



WABASH RIVER  
ENHANCEMENT CORPORATION

# WABASH RIVER GREENWAY CORRIDOR Master Plan

WABASH RIVER  
ENHANCEMENT CORPORATION

Kimley»Horn

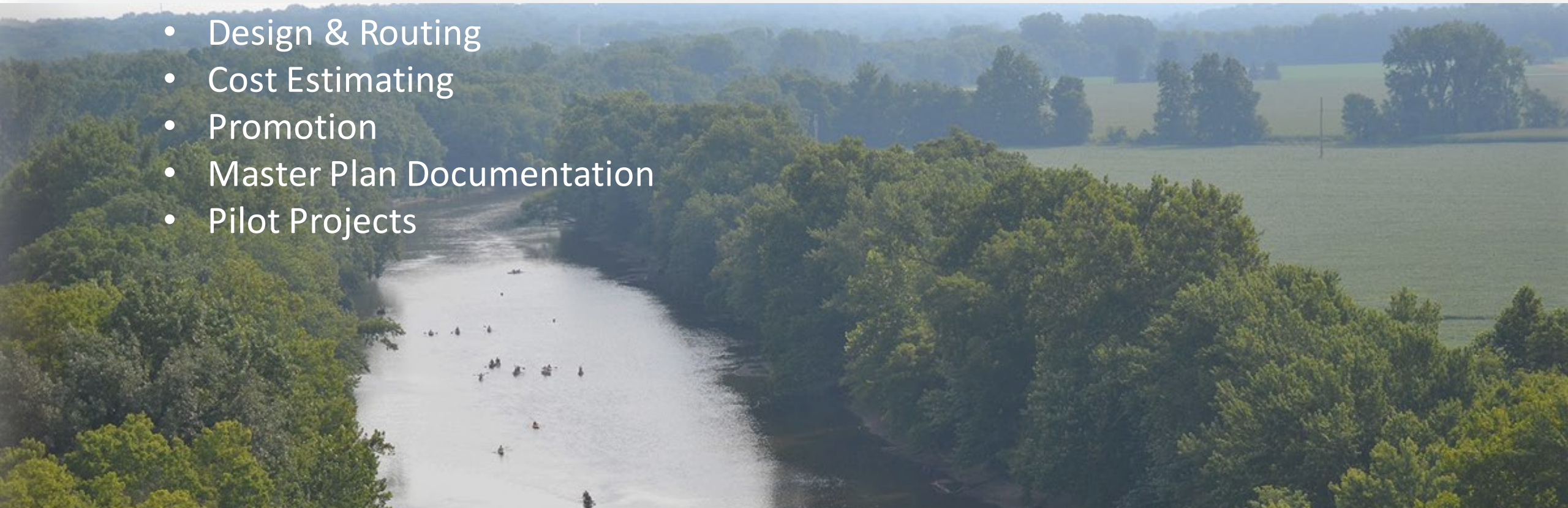


# Project Schedule

## Corridor Master Plan

- Resource Inventory & Analysis
- Needs & Benefits
- Public Involvement
- Design & Routing
- Cost Estimating
- Promotion
- Master Plan Documentation
- Pilot Projects

June 2020 – November 2021





# Agenda SC Meeting 04

- Elected Officials Workshops  
*10 min*
- Stakeholder Interviews  
*15 min*
- WRG Logo & Signage  
*30 min*
- Bridges / River Crossings  
*20 min*
- Pilot Project design updates  
*45 min*
- Trail Development in  
Floodplains & Floodways



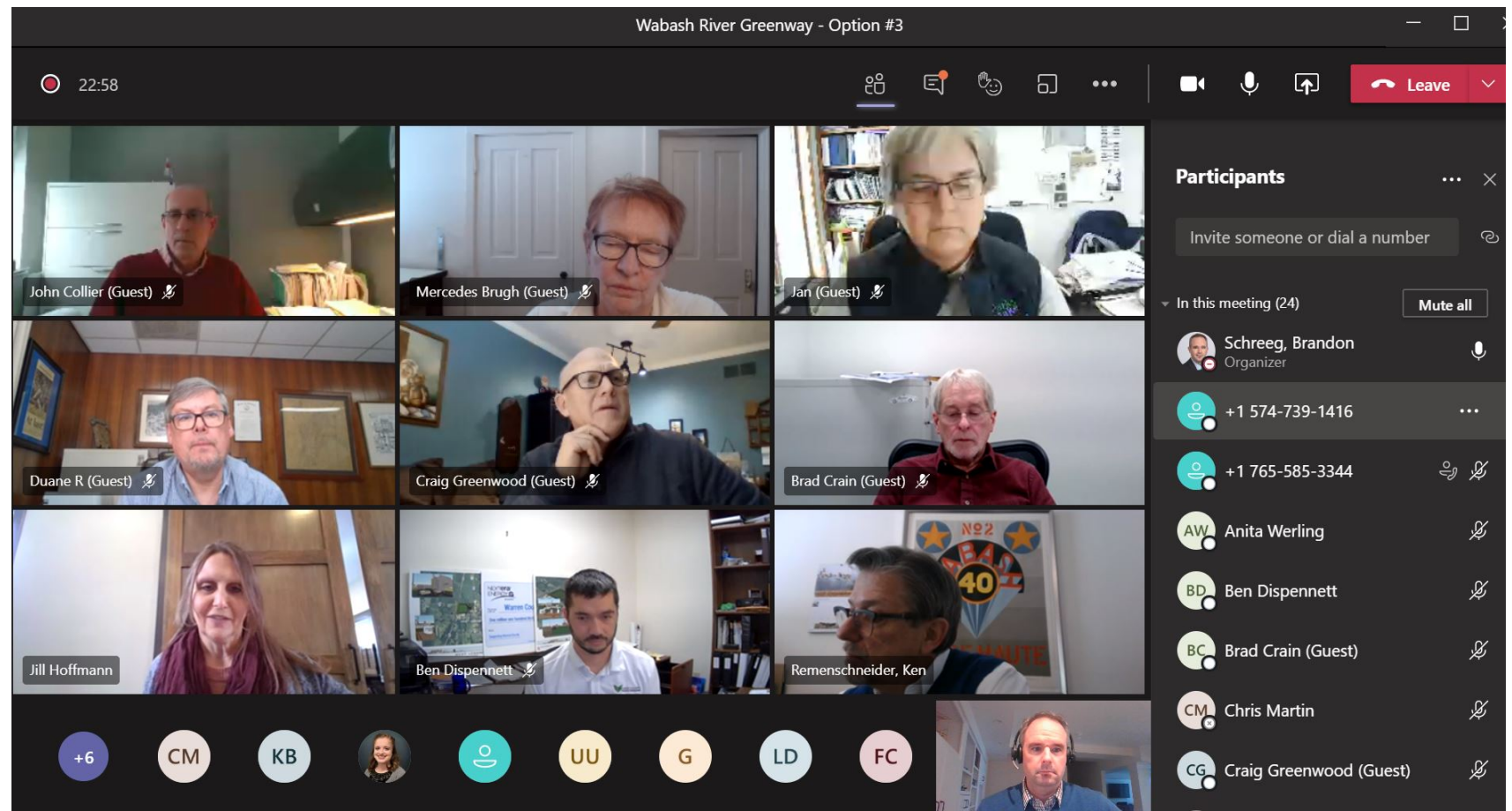
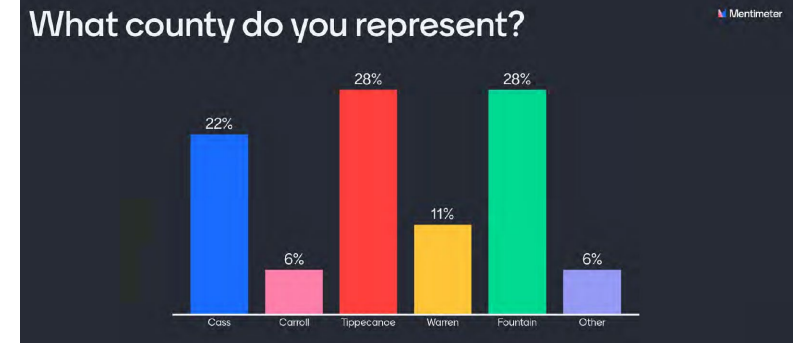
# Elected Officials Workshops

---



# Elected Officials Workshops

- Attended by ~50 elected officials on 2/18
- Offered at 4x throughout the day
- Virtual format with smartphone voting
- Feedback to be used in planning



# Stakeholder Interviews

---

*Seeking Steering Committee Participation*



# Stakeholder Interviews

## *Essential Entities – 7 meetings*

1. Wabash River Heritage Corridor Commission
2. Indiana Destination Development Corporation  
*(completed 3/9)*
3. Purdue University
4. Indiana Department of Transportation (INDOT)
5. Indiana Department of Natural Resources (IDNR)
6. US Army Corp of Engineers – Louisville District
7. Legislative – State & Federal

# Stakeholder Interviews

## *Economic Development – 4 Meetings*

1. Indiana Economic Development Corp & Indiana Office of Community and Rural Affairs
2. County & Local Economic Development Corp (Primary River Counties)
3. Promoters – Local Chamber of Commerce, Tourism & Visitor's Bureaus and Main St organizations
4. Community Foundations (all 10 counties)



# Stakeholder Interviews

## *Land Use – 4 Meetings*

1. Agriculture:

SWCD, Purdue Extension & USDA NRCS

2. Transportation:

City Engineers, County Highway & Area Plan Commission

3. Utilities:

Water, Wastewater – municipal and national

4. Real Estate:

Realtors & Commercial Brokers

# Stakeholder Interviews

## *Corporate – 2 Meetings*

1. Larger Companies: Rolls Royce, Saab, GE Aviation, SIA, Car Gill, etc.
2. Regional / Smaller Companies: Indiana Packers, Myers Spring, Transco, etc.

## *Health & Safety – 2 Meetings*

1. Health Systems: IU Health, St. E, Franciscan, Health Dept's, etc
2. Public Safety: Police/Sheriff, Fire, Conservation officers, etc.



# Stakeholder Interviews

## *Arts & Culture – 4 Meetings*

### 1. Arts & History Groups:

Tippecanoe Arts Federation, Logansport Re-Imagined, Delphi Opera House, Wabash & Erie Canal Interpretive Center

### 2. Attractions / User Groups:

Badlands, Bike Walk Greater Lafayette, Brewers of Indiana Guild, Hoosier Canoe & Kayak Club, Greenway Foundation, etc.

### 3. Parks:

County and City parks directors, supers & board presidents, NICHES

### 4. Native American Tribal Groups

# Logo & Signage

---



# Branding

Logo to be used on signage, letterhead, envelopes, website, T-shirts, hats, promotional materials, etc.

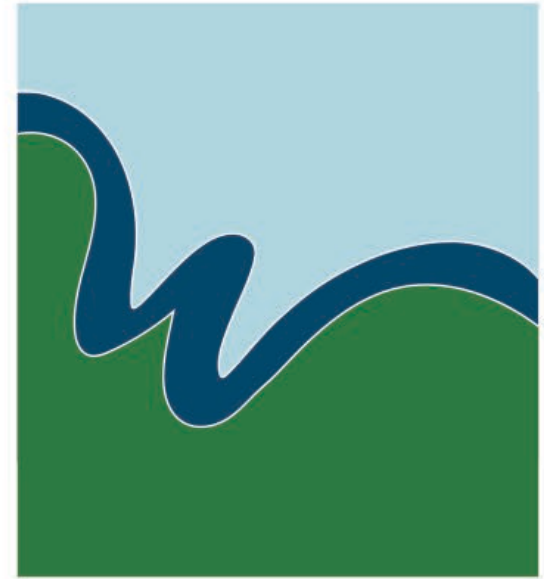
## *Process*

1. Prepared early logo options for WREC board
2. WREC board formed committee to review & provide direction to Kimley-Horn
3. Kimley-Horn provided updated logo options & refinements
4. Logo selected





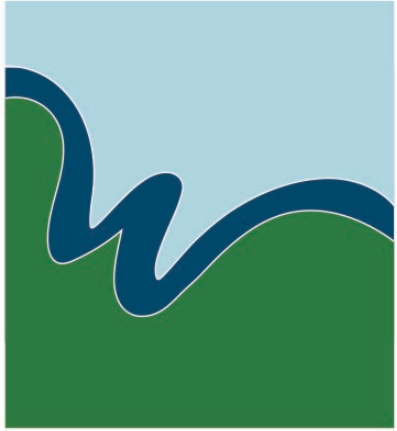
**WABASH  
RIVER**  
GREENWAY



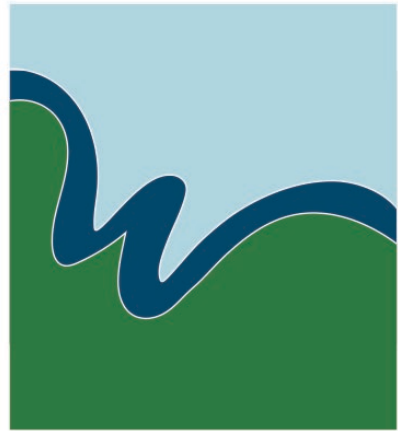
**WABASH  
RIVER**  
GREENWAY



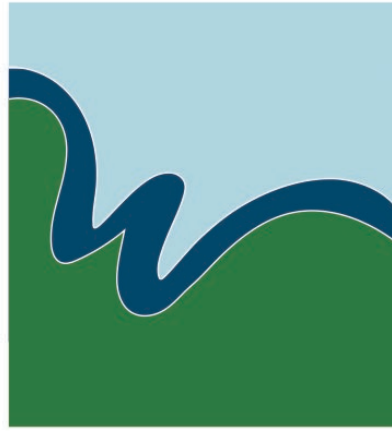




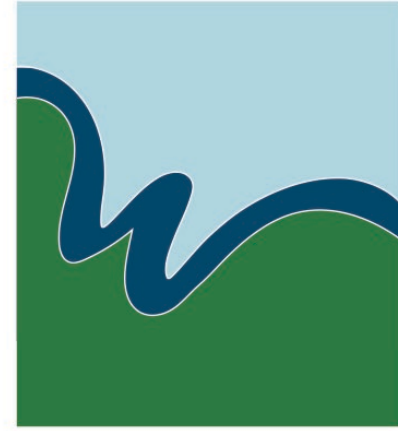
**WABASH  
RIVER**  
GREENWAY  
CASS COUNTY



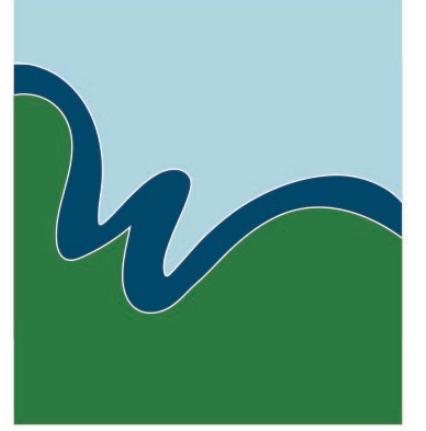
**WABASH  
RIVER**  
GREENWAY  
CARROLL COUNTY



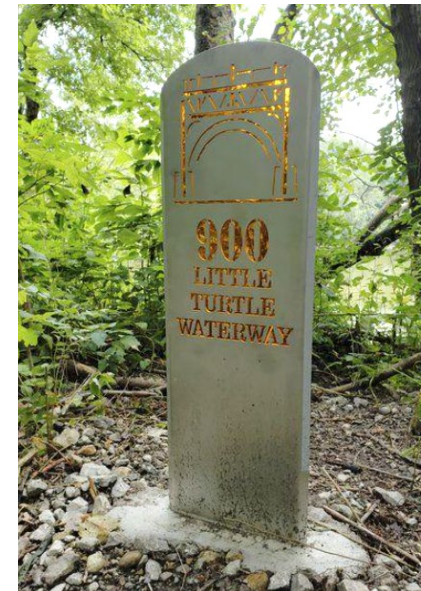
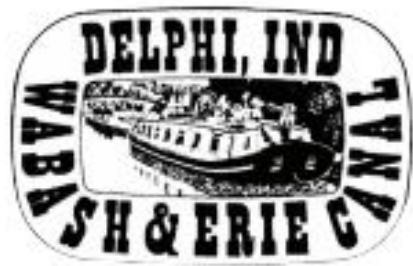
**WABASH  
RIVER**  
GREENWAY  
TIPPECANOE COUNTY



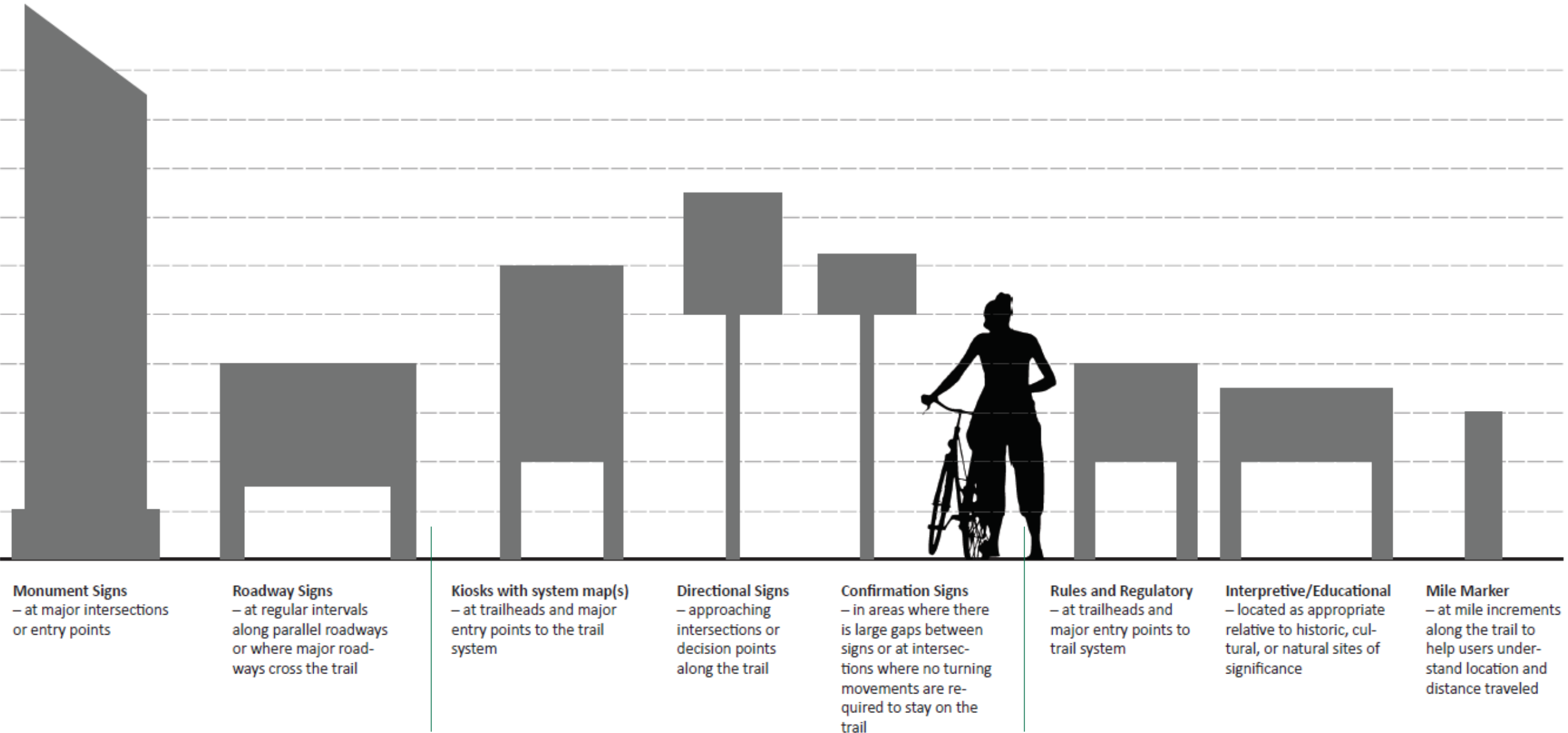
**WABASH  
RIVER**  
GREENWAY  
WARREN COUNTY



**WABASH  
RIVER**  
GREENWAY  
FOUNTAIN COUNTY



# Trail Signage Elements and Roles





# Signage

## Identity:

- Establish trail branding and any sub-brands
- Create awareness of the trail for potential users
- Highlight key locations and entrances for the trail system

*Monument*



*Roadway*





# Signage

## Informational:

- Provide rules and regulations for the trail system
- Include universal pictograms where possible to help communicate to a diverse audience
- Provide background on historic, cultural, or natural sites of significance adjacent to the trail

*Interpretive /  
Educational*



*Mile  
Marker*



*Rules &  
Regulation*



# Signage

## Wayfinding:

- Establish information about the trail network through system maps
  - o Length of trail system
  - o Potential destinations
  - o Facilities available within the system
- Direct trail users to key components of the trail system (e.g. trailheads, parking lots, restrooms, etc.)
- Make trail users aware of potential destinations both on the trail system and in the community surrounding the trail
- Confirm to trail users they are still on the trail



*Kiosk*



*Directional*



*Confirmation*



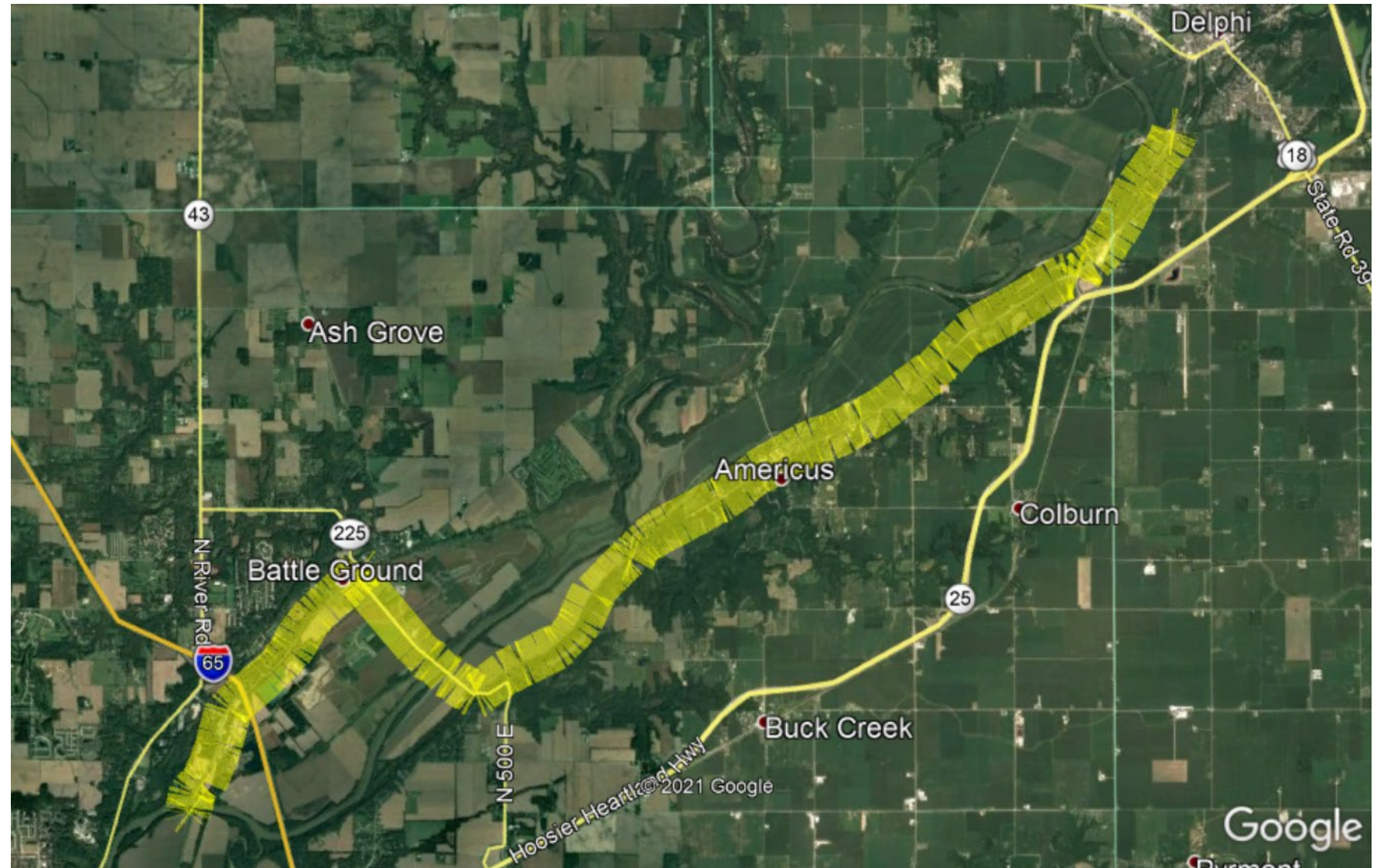


# Wayfinding Example

Potential Pilot Project –  
14.2 Miles

- 2 Monumental Signs
- 4 Roadway Signs
- 8 Directional Signs
- 10 Confirmation Signs
- 2 Kiosk / Interpretive
- 2 Rules / Regulations

Davis Ferry Park, Lafayette to Trailhead Park, Delphi





# Bridges / River Crossings

---

# Bridge Approach

## Identify

- Wabash River Crossings
- Proximity to Proposed Trail
- Review of Pilot Projects

## Evaluate

- Programmed Projects
- Bridge Width
- Feasibility to Widen
- Sidewalk or Trail Present

## Design Considerations

- Pedestrian Bridge Railing
- Travelway Protection
- Trail Width



# Identify

## List of Bridges under Review (55 total)

Cass County - *12 qty*

Carroll County - *9 qty*

Tippecanoe County - *18 qty*

Warren County - *10 qty*

Fountain County - *6 qty*





# Evaluate

## US 421 over Wabash River (Carroll County)

- Convert Shoulder into Sidewalk/Trail
- Roadway Width 45 feet
- Newer Bridge – 1996
- Retrofit Bridge Railing





# Evaluate

## CR 700 W over Mallory Branch (Fountain County)

- Existing bridge may be difficult to widen
- Roadway Width 28 feet
- Standalone Pedestrian Bridge





# Evaluate

## Lewisburg Bridge over Wabash River (Cass County)

- Historic Select Bridge
- Arches are Challenging/Expensive to Widen
- Roadway Width 24 feet
- Condition of Arch



# Design Considerations



Trail with Raised Curb  $\leq 45$  mph



Bridge Railing b/t Travelway  
and Trail  $> 45$  mph



# Design Considerations



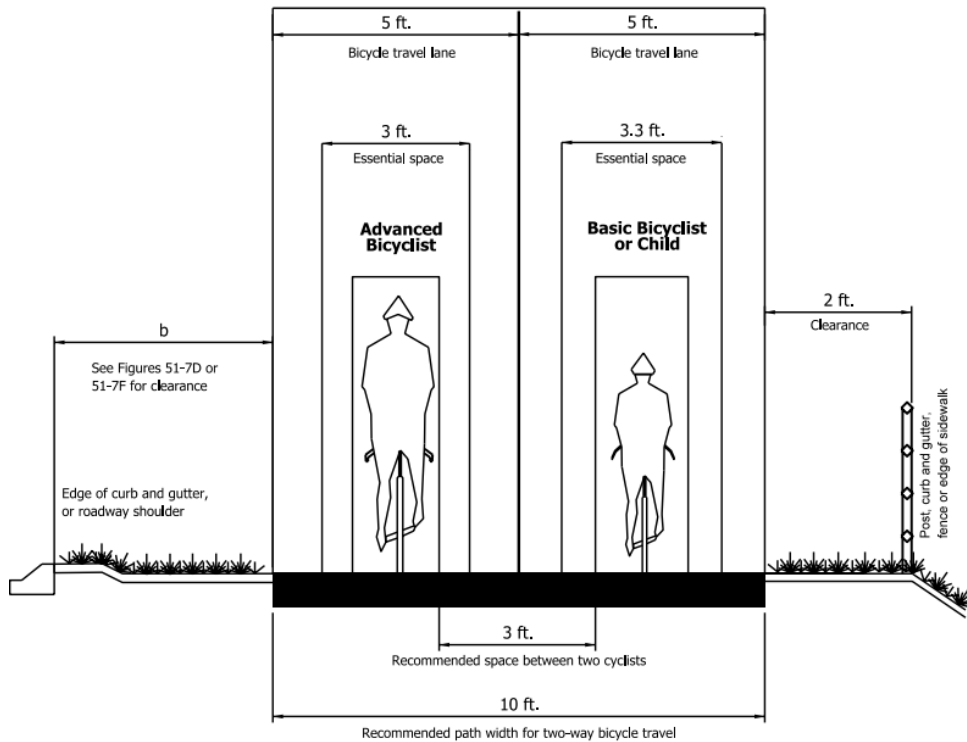
INDOT Standard Bridge Railing > 3.5 feet Height



Concrete Bridge Railing Retrofit > 3.5 feet Height



# Design Considerations



12 feet Recommended for Shared-Use  
Path on Bridge



Example - 12 feet Wide Trail

# Pilot Projects

---

# Pilot Project Criteria

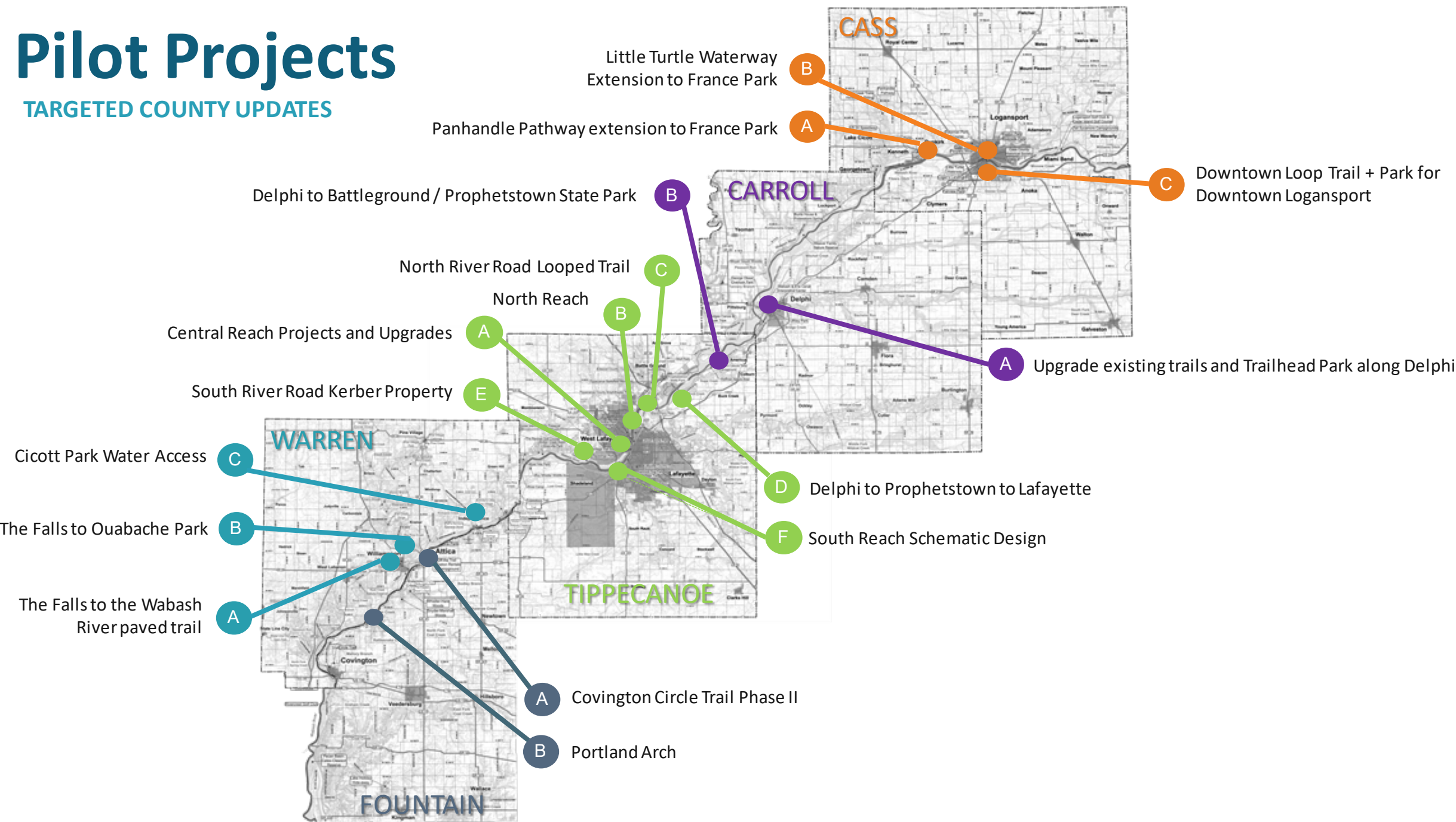
- 'Shovel Ready'
- Popular with Community support
- Funding is identified and attainable
- Land is acquired or has a willing seller / partner
- Environmental conditions are favorable
- Beneficial timing with other development projects





# Pilot Projects

TARGETED COUNTY UPDATES



# Pilot Projects

<b>Cass County:</b>	Logansport to France Park
<b>Carroll County:</b>	Delphi Trail Renovations
<b>Tippecanoe County:</b>	West Lafayette – North River Road Looped Trail; Phase 1
<b>Warren County:</b>	The Falls of Williamsport
<b>Fountain County:</b>	Circle Trail – Wabash River Greenway section
<b>Tippecanoe / Carroll:</b>	Wayfinding signage project; Davis Ferry Park to Trailhead Park

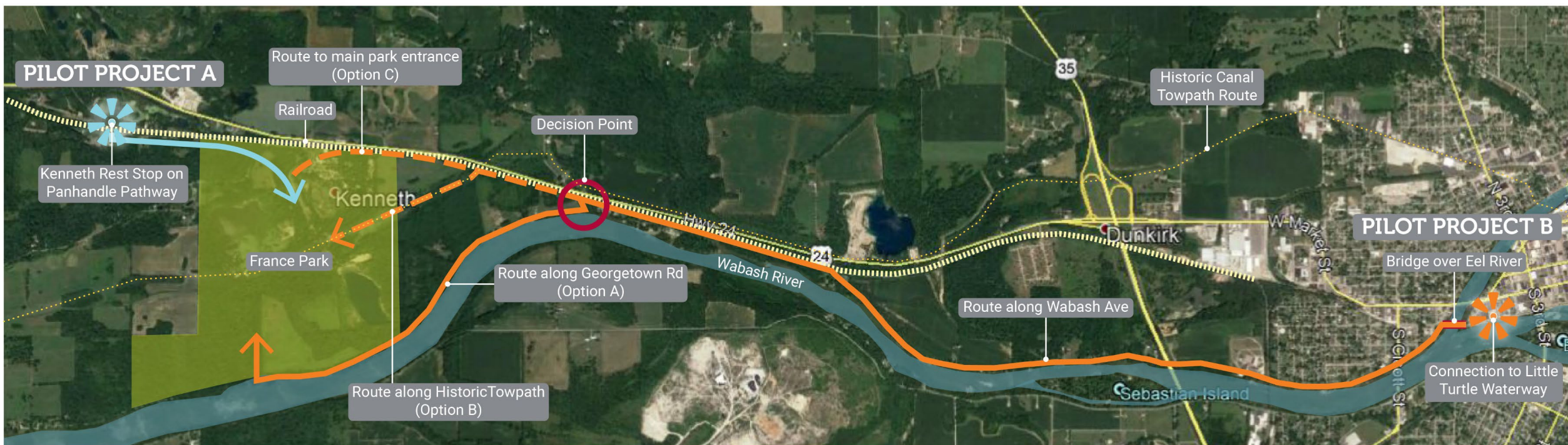
# Cass County

## Pilot Project A Panhandle Pathway extension to France Park

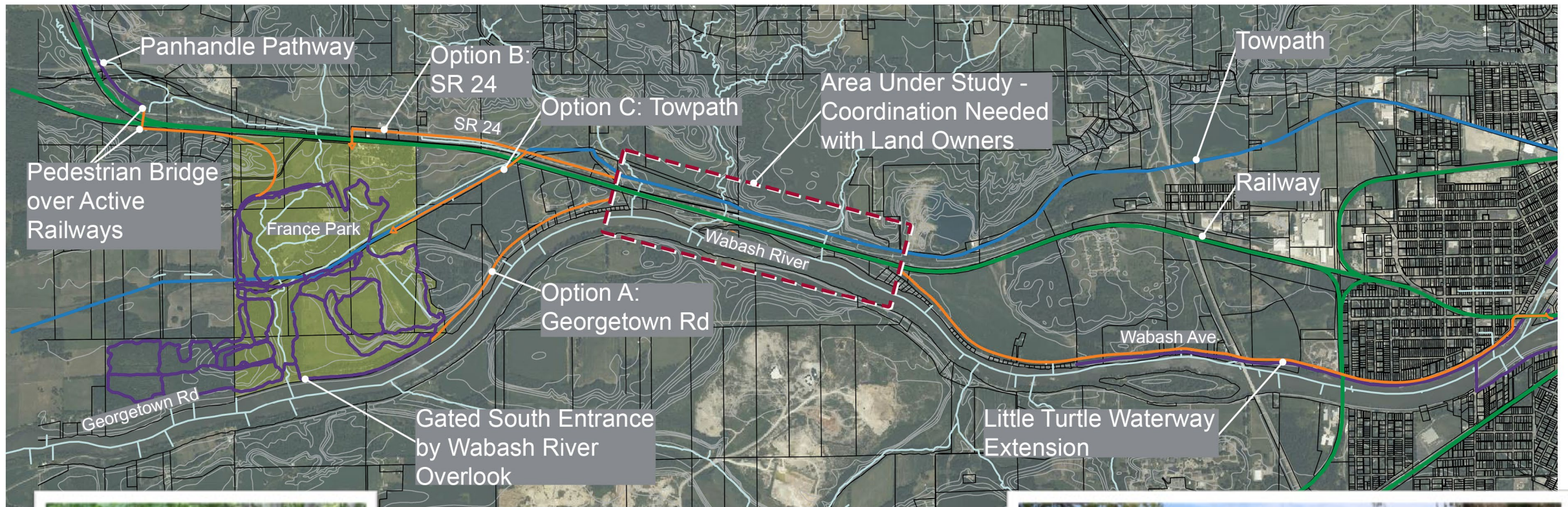
- Across active railroad

## Pilot Project B Little Turtle Waterway extension to France Park

- Bridge across Eel River
- Route along Wabash Avenue to Georgetown Road
- Walk-in park entry off Georgetown Road
- Entry off historic canal towpath route
- Connection to Panhandle Pathway at main entrance







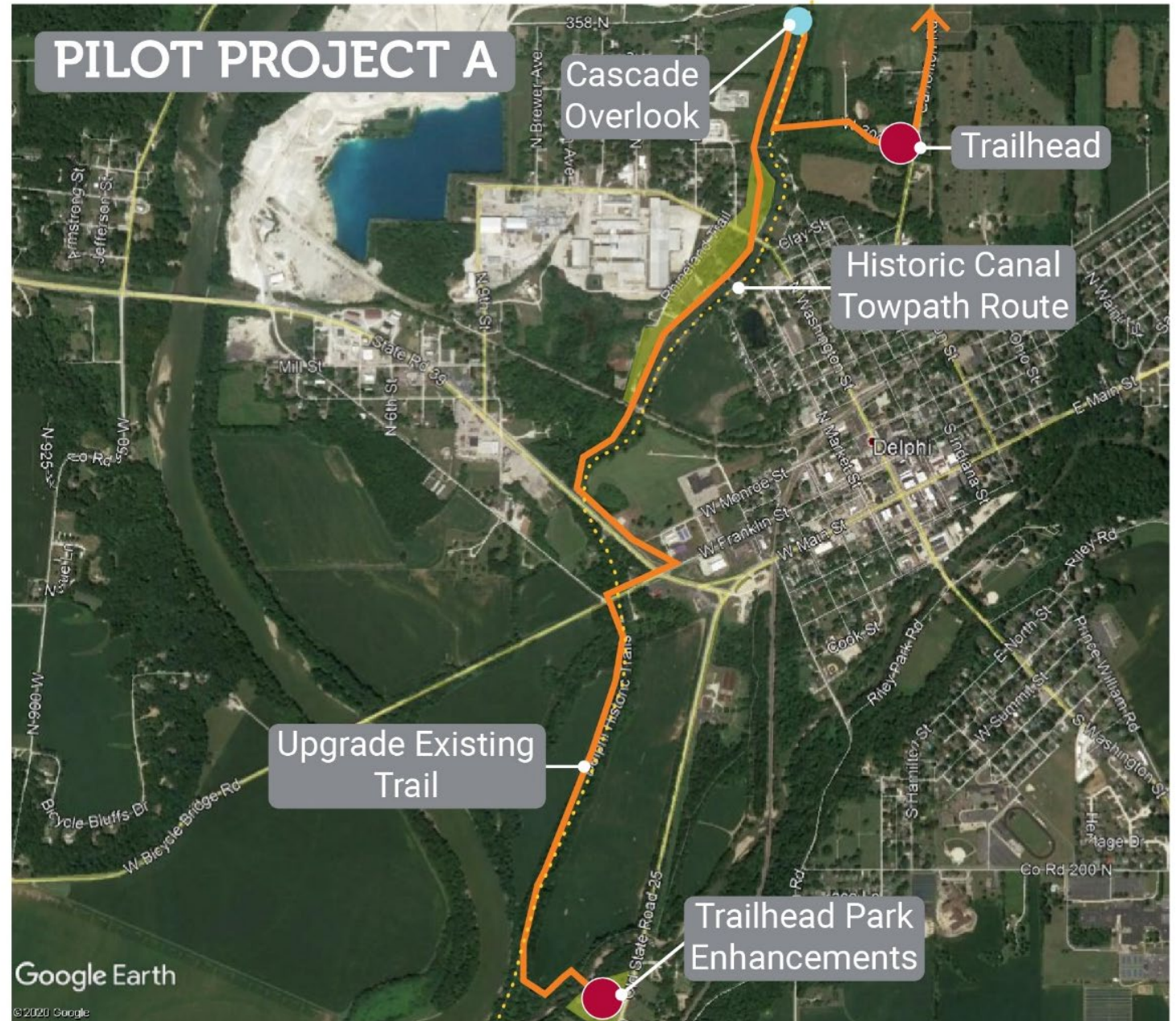


# Carroll County

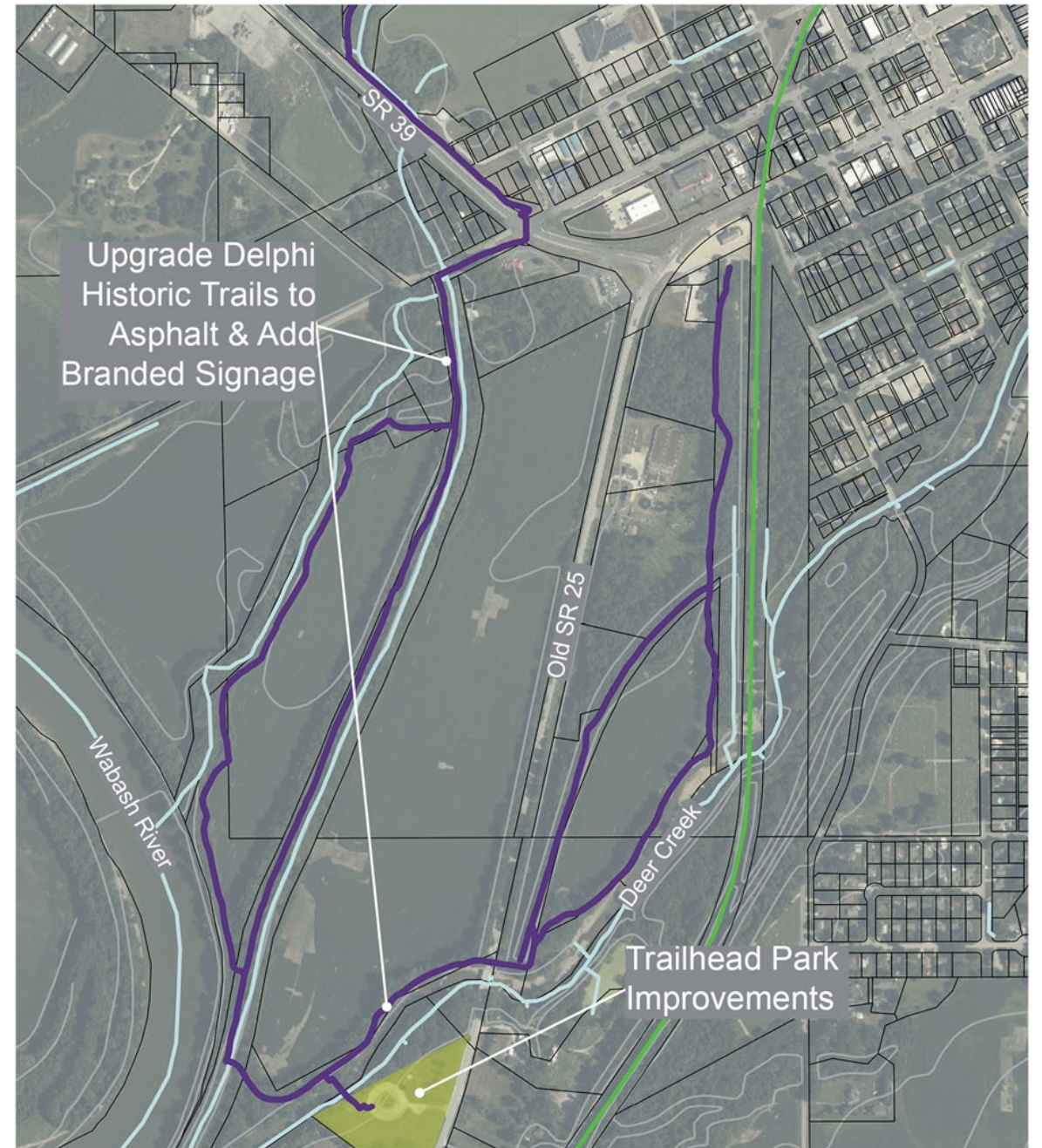
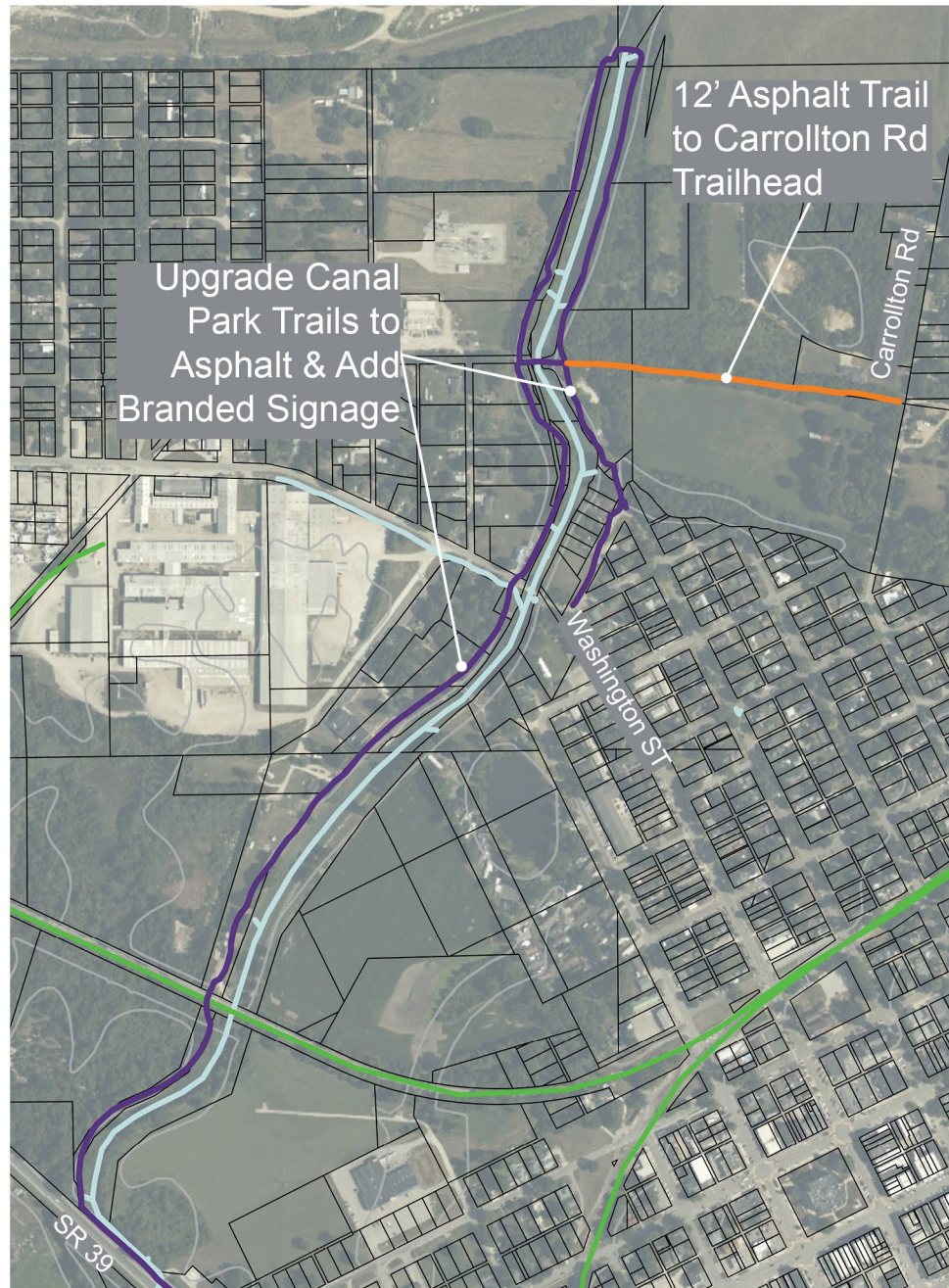
## Pilot Project

### Upgrade existing trails and New Trailhead

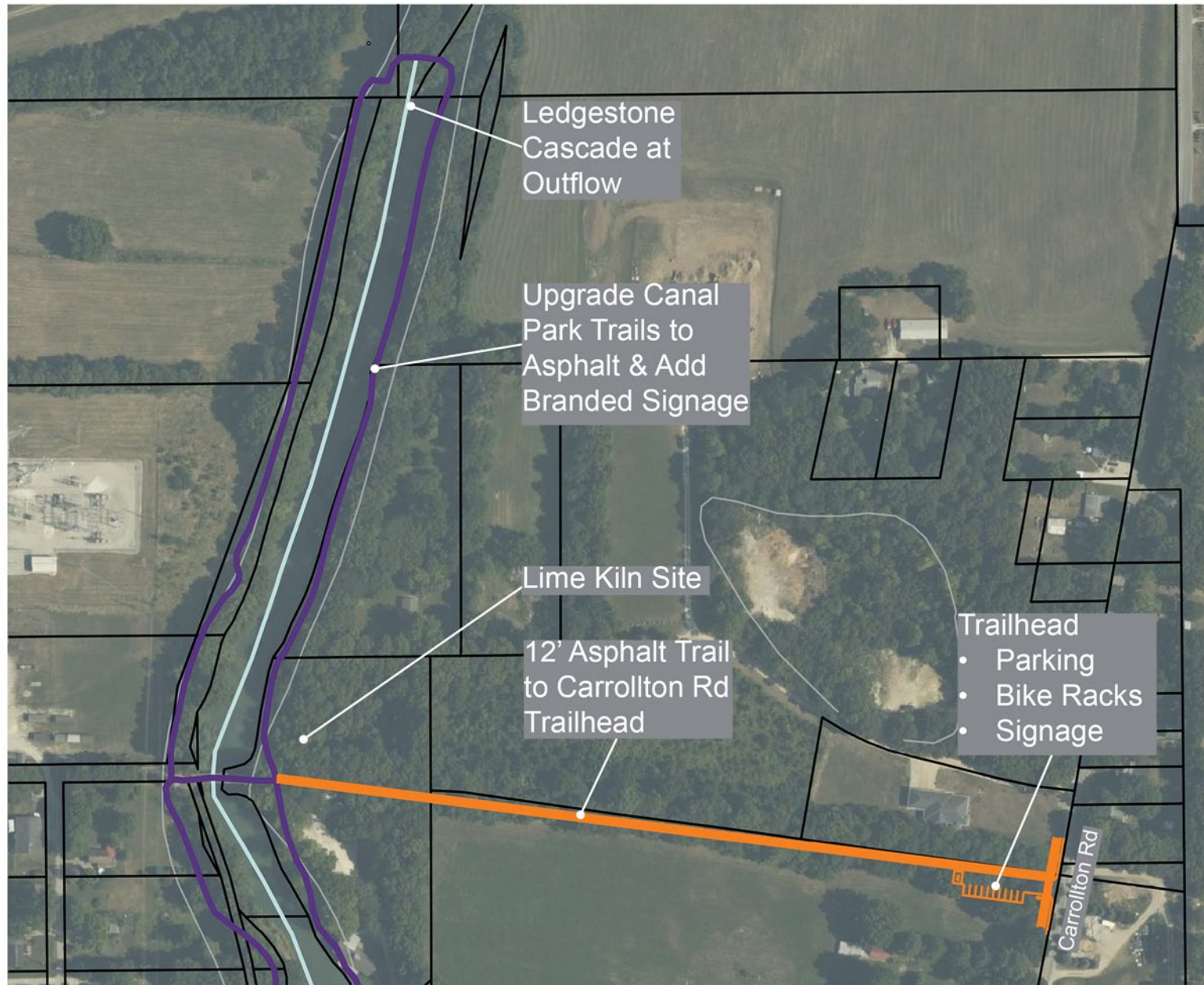
- From Canal Park to Trailhead Park
- Widen & pave trails
- Branding & Enhancements



















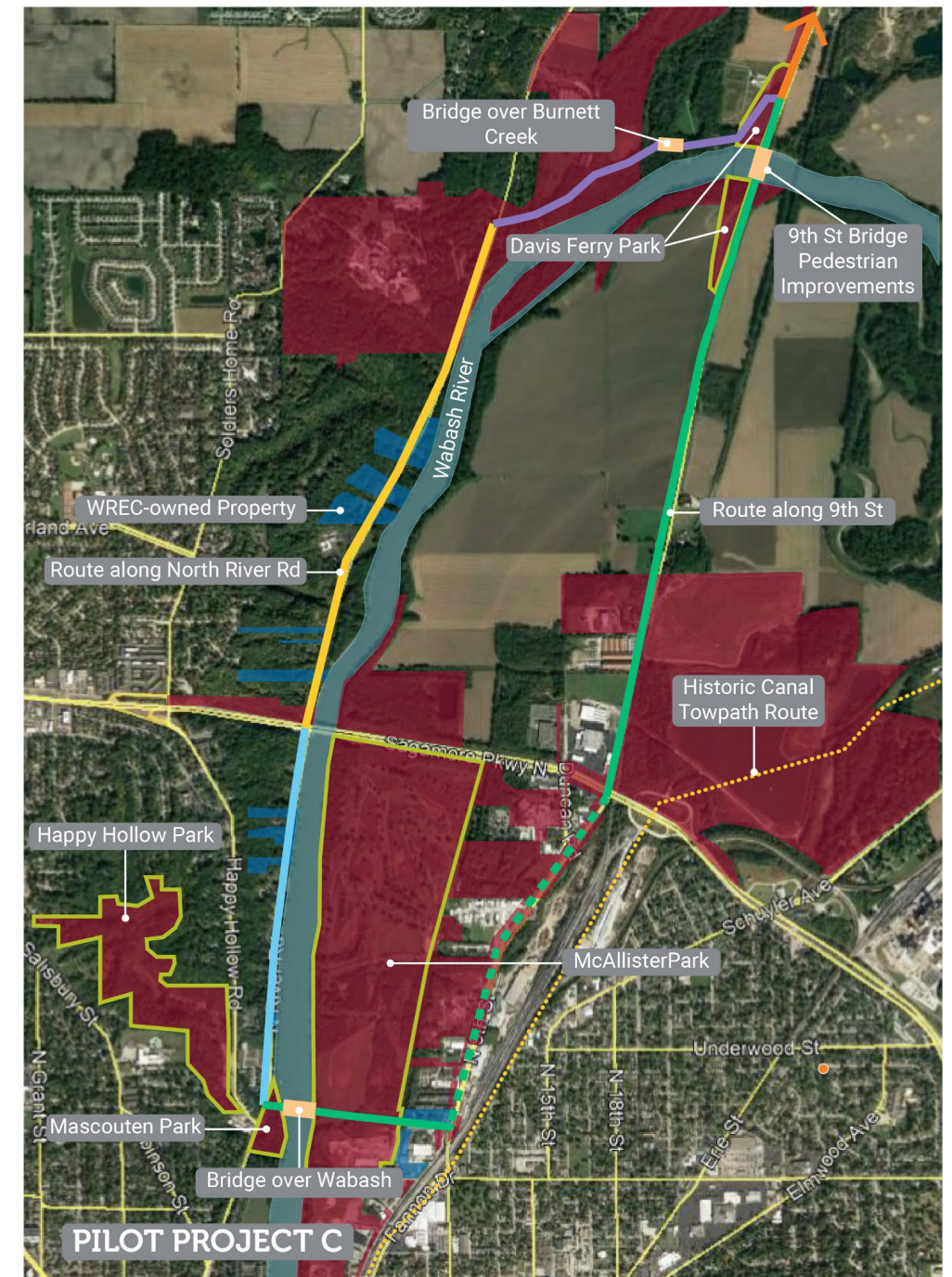
# Tippecanoe County

## Pilot Project

### North River Road Looped Trail

- 4 Phases + 1 alternative

-  Happy Hollow Rd - Sagamore Pky Bridge
  - Ramp Connection to Sagamore Pky Bridge on both sides of Wabash
-  Sagamore Pky Bridge - Tecumseh Trail
  - New Bike/Ped Bridge over Ravine to connect with TC Amphitheater Park
-  TC Amphitheater Park - Davis Ferry Park
  - New Bike/Ped Bridge over Burnett Creek + Trailhead
-  Davis Ferry Park - Existing N. 9th St Trail / North Reach
-  Existing 9th Street Side Path
-  Alternate: Davis Ferry Park - Pretty Prairie Rd / Prophetstown State Park





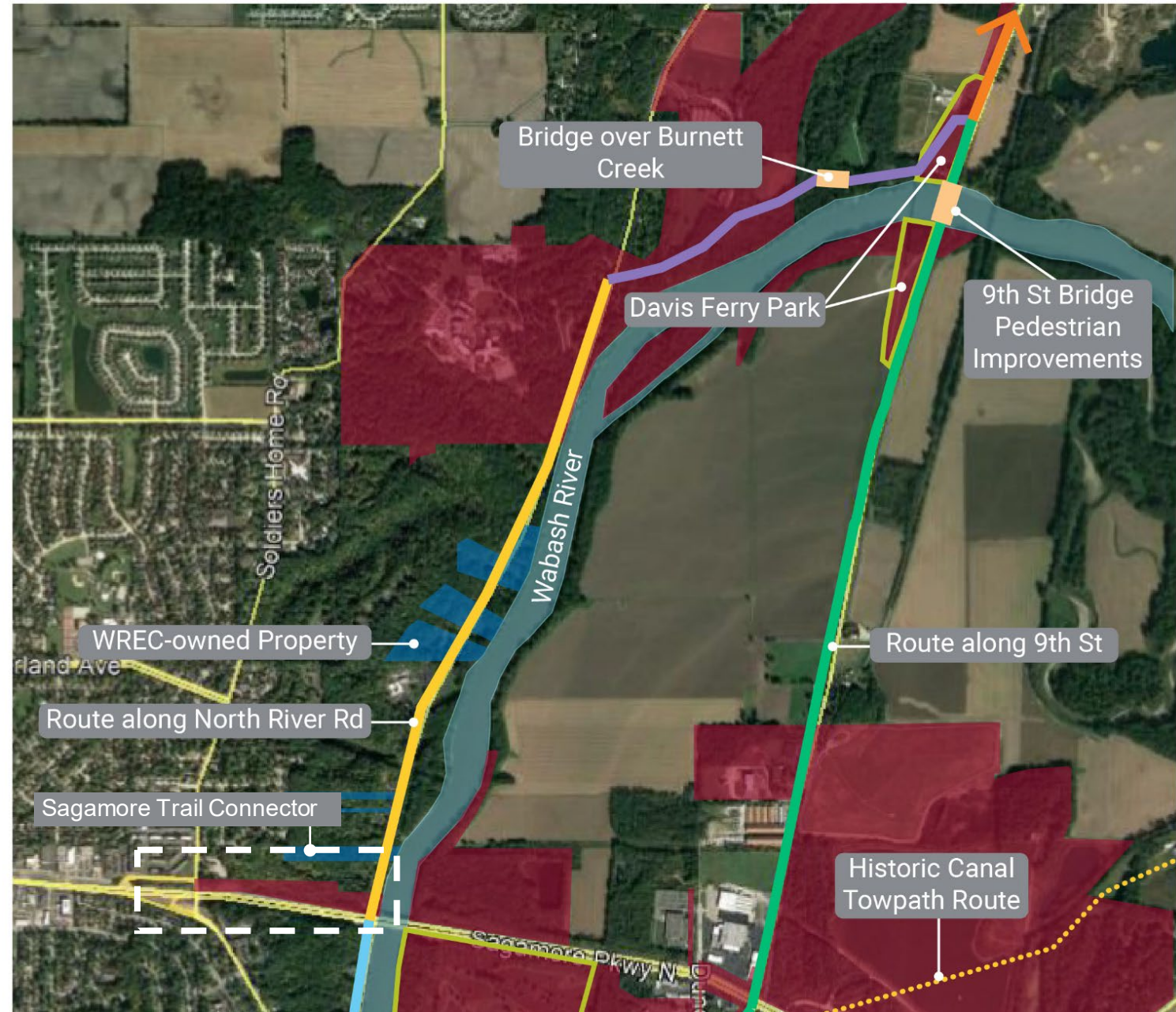
# Tippecanoe County

## Pilot Project

### North River Road Looped Trail

- 4 Phases + 1 alternative

- Happy Hollow Rd - Sagamore Pky Bridge
  - Ramp Connection to Sagamore Pky Bridge on both sides of Wabash
- Sagamore Pky Bridge - Tecumseh Trail
  - New Bike/Ped Bridge over Ravine to connect with TC Amphitheater Park
- TC Amphitheater Park - Davis Ferry Park
  - New Bike/Ped Bridge over Burnett Creek + Trailhead
- Davis Ferry Park - Existing N. 9th St Trail / North Reach
- Existing 9th Street Side Path
  - Alternate: Davis Ferry Park - Pretty Prairie Rd / Prophetstown State Park





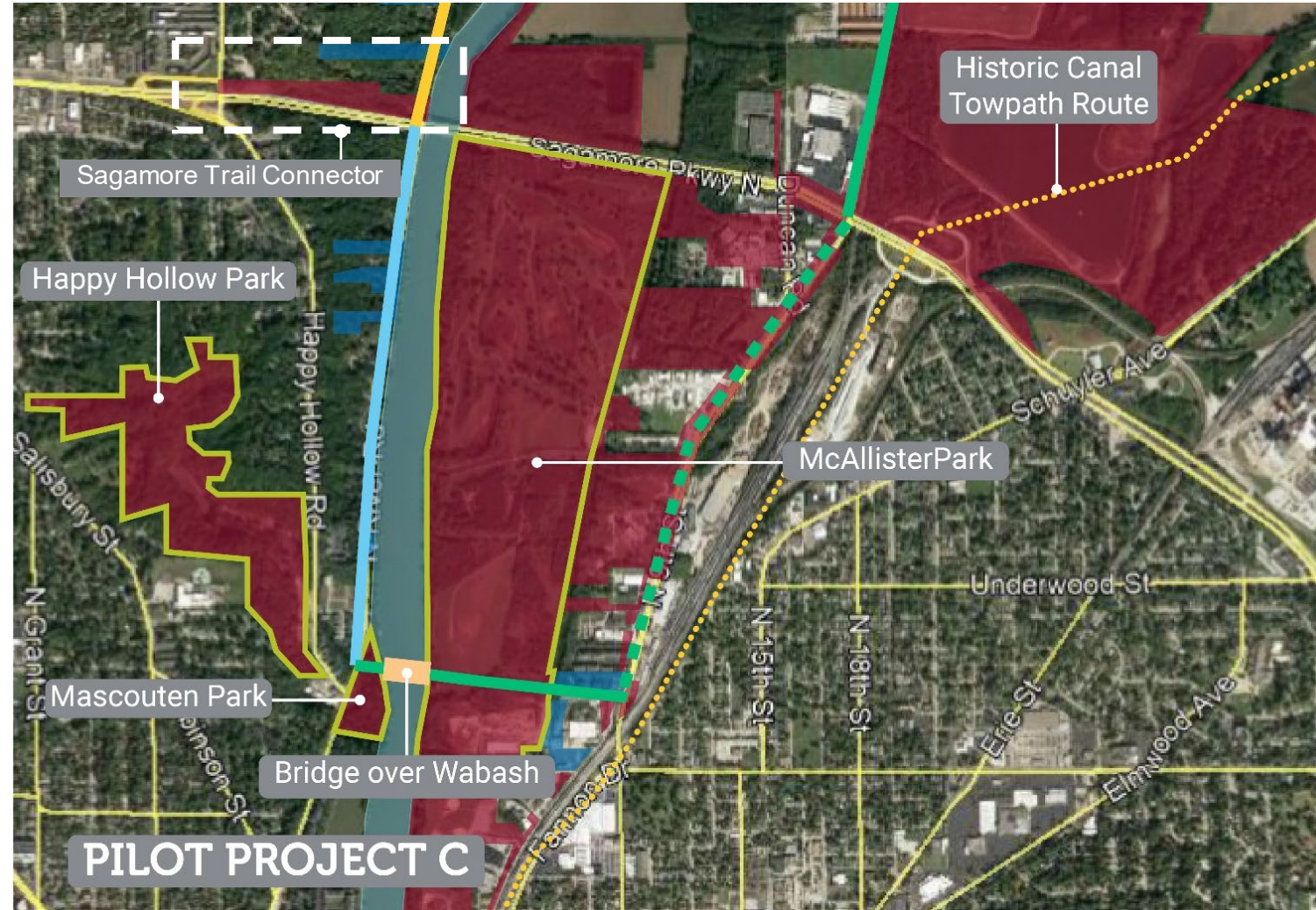
# Tippecanoe County

## Pilot Project

### North River Road Looped Trail

- 4 Phases + 1 alternative

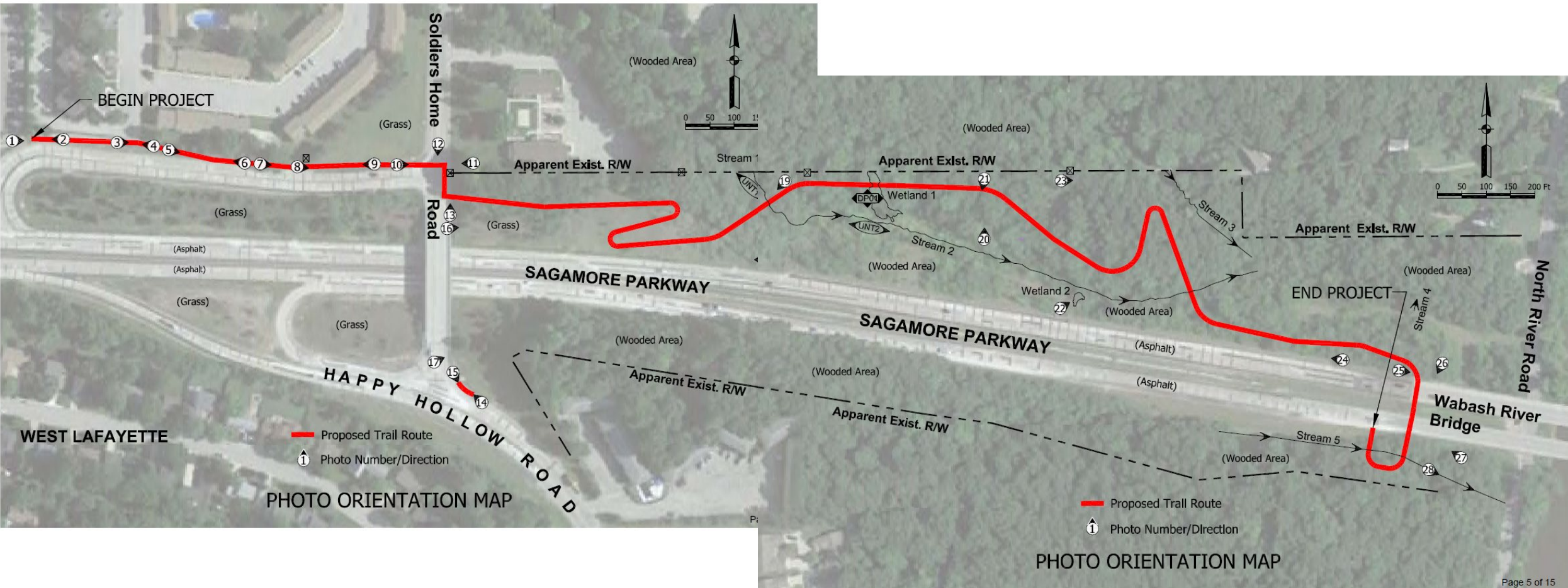
- Happy Hollow Rd - Sagamore Pky Bridge
  - Ramp Connection to Sagamore Pky Bridge on both sides of Wabash
- Sagamore Pky Bridge - Tecumseh Trail
  - New Bike/Ped Bridge over Ravine to connect with TC Amphitheater Park
- TC Amphitheater Park - Davis Ferry Park
  - New Bike/Ped Bridge over Burnett Creek + Trailhead
- Davis Ferry Park - Existing N. 9th St Trail / North Reach
- Existing 9th Street Side Path
  - Alternate: Davis Ferry Park - Pretty Prairie Rd / Prophetstown State Park



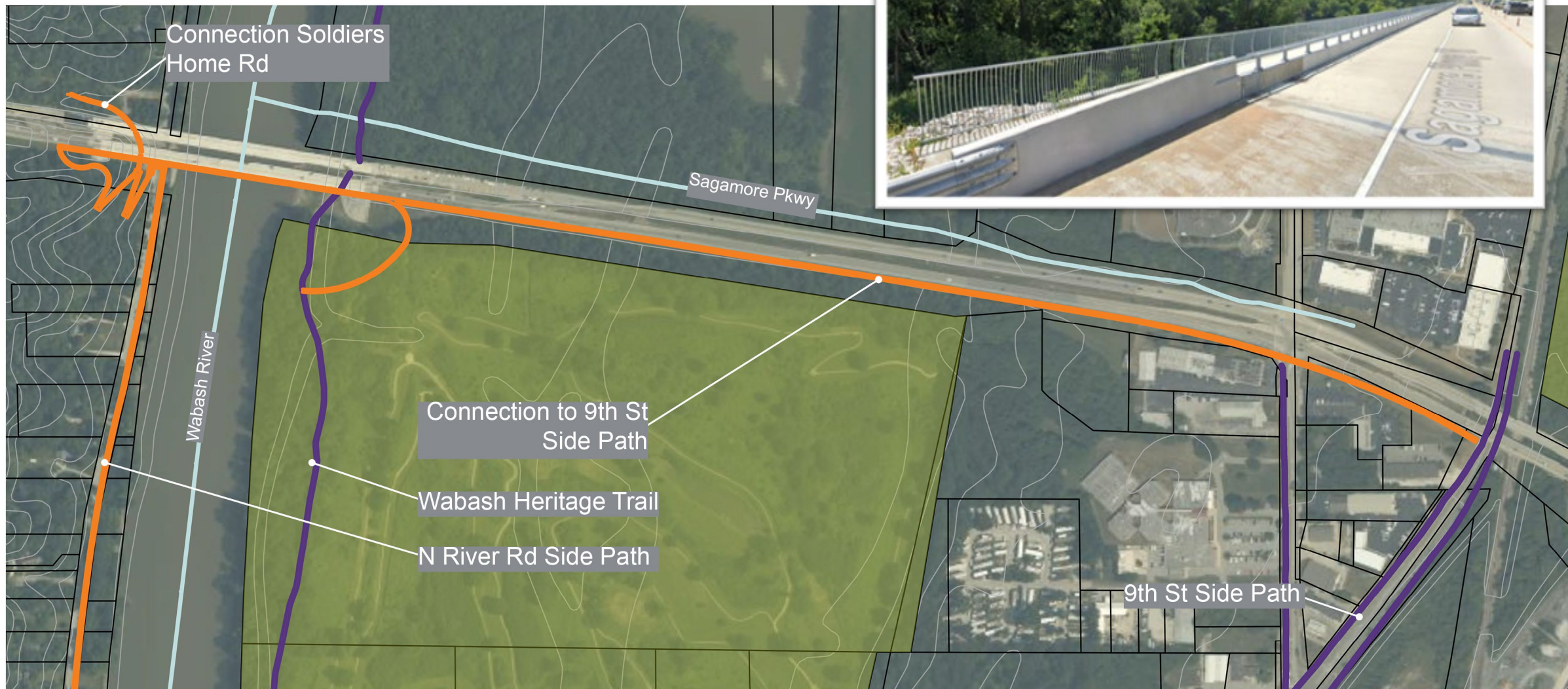


# Tippecanoe County

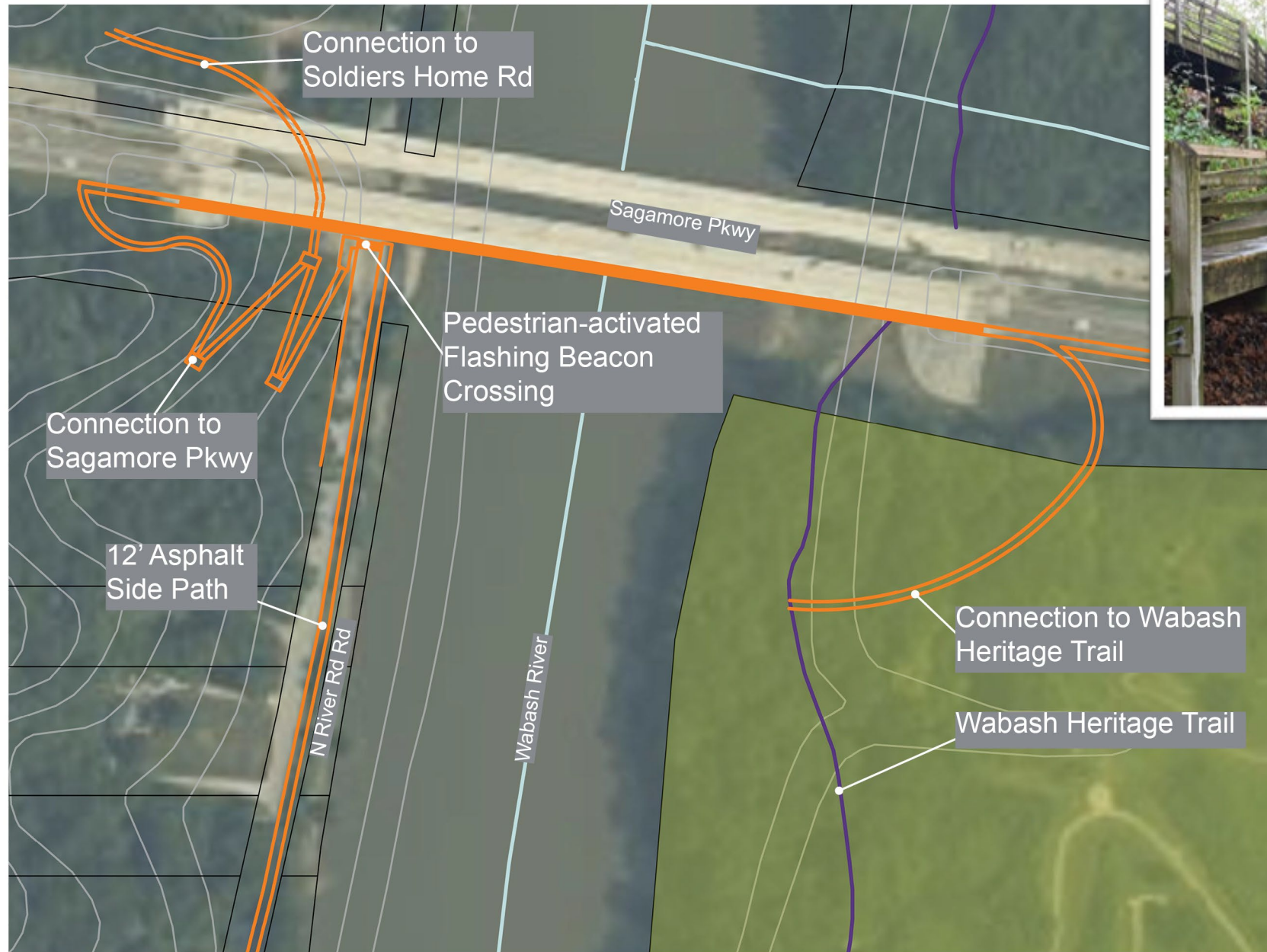
Project in Design  
Sagamore Parkway Trail Connector













## North River Road Looped Trail

- 0.8 Mile to N 9<sup>th</sup> St on US 52 ROW
- 1.0 Mile on River Road
- Switchback ramp system to Sagamore Pkwy Bridge





# Warren County

## Pilot Project

The Falls to the Wabash River paved trail





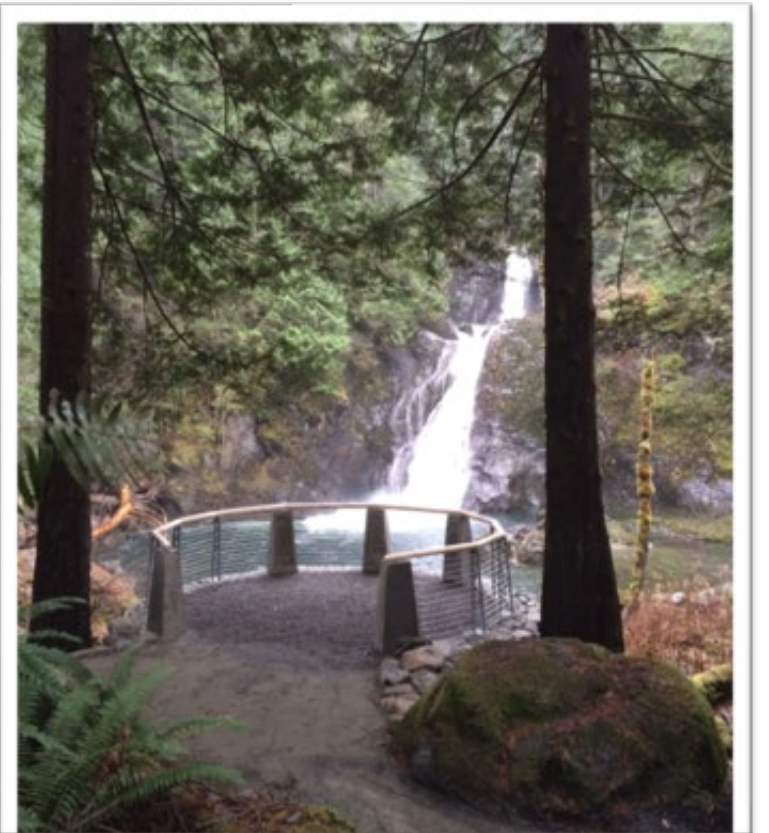
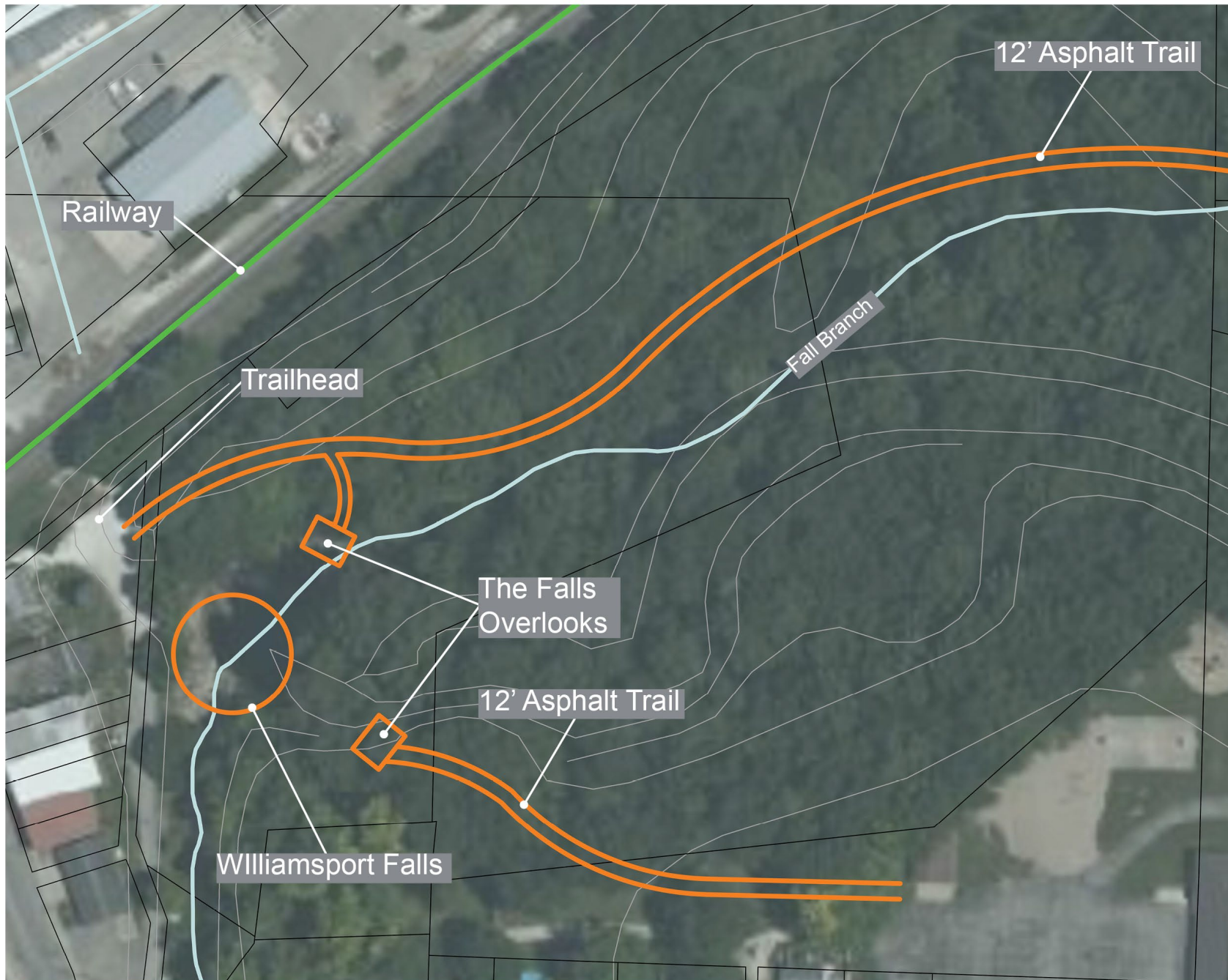
# Warren County

## Scope of Work:

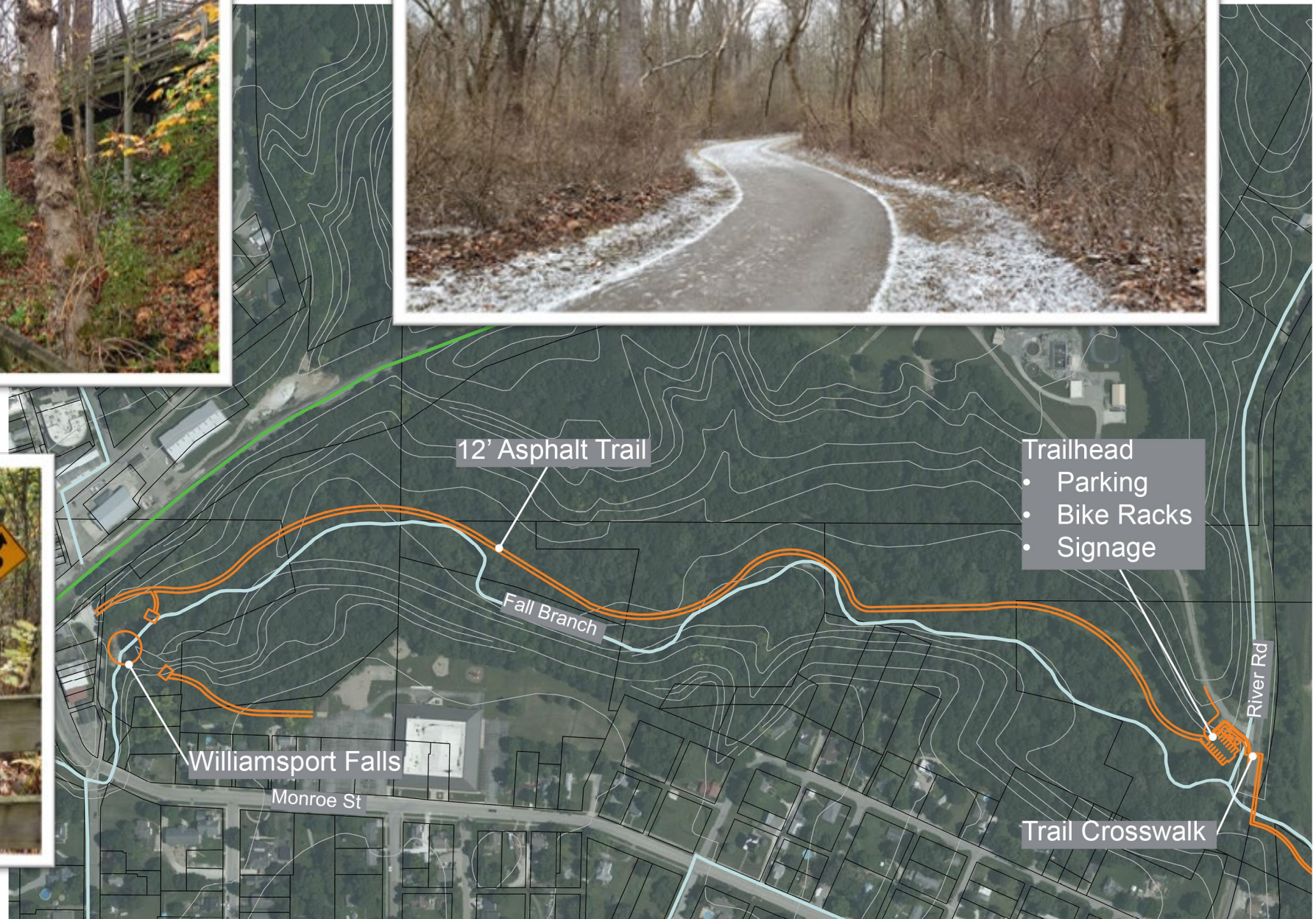
- Connect elementary school to the Falls
- Overlook design
- Paved trail
- Wayfinding
- Trailhead
- Overlook at Wabash River
- Connect to Old Town Park for water access



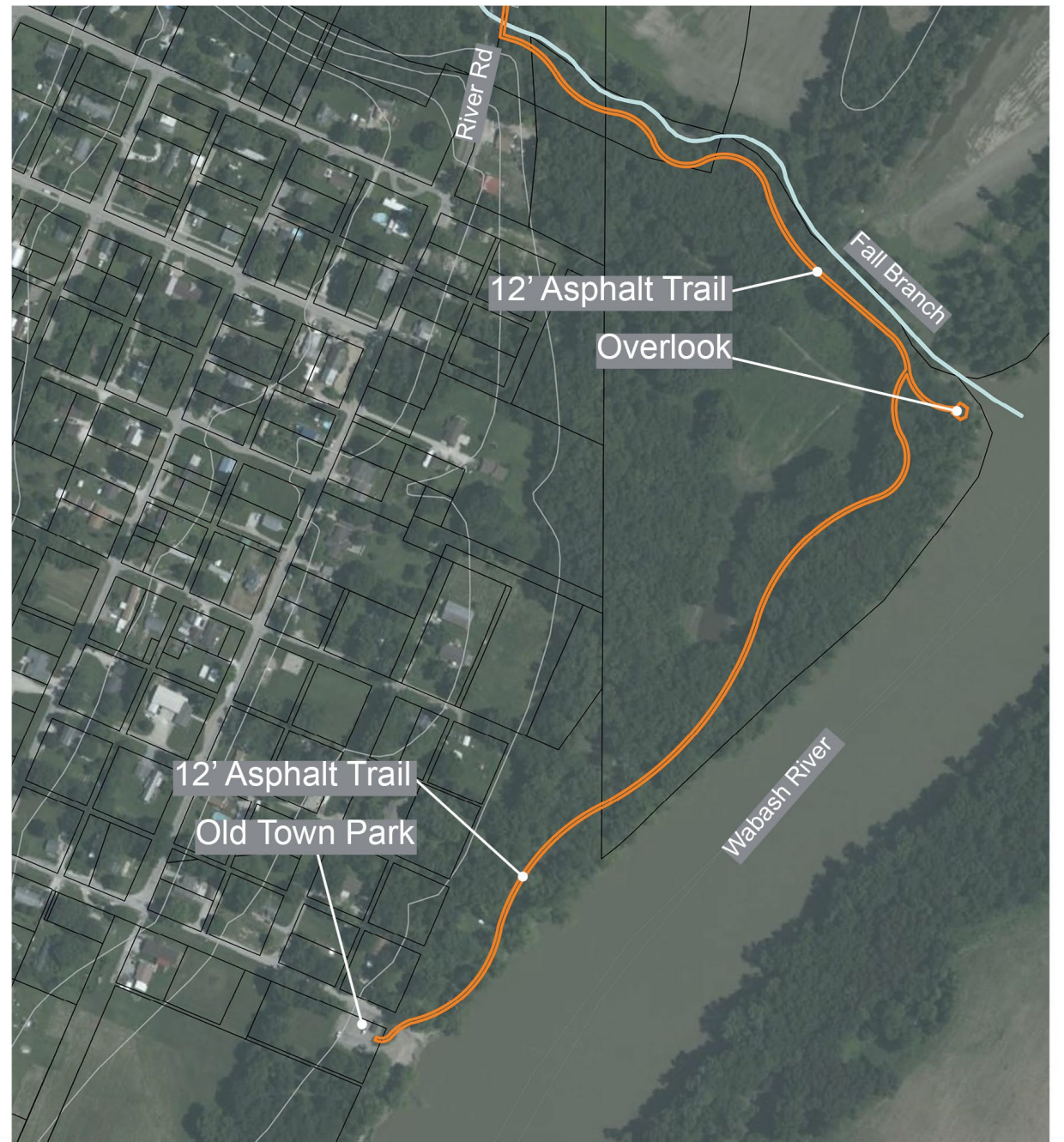












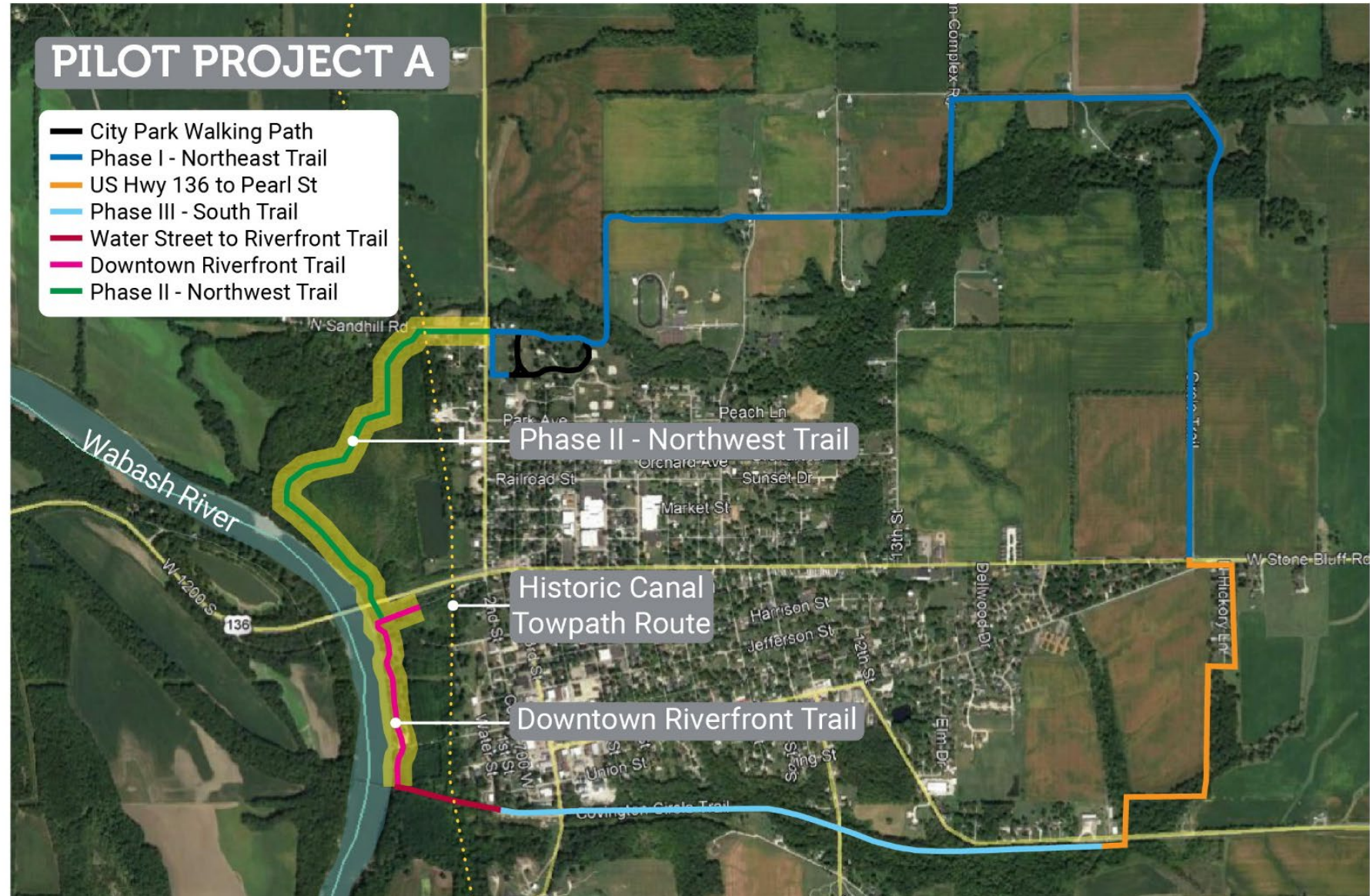


# Fountain County

## Pilot Project A

Covington Circle Trail –  
Phase II Northwest Trail &  
Downtown Riverfront Trail

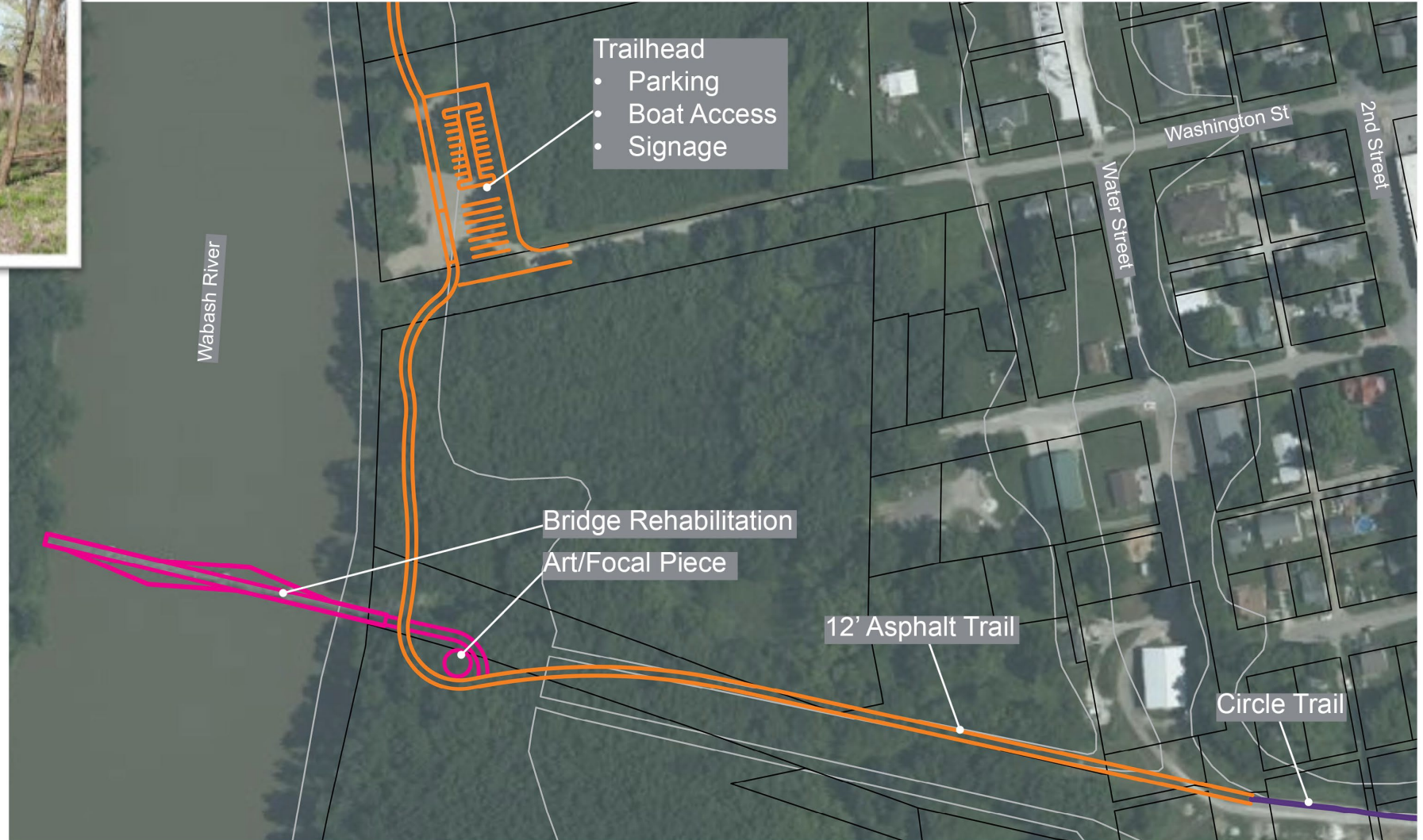
- Implementation
- Branding &  
Enhancements to in  
progress and completed  
phases













# Trail Development in Floodplains & Floodways

---

# Benefits of Well-Designed Trails Along Rivers

- ▲ Flood water storage and infiltration
- ▲ Protecting adjacent and downstream communities
- ▲ Improving water quality
- ▲ Preserving fish and amphibian habitat
- ▲ Capturing alluvial soil for crops
- ▲ Habitat restoration for native plants and wildlife
- ▲ Trails, hiking, boating/paddling recreation
- ▲ Connecting people with nature
- ▲ Recharging groundwater

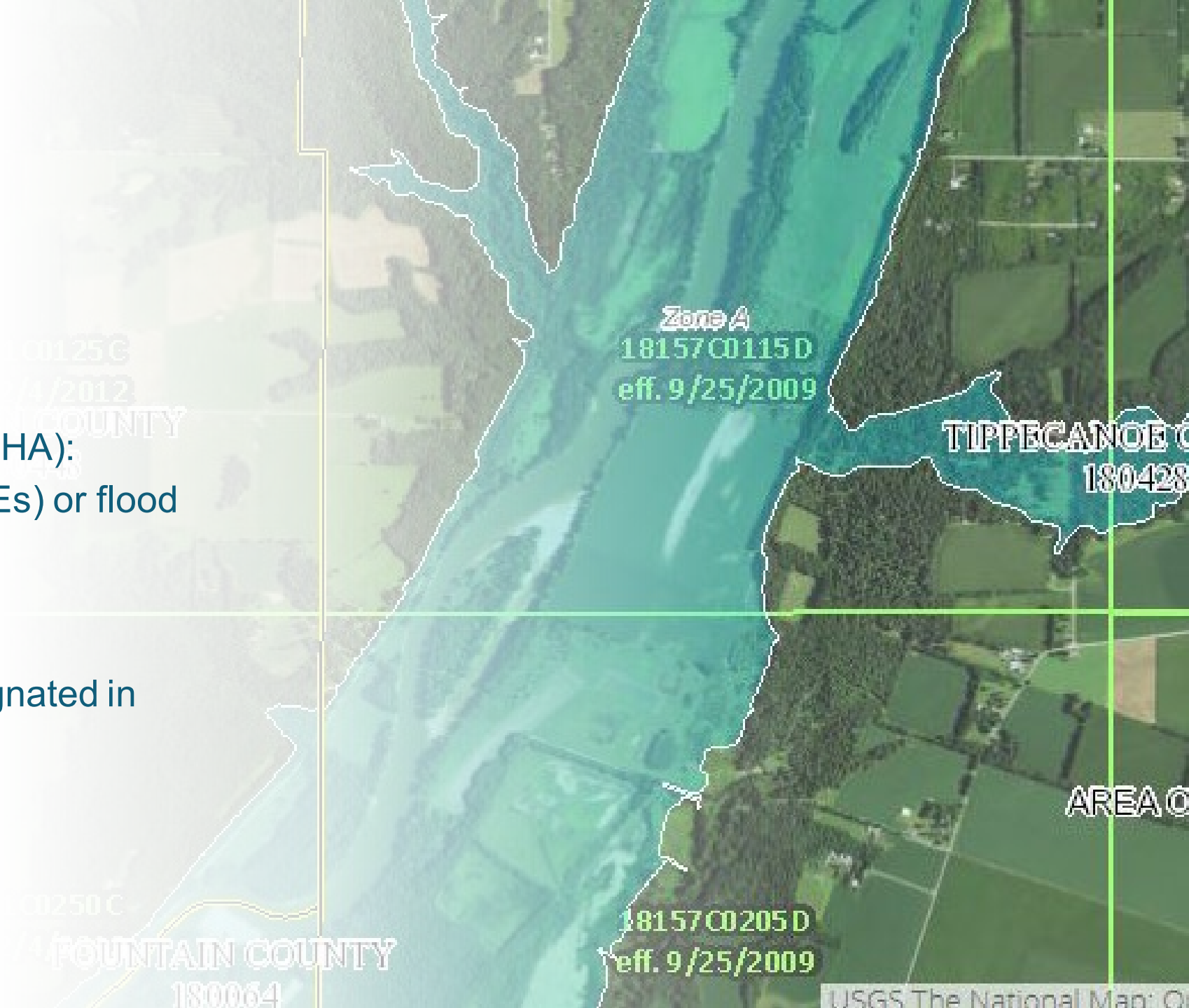


## Trail Planning near Rivers

Special Flood Hazard Area (SFHA):  
No Base Flood Elevations (BFEs) or flood depths shown.

### Zone A:

FEMA Zone A normally is designated in more rural areas.



## Zone AE:

These areas are where the Wabash River or significant tributaries exist in more urbanized / developed areas.

Zone AE may also have areas mapped as designated “floodway”.

The floodway is highly regulated as the river’s primary conveyance zone and floodplain, which is reserved to discharge the base flood.





# Trail Planning near Rivers

Greenway trail construction require a local floodplain development permit

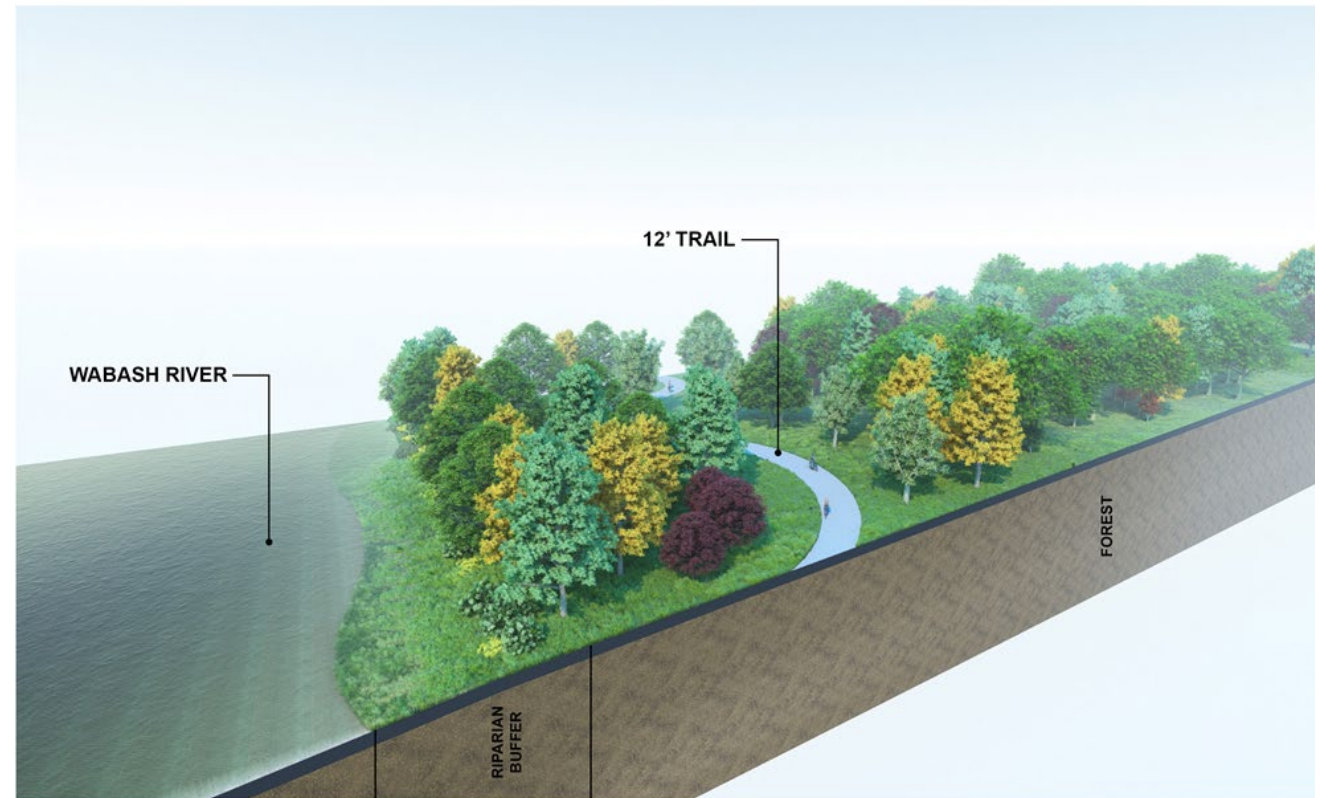
Floodway construction requires an hydraulic analysis model, also known as Flood Impact Analysis (FIA)

If FIA shows the project has no impact on Base Flood Elevations, it can be approved locally

Local jurisdictions may request FIA technical assistance from FEMA during review

Many greenway projects are permitted under this process by acheiving no-impact/No-Rise Certification

A local floodplain development permit and No-Rise Certification process can take two to six months



# Trail Planning near Rivers

Typically, bridge projects over a regulated mapped floodway require a Conditional Letter of Map Revision (CLOMR) unless the crossing can be elevated above the BFE, and span the entire floodway.

This is challenging, since bridge approaches typically “pinch” the floodway to minimize bridge span length.

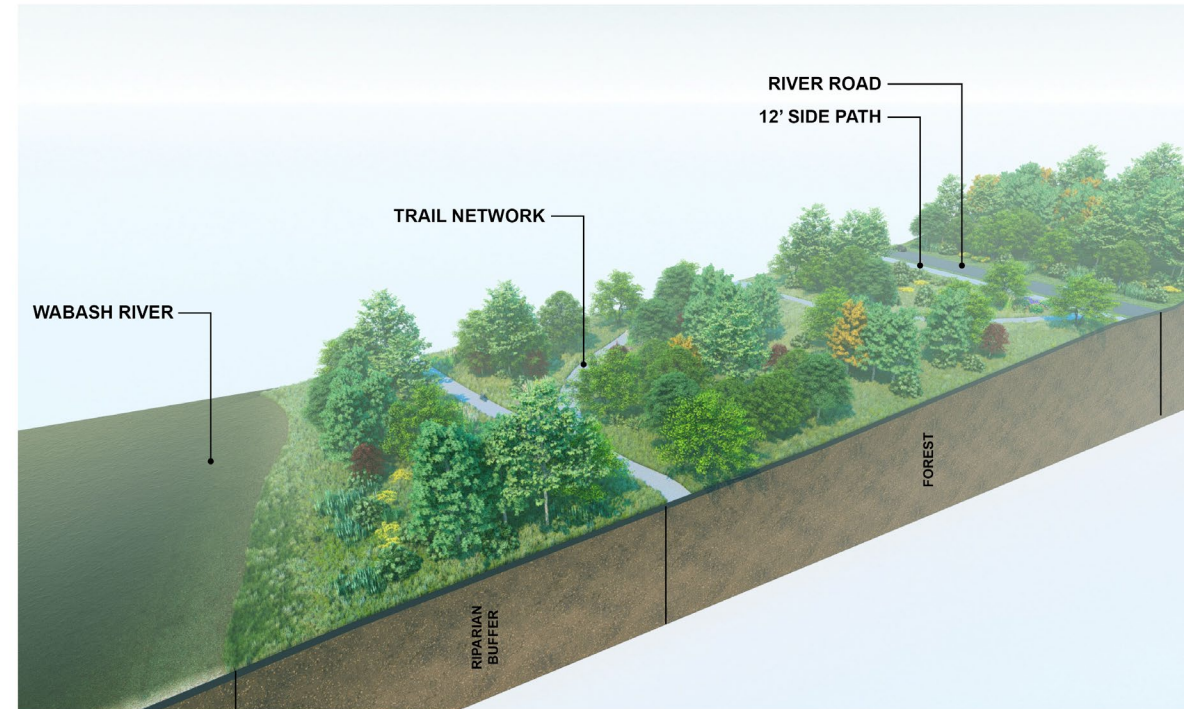
Any fill in the floodway and/or crossing can require a map revision through FEMA.

CLOMRs are submitted to FEMA for approval and typically take 5-12 months for review and approval.

After construction, the as-built information is used to update CLOMR to a Letter of Map Revision (LOMR).

The LOMR becomes the permanent revision to the FEMA map and associated model.

The CLOMR / LOMR process is likely to be required for structural crossings across the Wabash River or any major tributary with a mapped floodway.



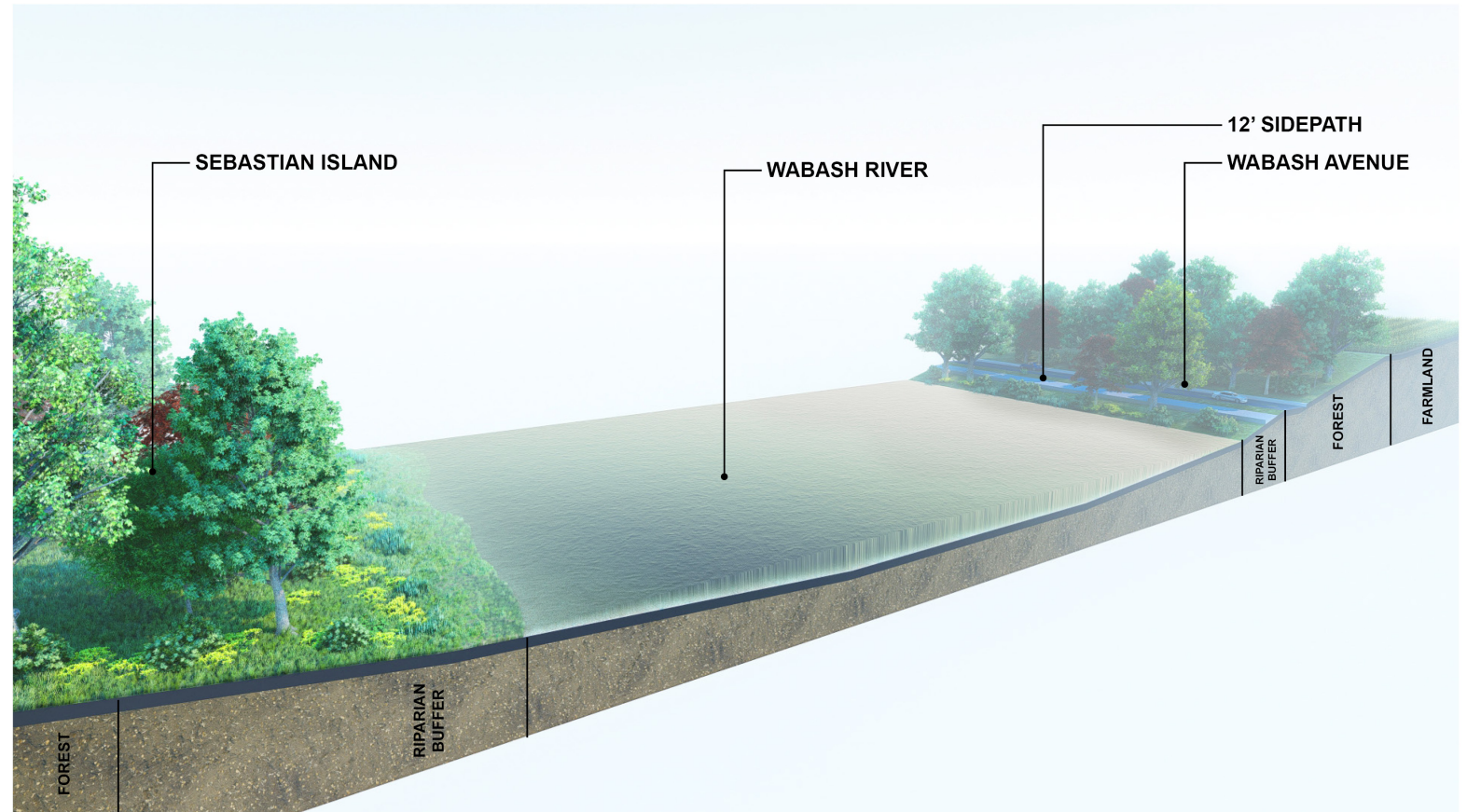


# Trail Planning near Rivers

Trail construction within Waters of the U.S. (WOTUS- jurisdictional streams or wetlands) will be required to obtain a USACE Section 404 permit and a corresponding IDEM Section 401 Water Quality Certification (WQC)

Section 10 of the Rivers and Harbors Act of 1899 requires regulated activities conducted below Ordinary High Water (OHW) elevations of navigable waters of the U.S. be USACE approved and permitted

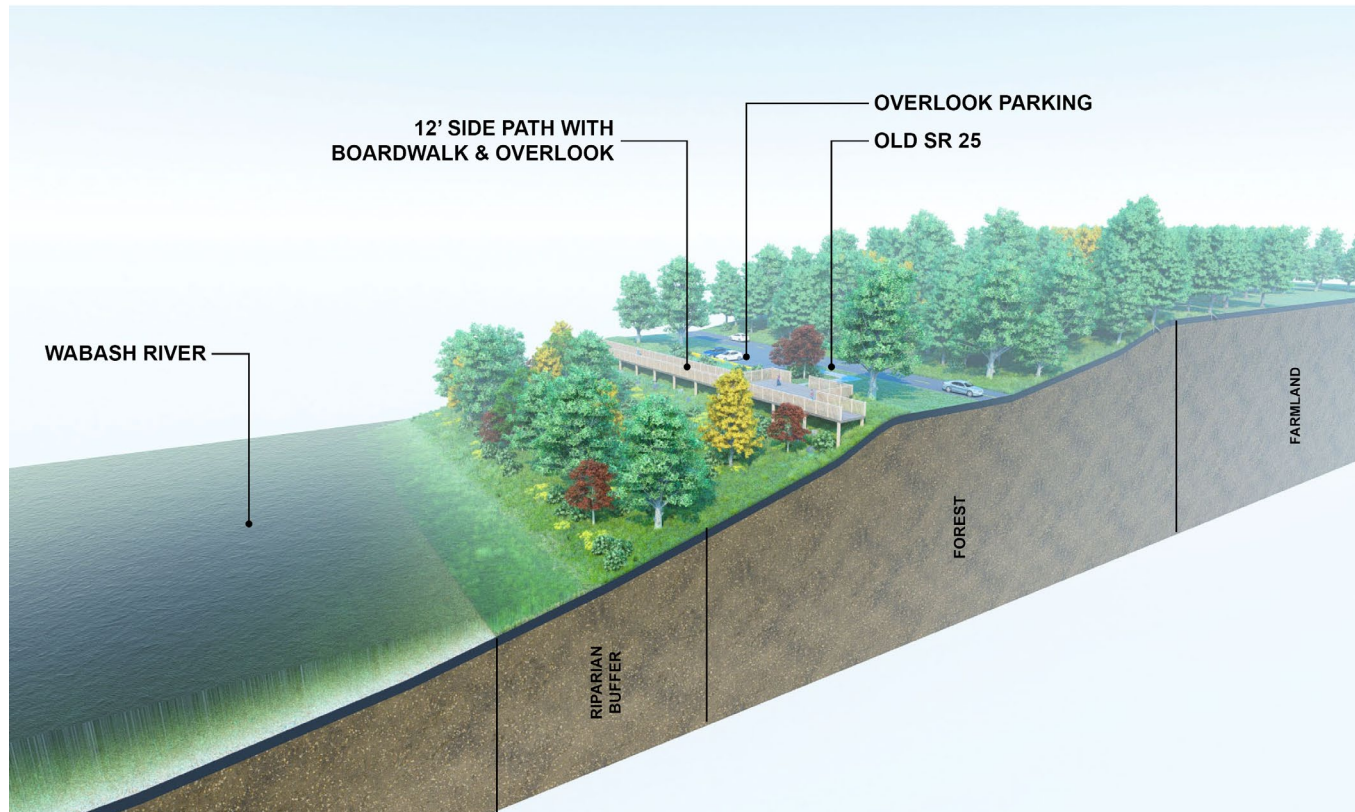
Regulated work: structure placement/removal, filling, excavation, or soils disturbance



# Trail Planning near Rivers

FEMA CLOMRs and USACE permits require compliance with federal Endangered Species Act (ESA).

ESA documentation from U.S. Fish and Wildlife Service (USFWS) with determination or concurrence is required for each application.



FEMA CLOMRs and USACE permits require compliance with federal Endangered Species Act (ESA).

ESA documentation from U.S. Fish and Wildlife Service (USFWS) with determination or concurrence is required for each application.

Other permits or clearances beyond FEMA, Section 404., Section 10, and Section 401 may be required due to natural or cultural resources specific to the project.



Thank you!

