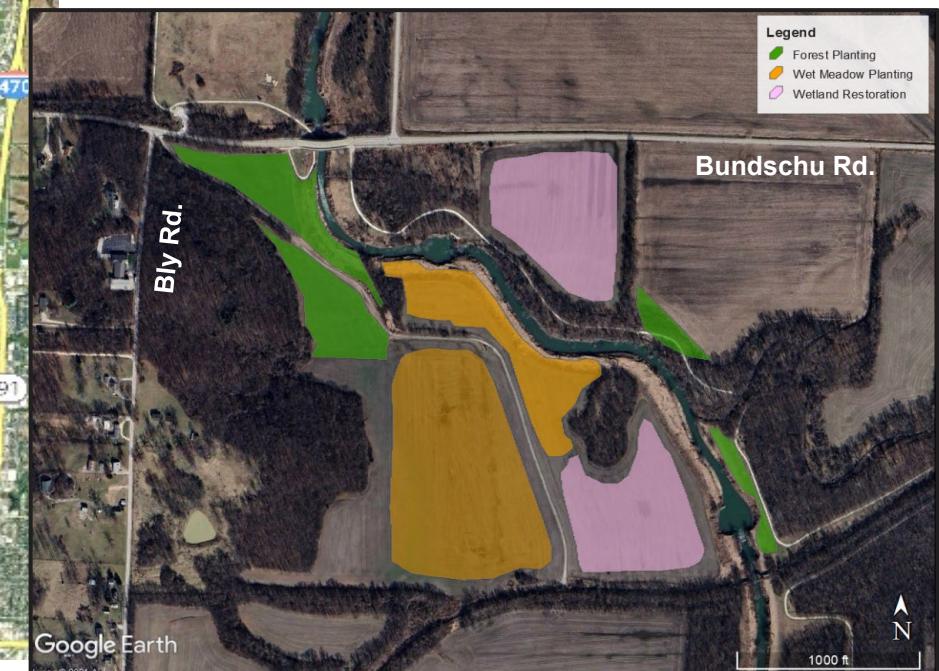
REACH 5 PREFERRED ALTERNATIVE

KANSAS CITY, JACKSON CO, RAYTOWN, STATE OF MISSOURI, LEE'S SUMMIT



Ecosystem Restoration

- 149 acres of riparian forest restored
- 173 acres of herbaceous areas restored
- 43 acres of wetlands restored
- 9 bank stabilization sites
- 14 grade control structure modifications

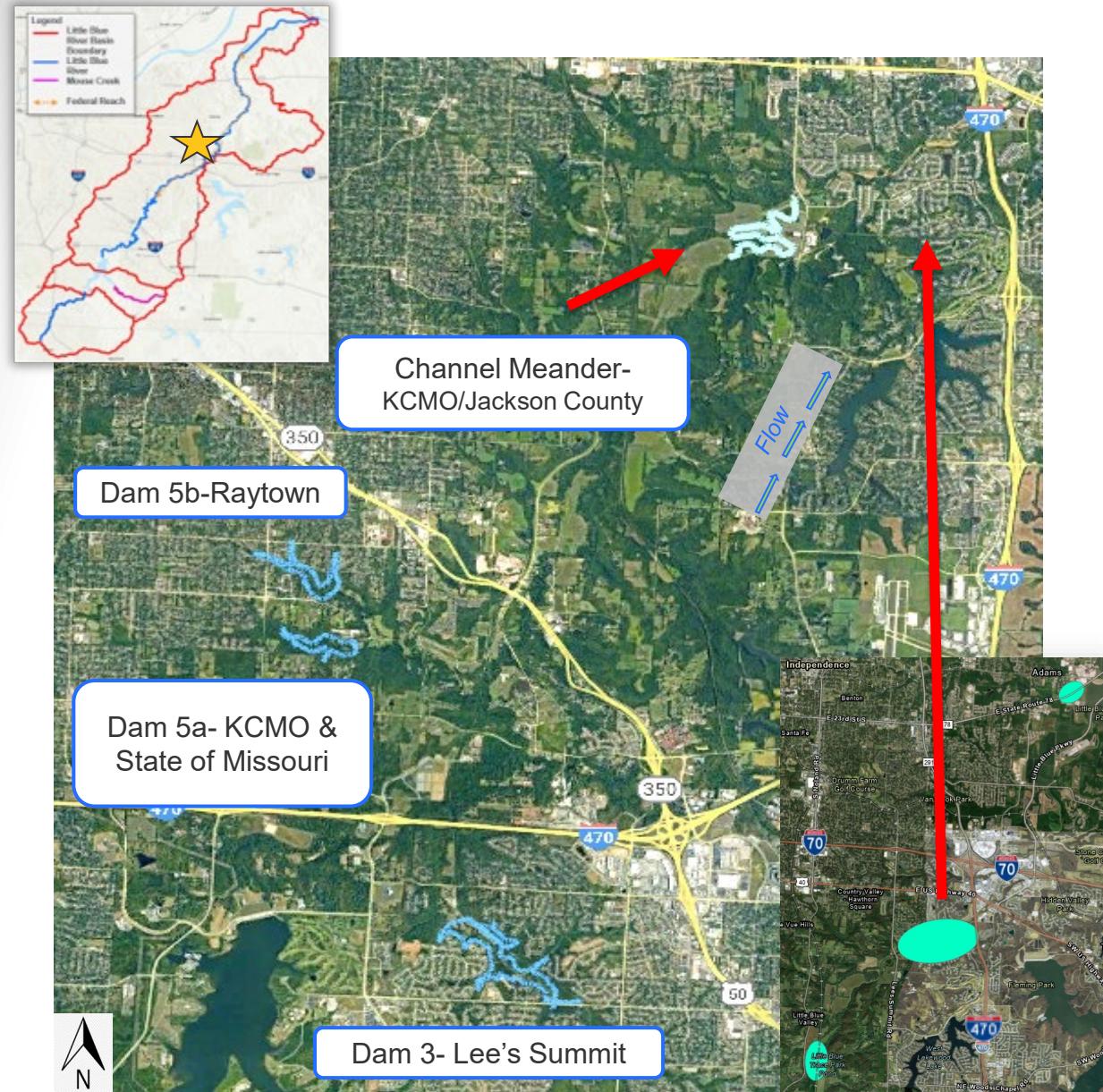


Flood Risk Management

- 3 Dry Dams
- Channel Meander Restoration
- Selected Property Buyouts
- Selected Structural Elevations



REACH 5 PREFERRED ALTERNATIVE – FLOOD RISK MGMT.



Estimated Benefits By Community				
Alternative 17: Dry Dams 3, 5a, 5b + Meander + Nonstructural (buyouts and elevations)				
Municipality	Without project Expected Annual Damages	Mean Expected Annual Damages REDUCED	Expected Annual Damages REMAINING	Percentage of Mean Expected Annual Damages reduced by community
Blue Springs	\$6,000	\$1,000	\$5,000	0.01%
Buckner	\$0	\$0	\$0	0.00%
Independence	\$19,268,000	\$10,094,000	\$9,186,000	61.21%
Jackson County	\$1,122,000	\$712,000	\$410,000	4.32%
Kansas City	\$1,039,000	\$408,000	\$631,000	2.48%
Lee's Summit	\$7,669,000	\$5,190,000	\$2,482,000	31.48%
Raytown	\$209,000	\$84,000	\$124,000	0.51%
TOTAL	\$29,312,000	\$16,490,000	\$12,837,000	100.00%

- Eight flood events are assigned a probability of occurrence between 0 and 100 percent. Each event has estimated consequences based on first floor elevation and the depth of flooding. As event severity (consequence) increases, the probability of those events occurring decreases.
- Those annual losses represent a societal cost of flooding that could be mitigated.



DRY DAM 3 – LEE'S SUMMIT, MO

Anticipated Cost = \$91,000,000

Land Acquisition Area = 82 acres

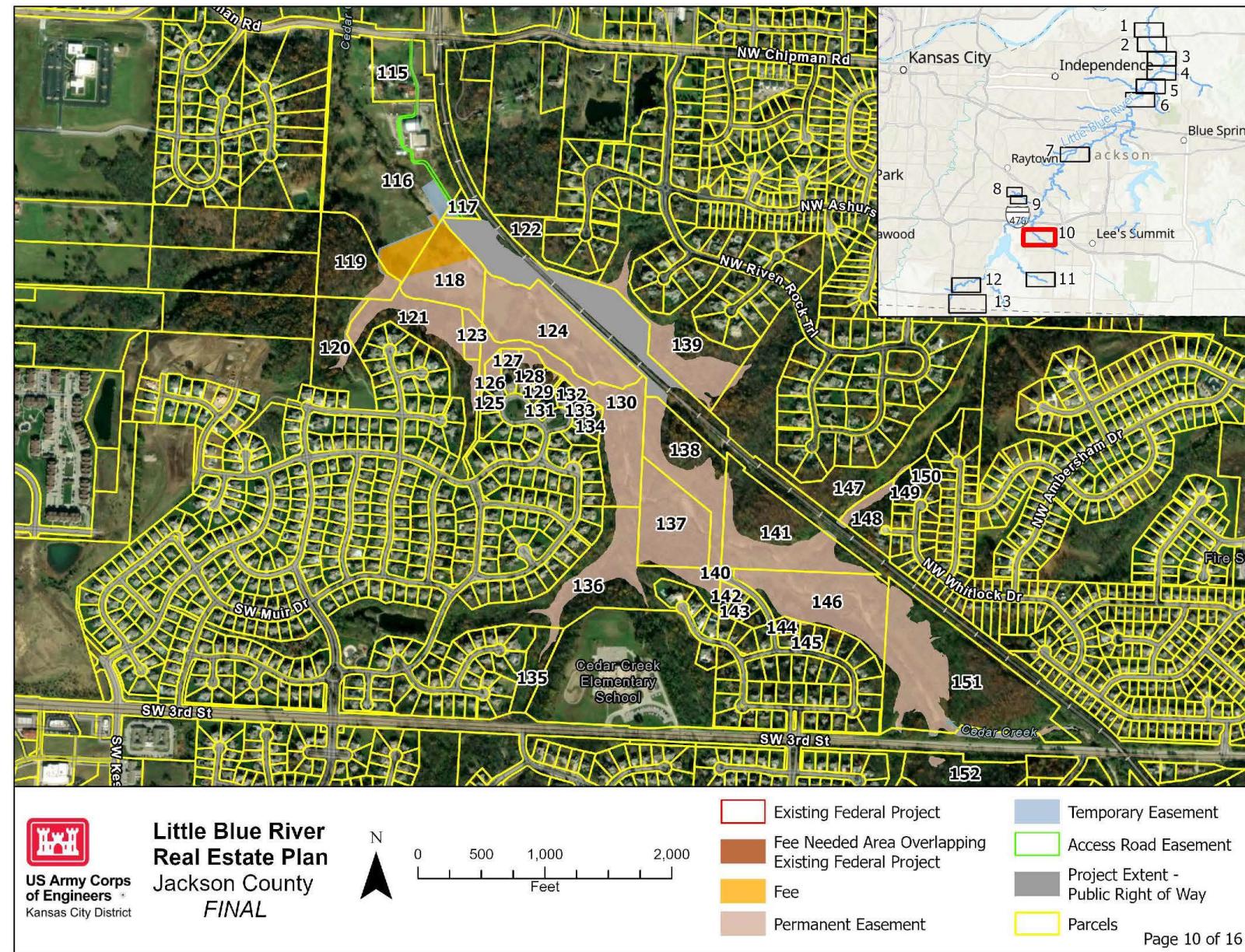
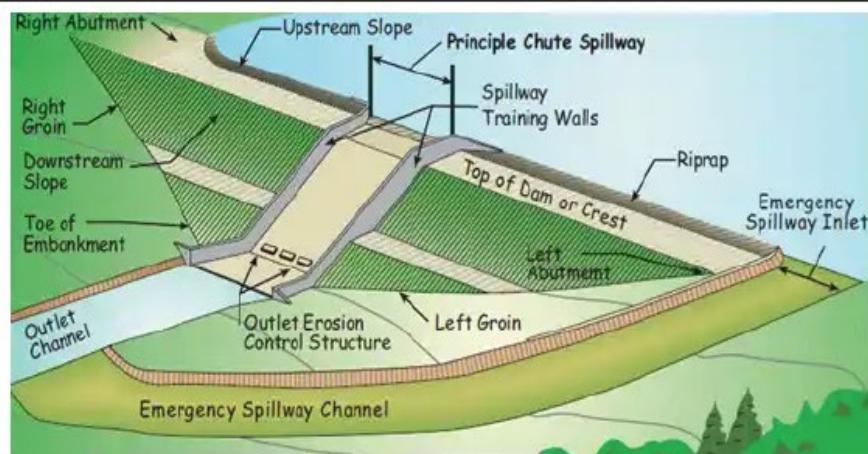
Land Acquisition Cost = \$3,900,000

Impacted Parcels :

- 38 Private Ownership Parcels

Design Specifications:

- Designed for 100 yr. event
- Height: ~44 ft.
- Length: 896 ft.
- Storage at Spillway Crest: 2,295 ac-ft.





DRY DAM 5A – KANSAS CITY, MO & STATE OF MO

Anticipated Cost = \$58,000,000

Land Acquisition Area = 35 acres

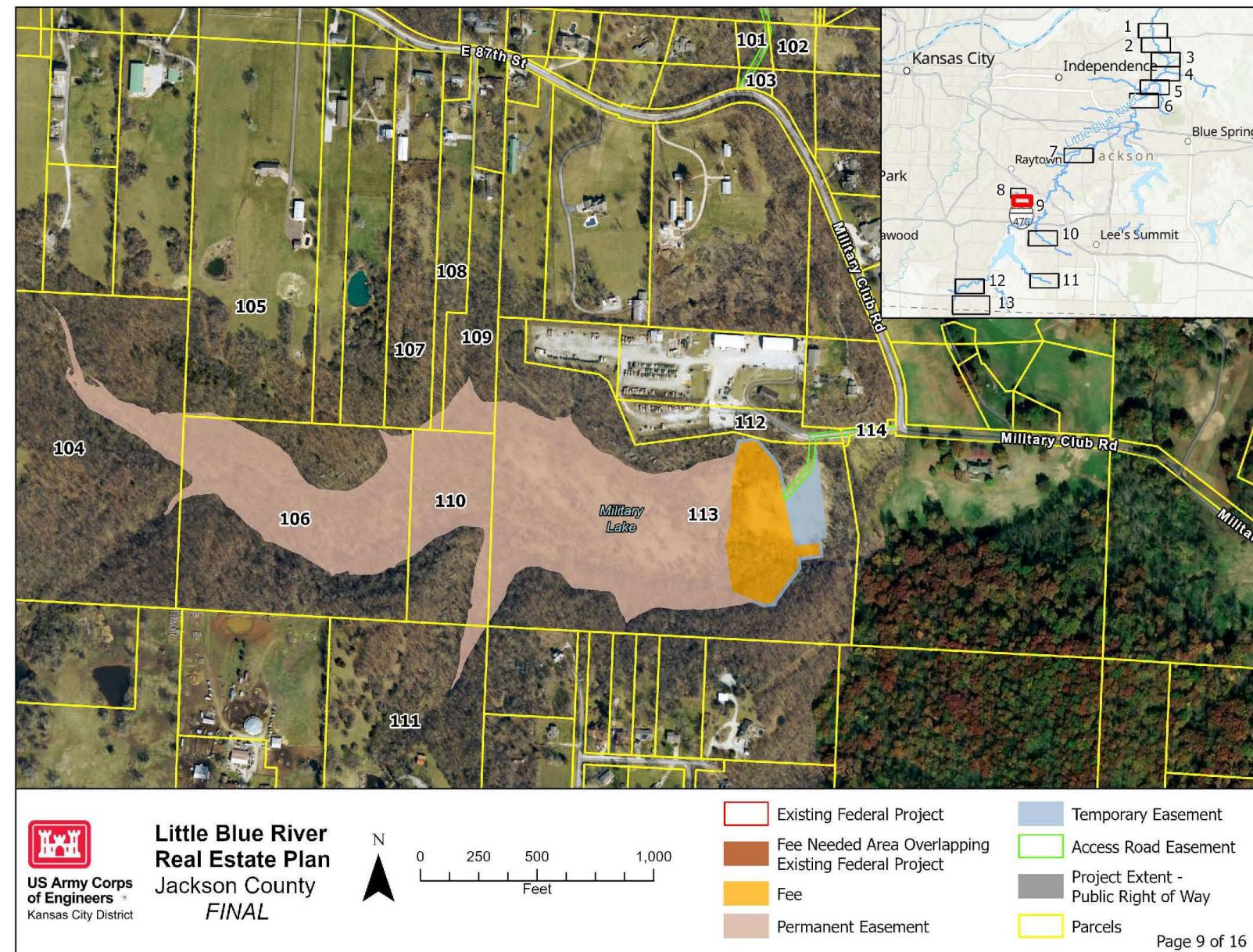
Land Acquisition Cost = \$441,000

Impacted Parcels:

- 4- State of MO Parcels
- 7 - Private Ownership Parcels

Design Specifications:

- Designed for 100 yr. event
- Height: ~43 ft.
- Length: 650 ft.
- Storage at Spillway Crest: 455 ac-ft.





DRY DAM 5B – RAYTOWN, MO

Anticipated Cost = \$63,000,000

Land Acquisition Area = 40 acres

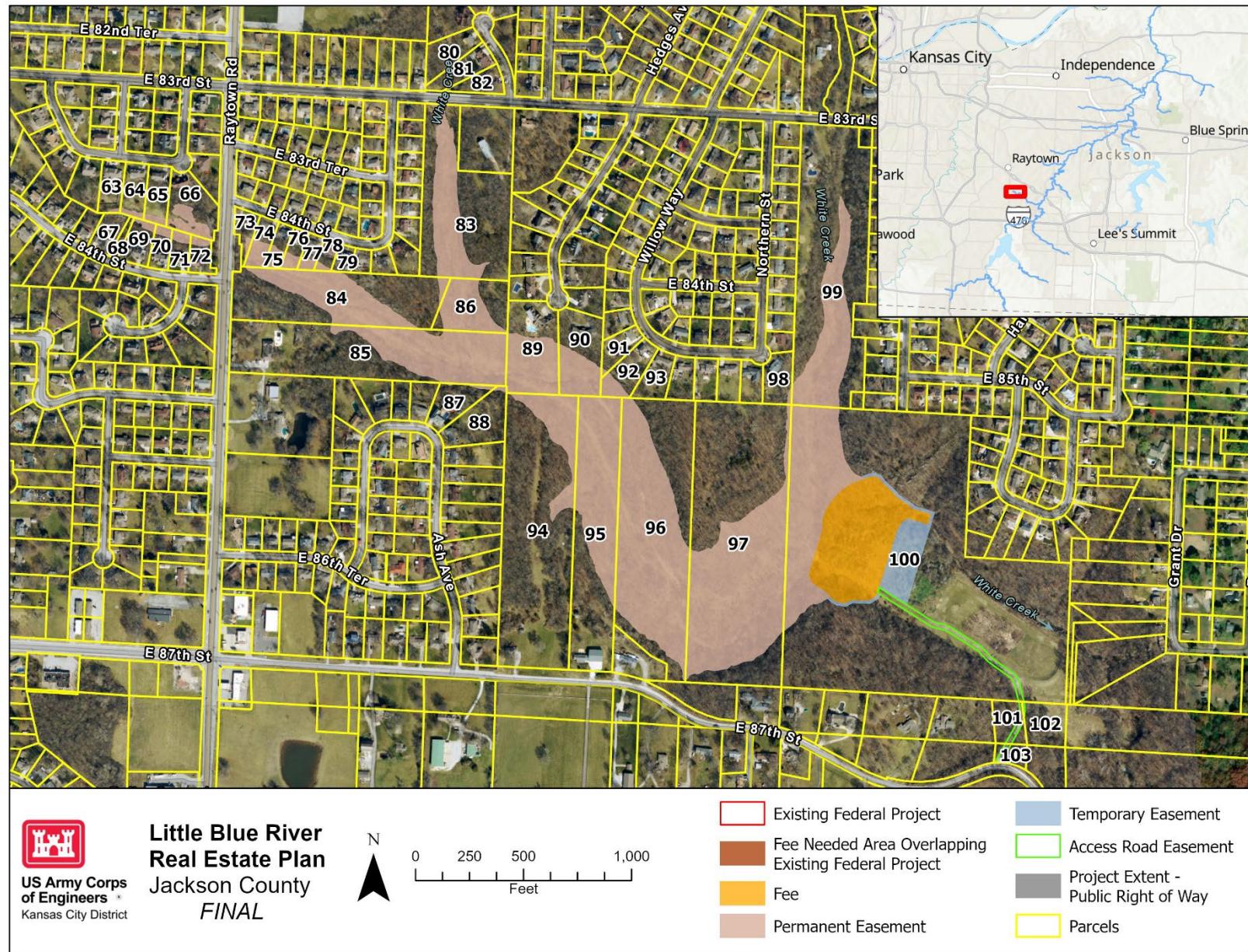
Land Acquisition Cost = \$504,000

Impacted Parcels:

- 4 City of Raytown Parcels
- 37 Private Ownership Parcels

Design Specifications:

- Designed for 100 yr. event
- Height: ~55 ft.
- Length: 567 ft.
- Storage at Spillway Crest: 750 ac-ft.





MEANDER RESTORATION- JCMO & KCMO

Anticipated Cost = \$36,000,000

Land Acquisition Area = 122 acres

Land Acquisition Cost = \$1,300,000

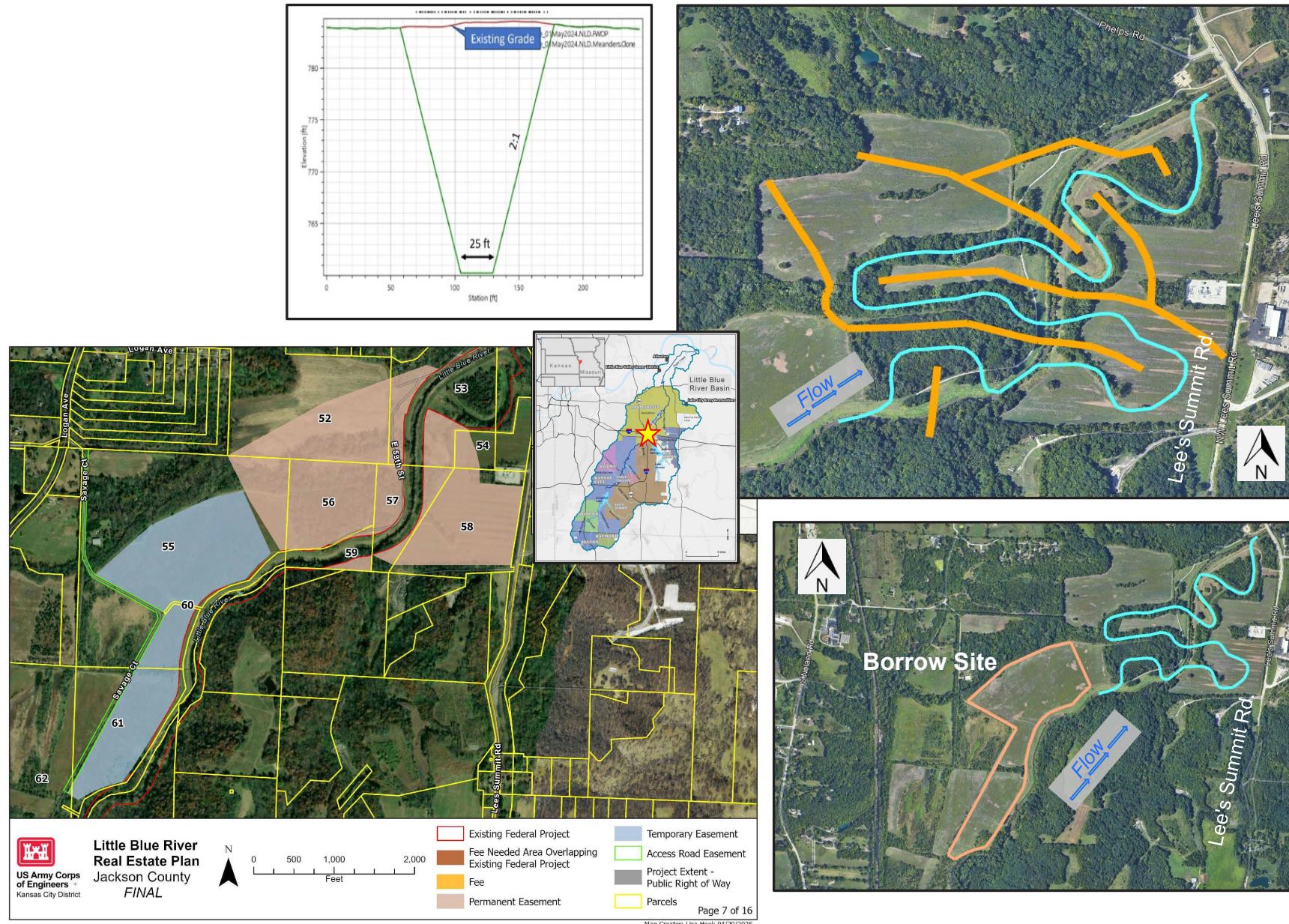
Impacted Parcels:

- 26 acres - Jackson County, MO
- 96 acres - Kansas City, MO

Design Specifications:

- Sized to existing channel dimensions
- Length: 1.4 miles
- Training berms/swales
- Supports wetland restoration & recreation features

Note: Borrow site is located on land owned by The Nature Conservancy





NON-FEDERAL SPONSOR RESPONSIBILITIES

Flood Risk Management Costs:

- **Reach 1, River Oaks, Grandview** = \$27,690,000
- **Reach 5, Mainstem, Federal Channel** = \$258,780,000

Grand Total = \$286,470,000

Ecosystem Restoration Costs:

- **Reach 1, River Oaks, Grandview** = \$2,877,000
- **Reach 3, Mouse Creek, Lee's Summit** = \$4,039,000
- **Reach 5, Mainstem, Federal Channel** = \$54,400,000

Grand Total = \$61,316,000

Total Project Cost = \$347,786,000

- Federal (65%) = \$226,060,900
- **Non-Federal (35%) = \$121,725,100**

**Estimates are subject to change*

Local Government(s) Responsibilities:

- Provide all Lands, Easements, Relocations, Rights-of-Way, and Disposal Areas (LERRDs)
 - Willing to meet fee acquisition and relocation requirements for all project features
 - Willing and able to use Eminent Domain if needed to acquire LERRDs
- Maintain project features with required long-term Operations, Maintenance, Repair, Replacement, and Rehabilitation (OMRR&R)
- Clean up, remediate, and or dispose of Hazardous, Toxic, and Radioactive Waste (HTRW)
- Letter of Intent and self-certification of financial capability for Implementation Sponsor(s) for PED and Construction phases

Path Forward

Important Future Dates

- 30 May 2025 – Identify the Tentatively Selected Plan (TSP)
- **2 Sep 2025** – Release Draft Report with TSP for public review and comment, 30 days
- **Late Sep 2025** – Corps-organized public meeting to receive public comment
 - **Partner participation in Public Review process and meetings**
- **2 Oct 2025** – Conclusion of 30-day comment period
- Jul 2026 – Agency Decision Milestone (ADM)
 - **Receive Partner concurrence on the Recommended Plan**
 - **Identify Non-Federal Sponsor(s) for execution of Design & Construction phases**
- Mar 2027 – Final Report
- Sep 2027 – Chief's Report with USACE Headquarters

FOR ADDITIONAL INFORMATION, COMMENTS ,OR
QUESTIONS, PLEASE CONTACT:

TOM JACOBS, TJACOBS@MARC.ORG, 816-701-8352



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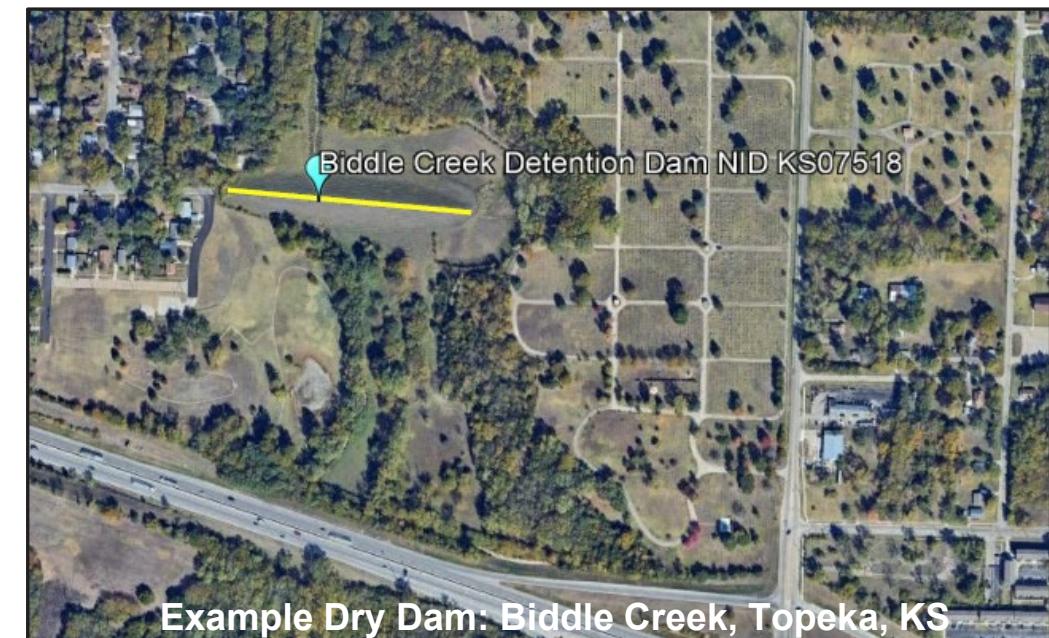
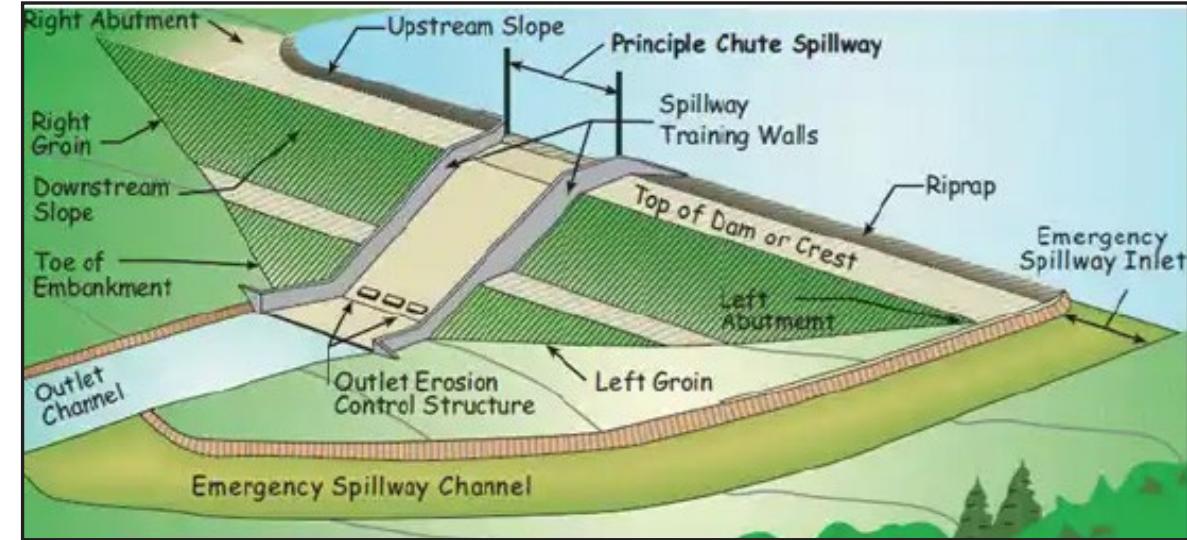
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Backup Slides



DEFINITION OF DRY DAM

- What is a Dry Dam?
 - Passes flow at baseflow conditions
 - Captures and slowly releases flood events
 - Dry majority of time
- Designed to operate at 100 yr. event
- Events greater than the 100 year (greater events exit through emergency spillway.



Return Period (years)	Probability (annual exceedance probability)	Chance of occurrence
2	0.5	50%
10	0.1	10%
25	0.04	4%
50	0.02	2%
100	0.01	1%
500	0.002	0.2%
1000	0.001	0.1%



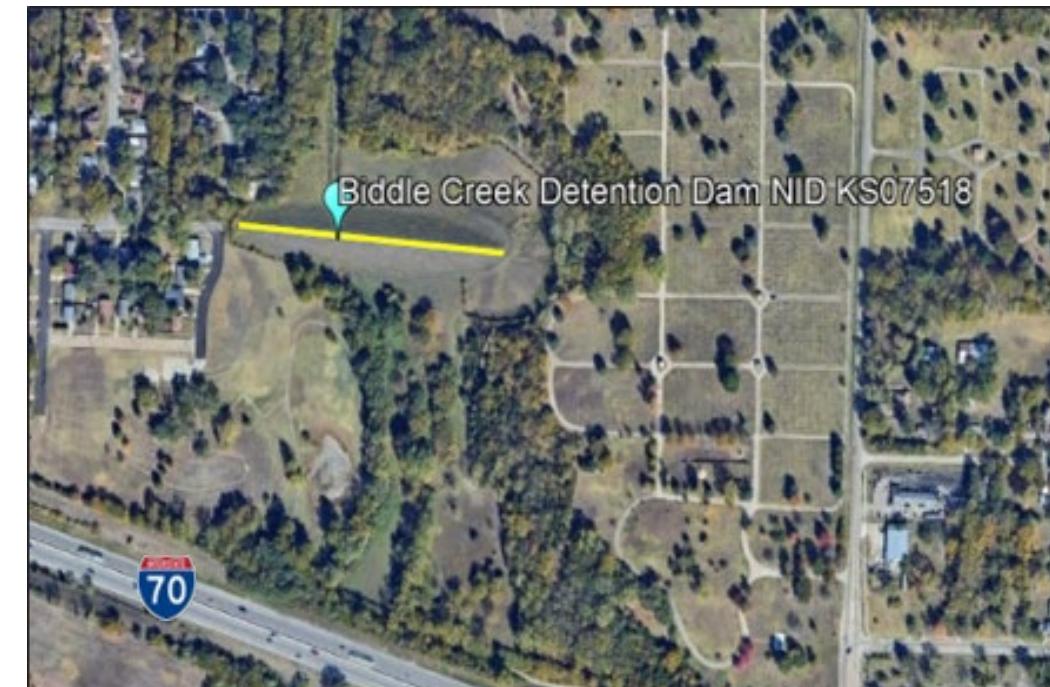
EXAMPLES OF REGIONAL DAMS



Note: Unity Lake #2 has a permanent pool. The proposed dams for the LBR Study will be dry dams.

Left: Unity Lake #2, Regional Detention Basin in Unity Village, Jackson County, MO.
Height: 52 feet.
Length: 450 feet.
Storage: 618 ac-ft.

Bottom: Dry Dam on Biddle Creek, Topeka, KS





REACH 5 PREFERRED ALTERNATIVE - RESTORATION

INDEPENDENCE, JACKSON COUNTY

Riparian Corridor Restoration (forest, herbaceous, wetlands):

- R.D. Mize Road to Hwy 78 ~85 acres
- Hwy 78 to Bundschu Road ~100 acres
- Bundschu Road to Blue Mills ~90 acres
- Includes bank stabilization at 9 sites

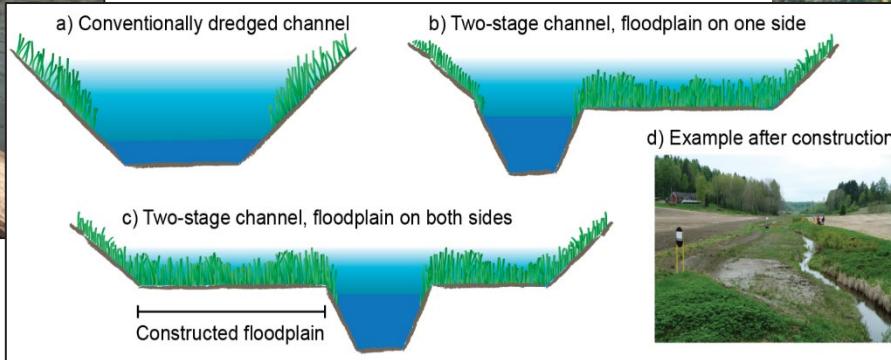
In-Stream Aquatic Restoration (grade control modifications):

- Riffle habitat and stream connectivity
- Modify 14 existing grade control structures.

Grade Control Structure Modifications

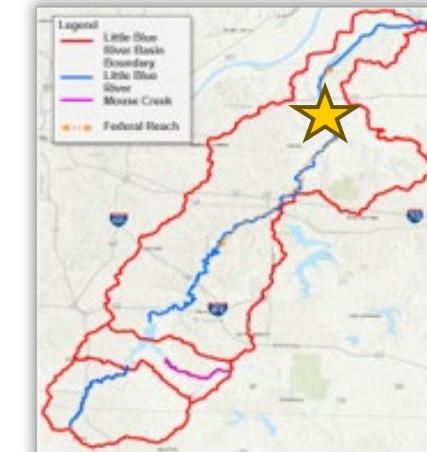
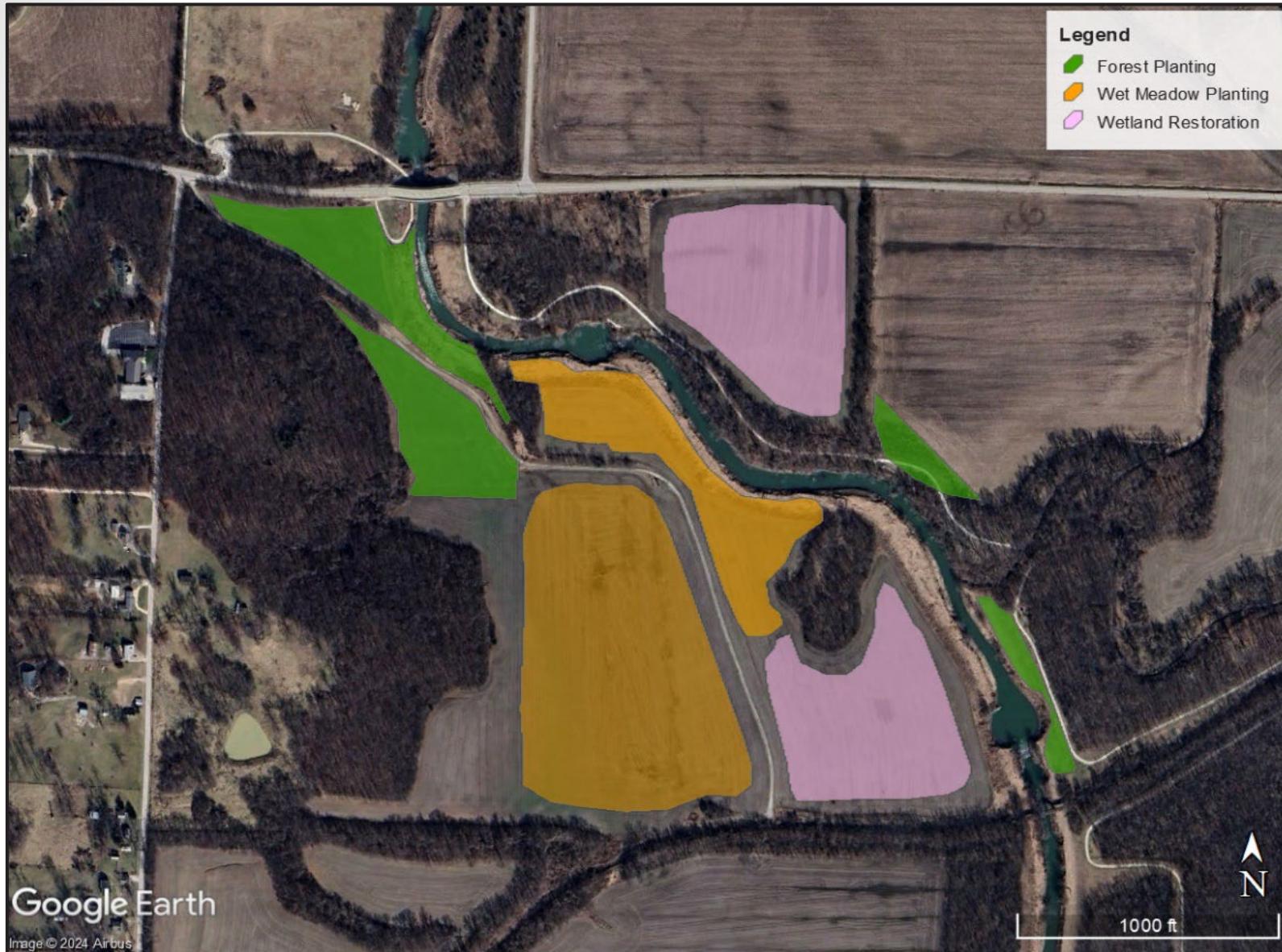


Floodplain Benching Schematic





ECOSYSTEM RESTORATION – INDEPENDENCE, MO



Forest Plantings = Green
Herbaceous = Orange
Wetlands = Pink

Ecosystem Restoration Plan:

- Acres Restored: 100 acres
- Project Cost: \$9,200,000



USACE PROJECT DEVELOPMENT LIFE CYCLE

