Indiana Water Summit 2024

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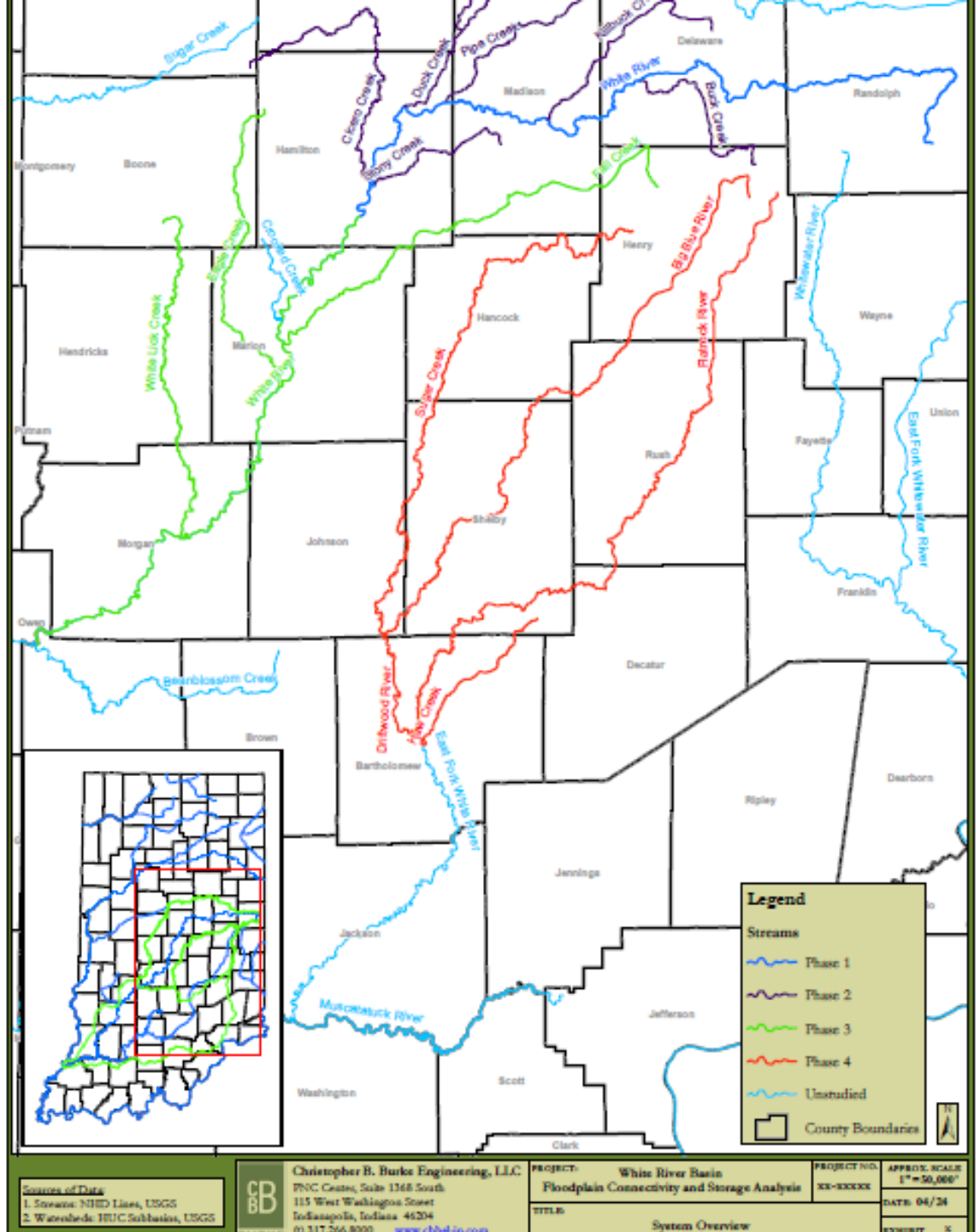
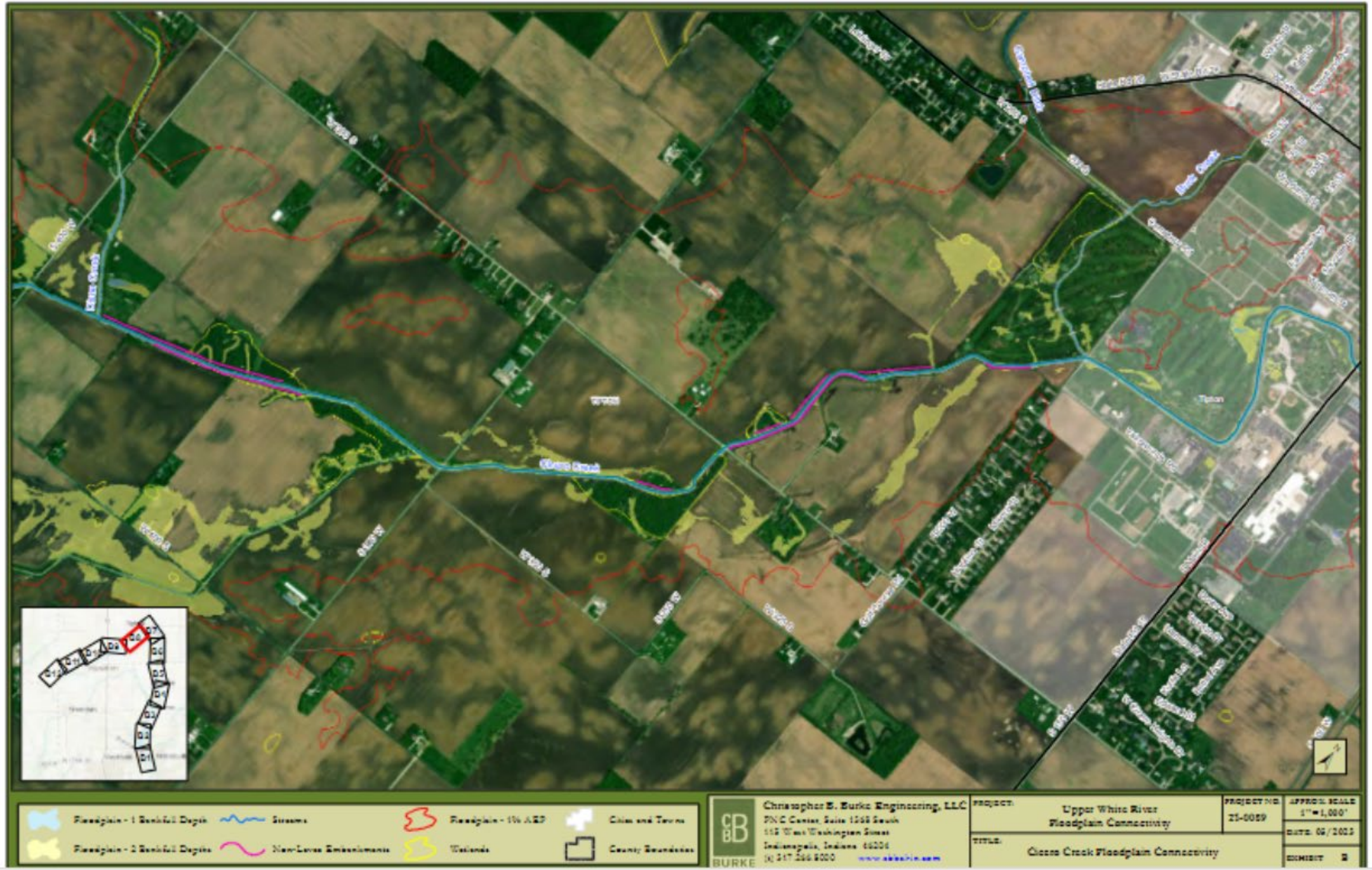
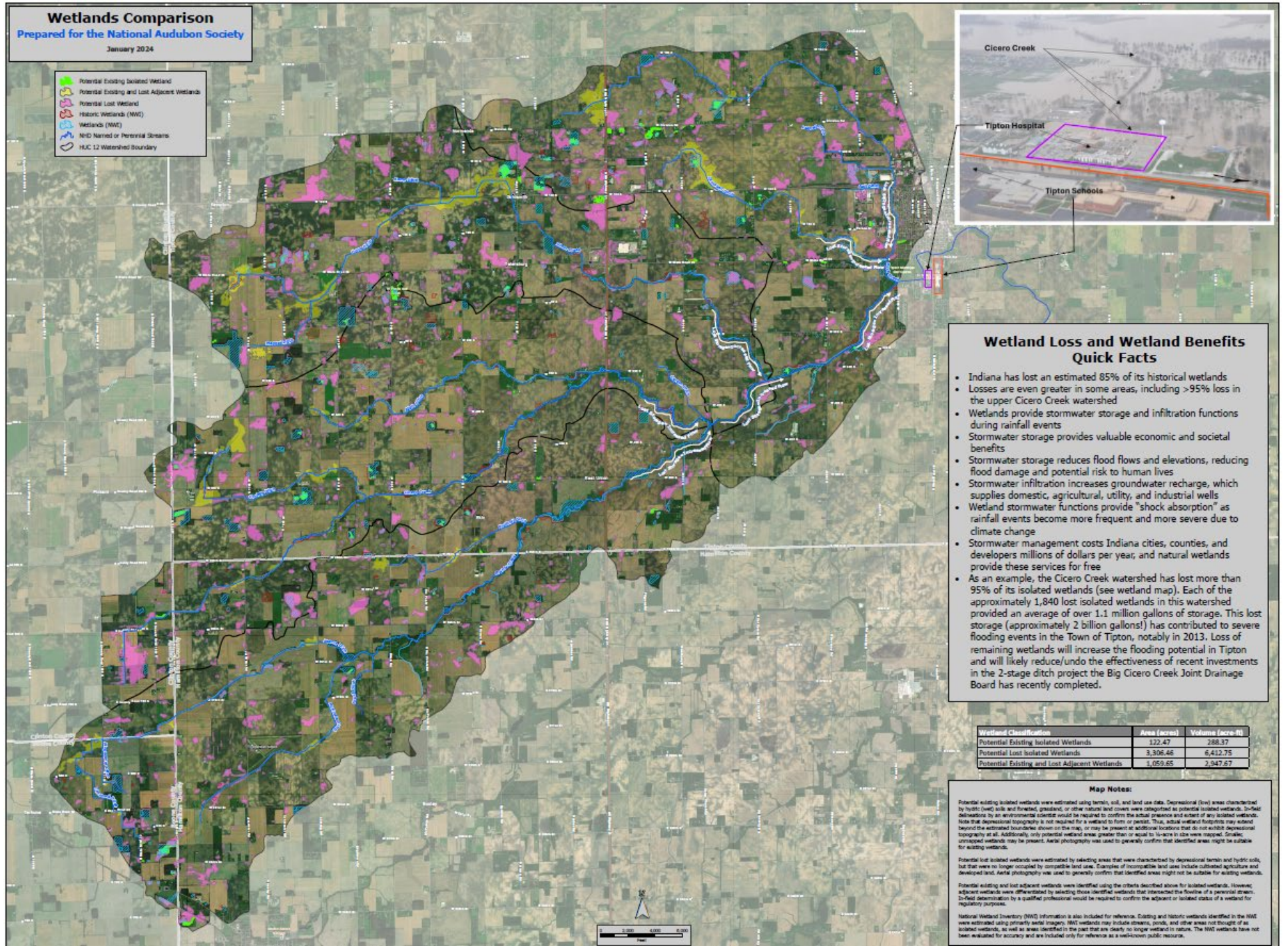

Sugar Creek
Duck Creek
Pipe Creek
Killbuck Creek
Delaware
Madison
White River
Randolph
Buck Creek
Cicero Creek
Stony Creek
Hamilton
Montgomery
Boone
Fall Creek
Henry
Big Blue River
Whitewater River
Hancock
Wayne
Hendricks
White Lick Creek
Eagle Creek
Marion
Carroll Creek
White River
Sugar Creek
Rattlesnake River
Union
Putnam
Fayette
East Fork Whitewater River
Rush
Shelby
Morgan
Johnson
Franklin
Owen
Decatur
Beanblossom Creek
Driftwood River
Flat Creek
Brown
Bartholomew
East Fork White River
Dearborn
Ripley
Jennings
Jackson
Muscatatuck River
Jefferson
Washington
Scott
Clark
Legend
Streams
Phase 1
Phase 2
Phase 3
Phase 4
Unstudied
County Boundaries
N
Sources of Data
1. Streams: NHD Lines, USGS
2. Watersheds: HUC Subbasins, USGS
Christopher B. Burke Engineering, LLC
PNC Center, Suite 1368 South
115 West Washington Street
Indianapolis, Indiana 46204
PROJECT: White River Basin
Floodplain Connectivity and Storage Analysis
PROJECT NO. XX-XXXXX
APPROX. SCALE 1" = 50,000'
DATE: 04/24
TITLE: System Overview
EXHIBIT X


Floodplain - 1 Foot Fill Depth
Floodplain - 2 Foot Fill Depth
Streams
Non-Levee Embankments
Floodplain - 1% ACE
Wetlands
Cities and Towns
County Boundaries
Christopher B. Burke Engineering, LLC
PNC Center, Suite 1250 South
115 West Washington Street
Indianapolis, Indiana 46204
(p) 317 266 9200 www.cbbinc.com
BURKE
PROJECT: Upper White River Floodplain Connectivity
PROJECT NO. 21-0089
APPROX. SCALE 1" = 1,000'
DATE: 05/2023
TITLE: Cicero Creek Floodplain Connectivity
SHEET 2

Wetlands Comparison

Prepared for the National Audubon Society

January 2024



Wetland Loss and Wetland Benefits Quick Facts

- Indiana has lost an estimated 85% of its historical wetlands
- Losses are even greater in some areas, including >95% loss in the upper Cicero Creek watershed
- Wetlands provide stormwater storage and infiltration functions during rainfall events
- Stormwater storage provides valuable economic and societal benefits
- Stormwater storage reduces flood flows and elevations, reducing flood damage and potential risk to human lives
- Stormwater infiltration increases groundwater recharge, which supplies domestic, agricultural, utility, and industrial wells
- Wetland stormwater functions provide "shock absorption" as rainfall events become more frequent and more severe due to climate change
- Stormwater management costs Indiana cities, counties, and developers millions of dollars per year, and natural wetlands provide these services for free
- As an example, the Cicero Creek watershed has lost more than 95% of its isolated wetlands (see wetland map). Each of the approximately 1,840 lost isolated wetlands in this watershed provided an average of over 1.1 million gallons of storage. This lost storage (approximately 2 billion gallons!) has contributed to severe flooding events in the Town of Tipton, notably in 2013. Loss of remaining wetlands will increase the flooding potential in Tipton and will likely reduce/undo the effectiveness of recent investments in the 2-stage ditch project the Big Cicero Creek Joint Drainage Board has recently completed.

Wetland Classification	Area (acres)	Volume (acre-ft)
Potential Existing Isolated Wetlands	122.47	288.37
Potential Lost Isolated Wetlands	3,306.46	6,412.75
Potential Existing and Lost Adjacent Wetlands	1,059.65	2,947.67

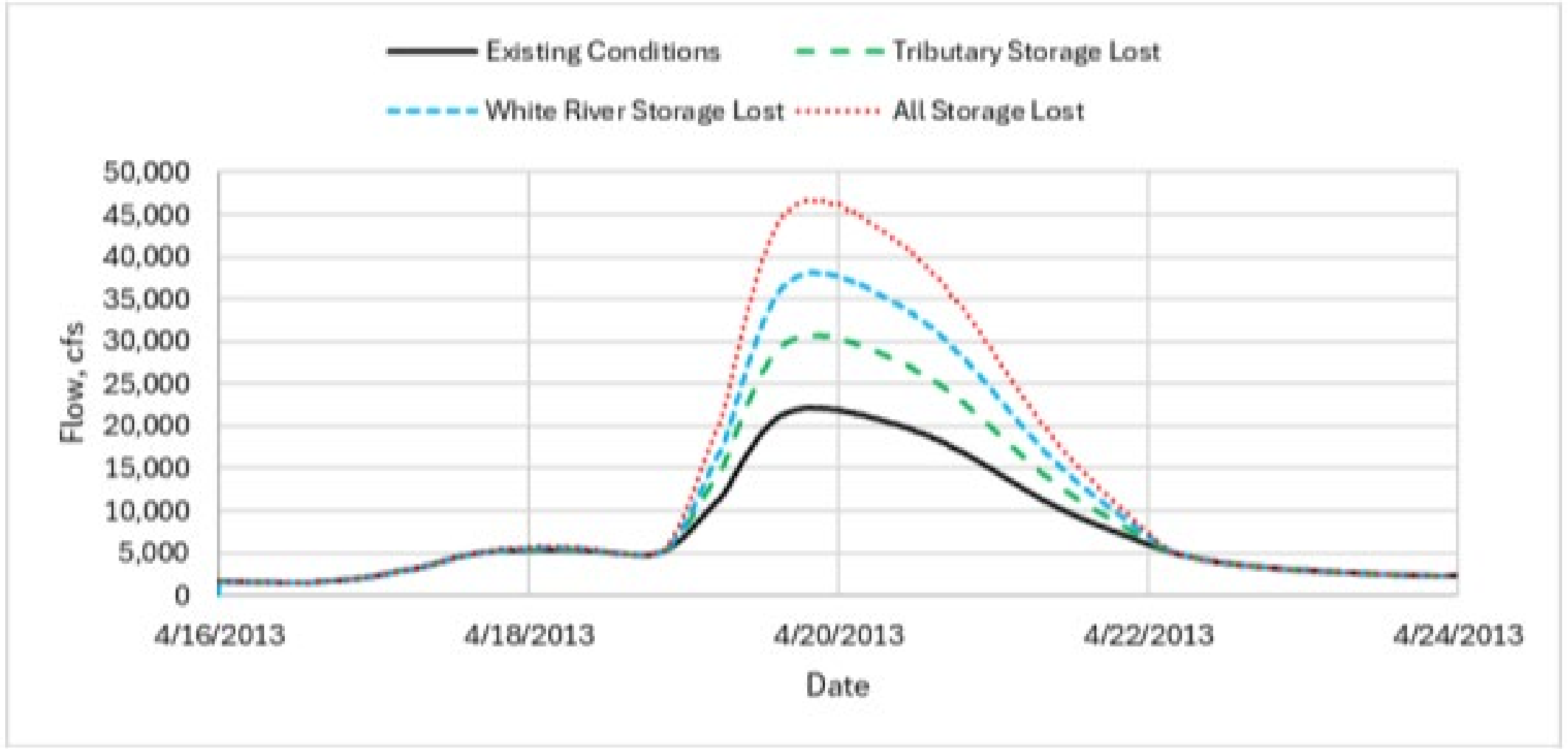
Map Notes:

Potential existing isolated wetlands were estimated using terrain, soil, and land use data. Depressional (low) areas characterized by hydric (wet) soils and forested, grassland, or other natural land covers were categorized as potential isolated wetlands. In-field delineations by an environmental scientist would be required to confirm the actual presence and extent of any isolated wetlands. Note that depressional topography is not required for a wetland to form or persist. Thus, actual wetland footprints may extend beyond the estimated boundaries shown on the map, or may be present at additional locations that do not exhibit depressional topography at all. Additionally, only potential wetland areas greater than or equal to ¼-acre in size were mapped. Smaller, unmapped wetlands may be present. Aerial photography was used to generally confirm that identified areas might be suitable for existing wetlands.

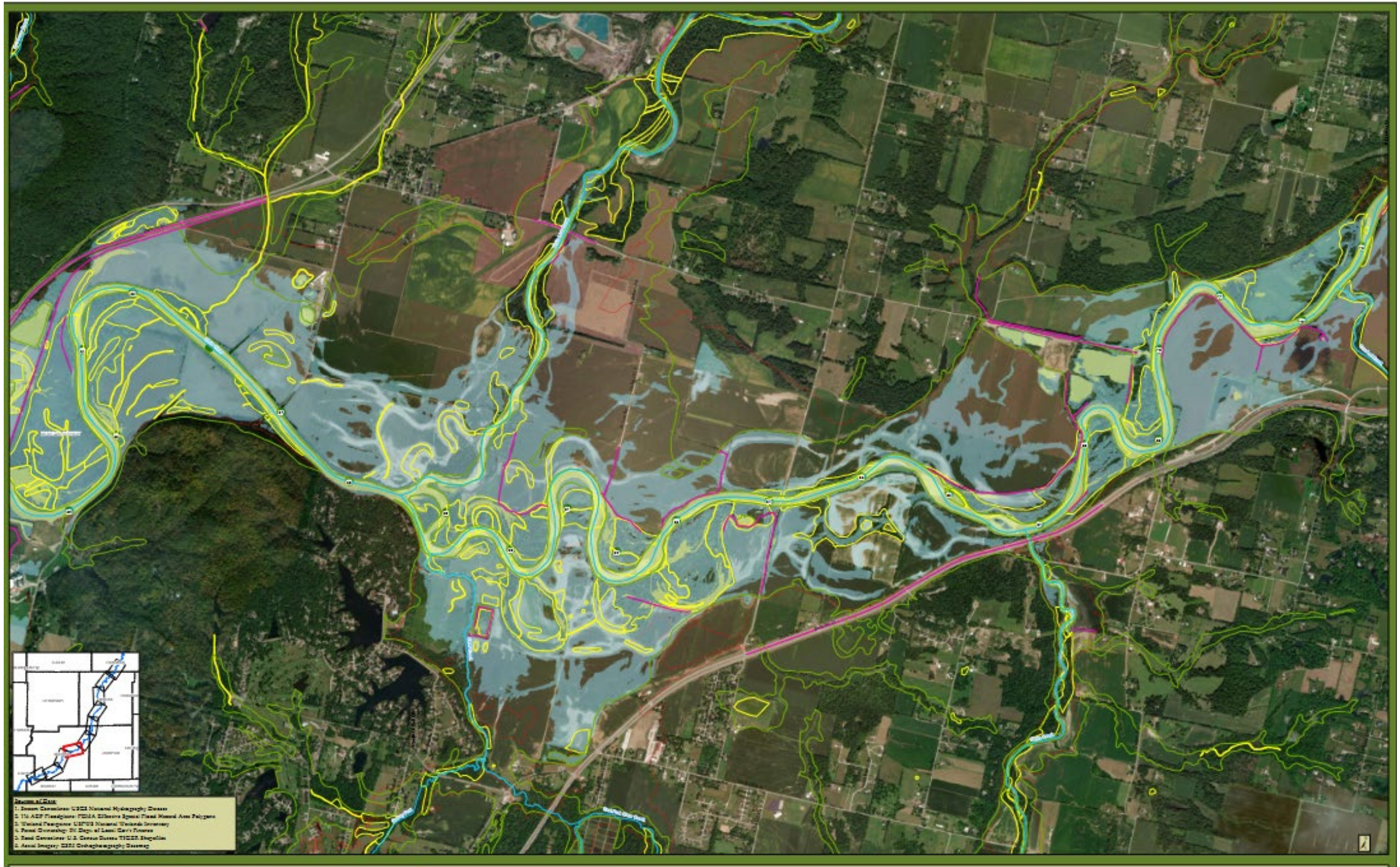
Potential lost isolated wetlands were estimated by selecting areas that were characterized by depressional terrain and hydric soils, but that were no longer occupied by compatible land uses. Examples of incompatible land uses include cultivated agriculture and developed land. Aerial photography was used to generally confirm that identified areas might not be suitable for existing wetlands.

Potential existing and lost adjacent wetlands were identified using the criteria described above for isolated wetlands. However, adjacent wetlands were differentiated by selecting those identified wetlands that intersected the flowline of a perennial stream. In-field determination by a qualified professional would be required to confirm the adjacent or isolated status of a wetland for regulatory purposes.

National Wetland Inventory (NWI) information is also included for reference. Existing and historic wetlands identified in the NWI were estimated using primarily aerial imagery. NWI wetlands may include streams, ponds, and other areas not thought of as isolated wetlands, as well as areas identified in the past that are clearly no longer wetland in nature. The NWI wetlands have not been evaluated for accuracy and are included only for reference as a well-known public resource.



Effects of Lost Storage During a 10-year Flood on White River at Connor Prairie (Hahus, Burke, 2024)



Controlled drainage, Fairholme Farms near Lewisville, IN (TNC)

Little River, Huntington County, IN

Thank you!

- The Nature Conservancy
- The Sam Shine Foundation
- Indiana Department of Natural Resources
- White River Alliance