

Presentation

# Brent Spence Bridge

Replacement/Rehabilitation Project

PID No. 75119

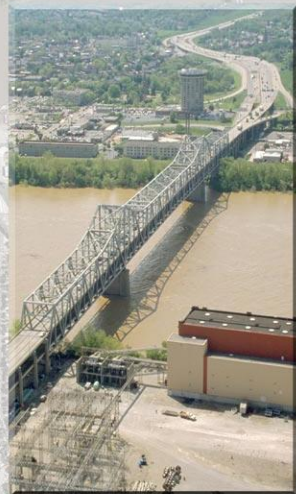
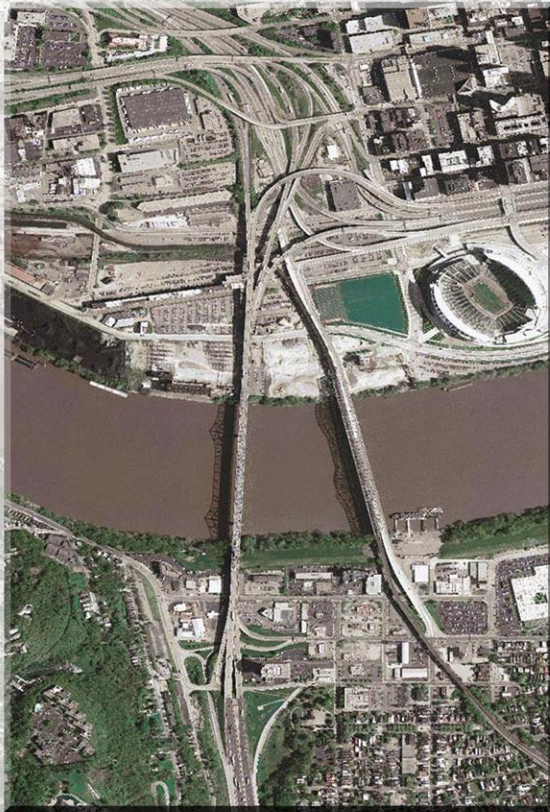
HAM-71/76-0.00/0.22

KYTC Project Item No. 6-17

U.S. Department of Transportation  
Federal Highway Administration



## Advisory Committee Meeting • December 17, 2010

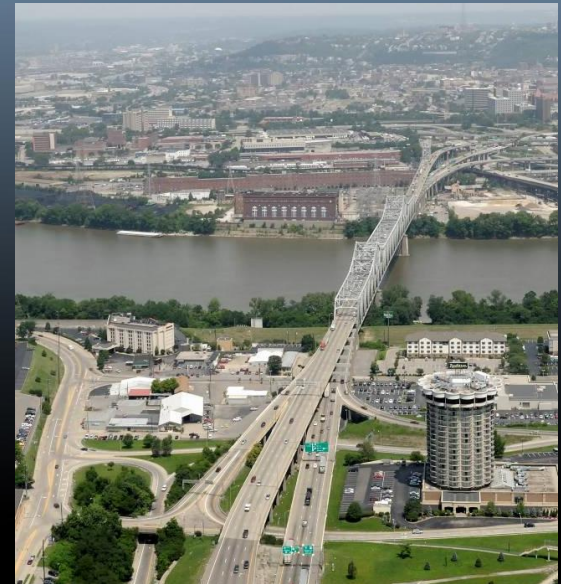


**PB** PARSONS  
BRINCKERHOFF



# Presentation Overview

- Purpose and Need
- Study Area
- Project Development Process
- Alternatives Development
- Bridge Type Selection Process
- Environmental Studies
- Recommended Preferred Alternative
- Next Steps



# Purpose and Need

- **The Purpose of the Project is to:**
  - Improve traffic flow and level of service
  - Improve safety
  - Correct geometric deficiencies
  - Maintain connections to key regional and national transportation corridors





# Study Area



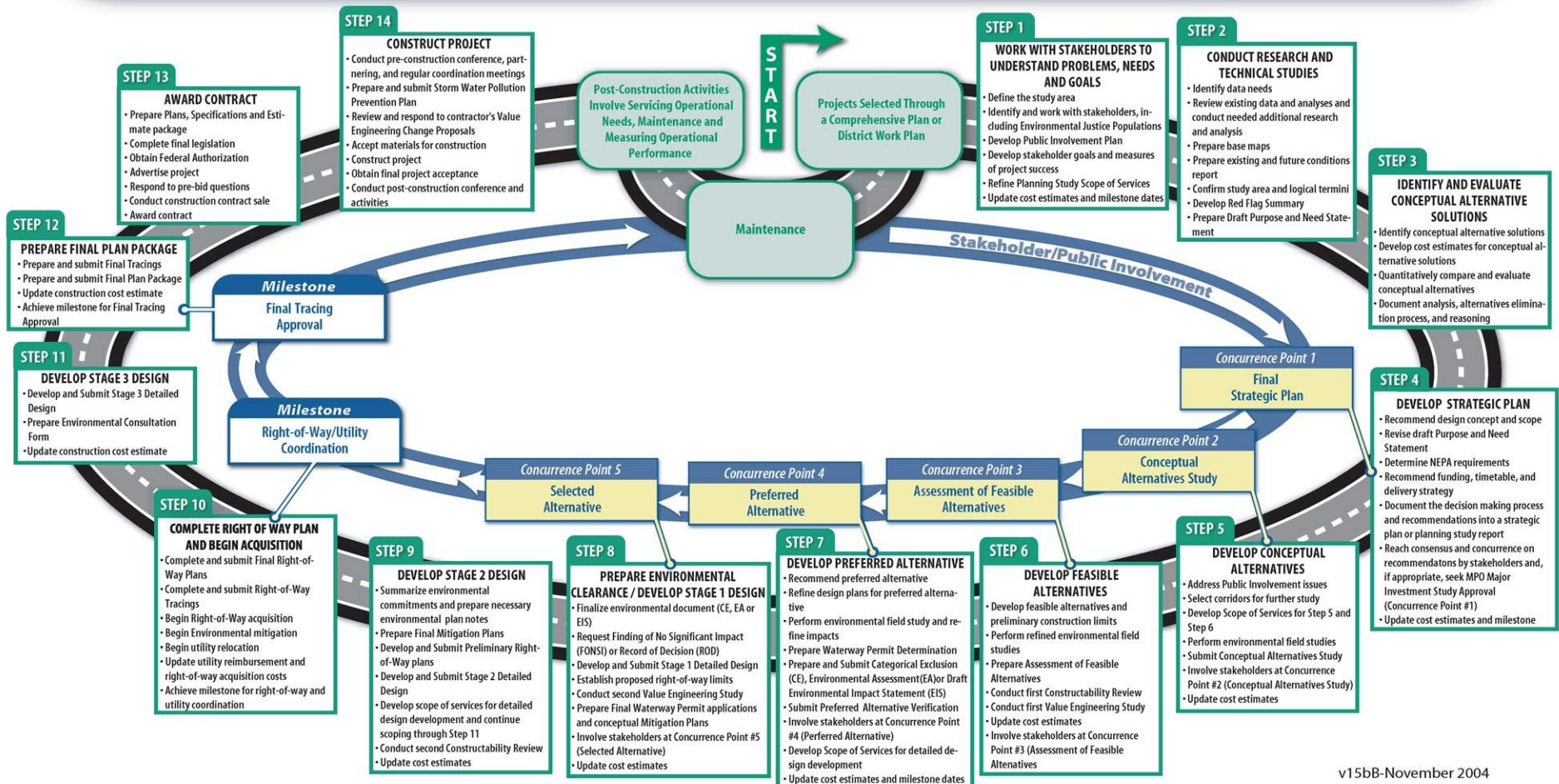
- Study Area 3.21 Sq Miles
- Project Length 7.8 Miles
  - KY 5.1 Miles (26,807 ft)
  - OH 2.7 Miles (14,256 ft)
- Existing Bridge Length
  - 1,736.5 Feet
  - 4% of Project Length



# Project Development Process



## Ohio Department of Transportation Project Development Process (PDP) for Major Projects

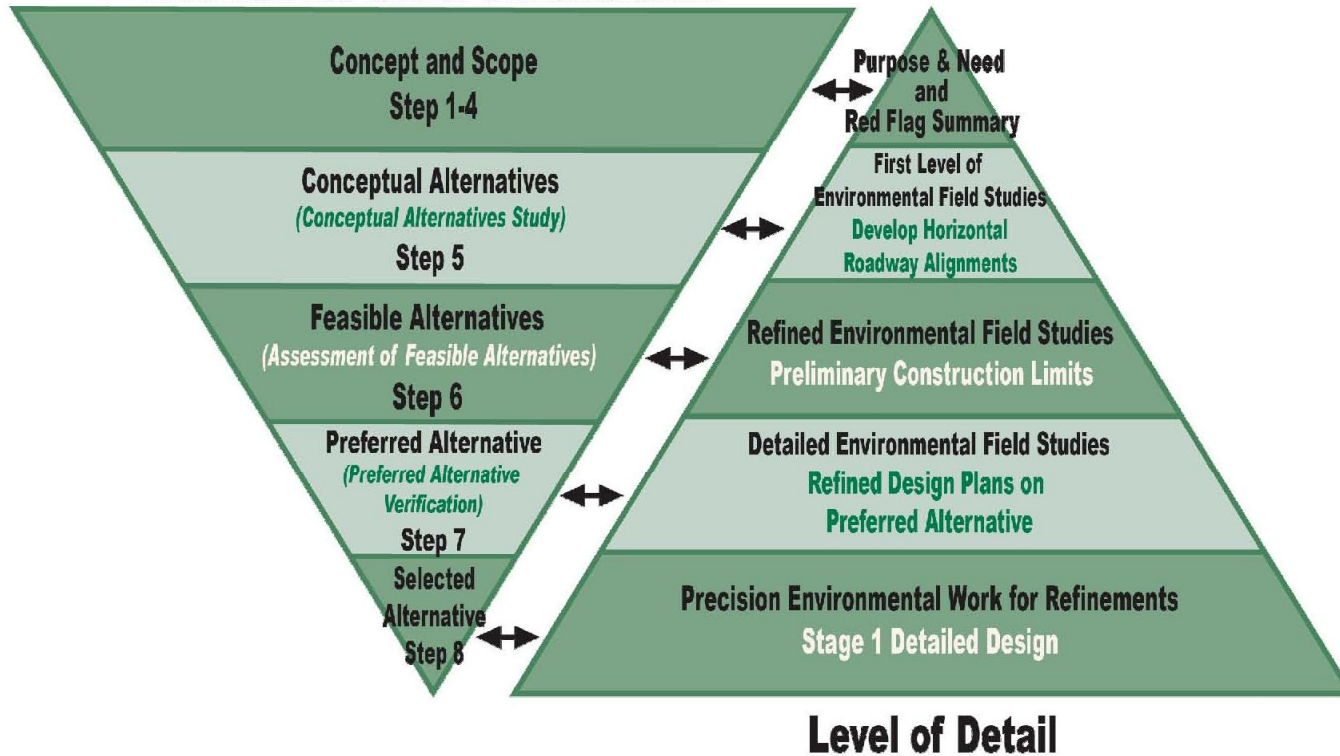




# Project Development Process

## Major PDP

### Alternatives Under Consideration





# Alternatives Development

- **KYTC/ODOT initiated conceptual alternative studies in 2003**
  - 6 alternatives were recommended for further study
- **ODOT/KYTC initiated conceptual alternative studies in 2006**
  - 25 conceptual alternatives were studied
  - 5 alternatives and several sub-alternatives were recommended for further study



# Alternatives Development

- **8 conceptual alternatives were studied in detail in 2008**
- **2 alternatives were recommended for further study in 2009**
  - Alternatives E and I
  - The alignment is the same for each, but the access points for both Covington and Cincinnati are different
  - Existing Brent Spence Bridge to remain
  - New double-deck bridge next to existing Brent Spence Bridge on west side





# Design Criteria Goals

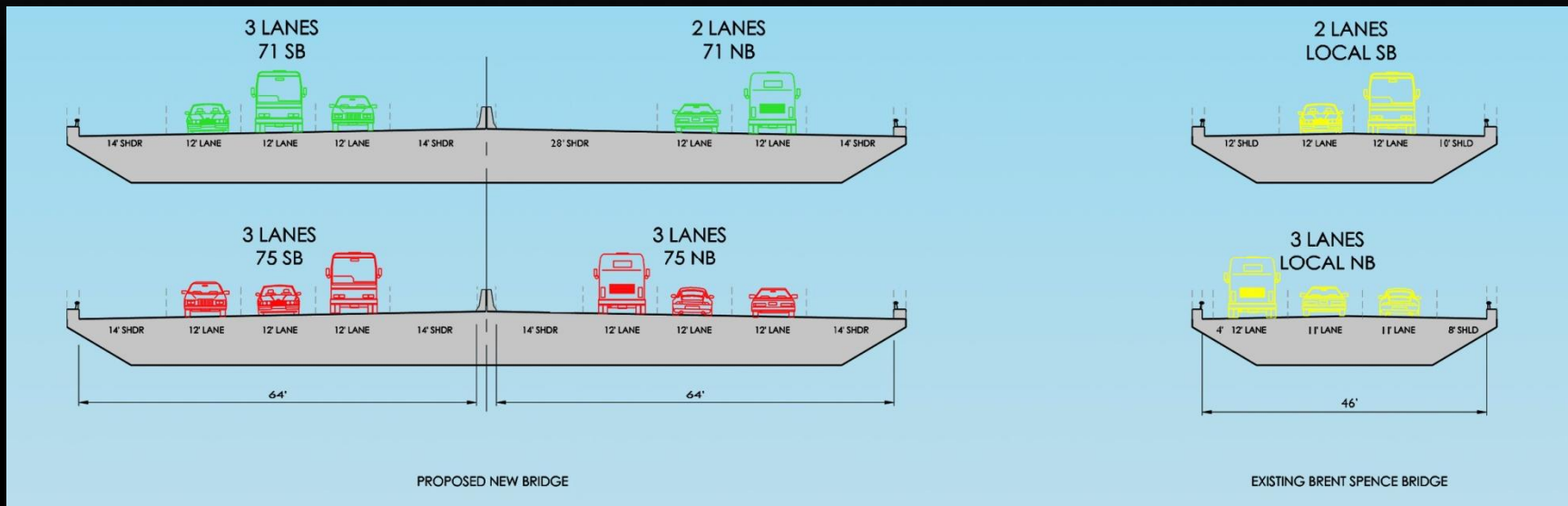
## Goals used to developed feasible alternatives:

1. No lane shall be over capacity.
2. No lane shall have substantial unused capacity.
3. No lane shall have more than two destinations.
4. No lane shall have more than one merge, diverge, or weave as a result of a local entrance or exit.
5. Lane endings shall end on the right of through lanes to avoid weaves.
6. Lane beginnings shall begin on the right of through lanes to avoid weaves.
7. All lanes could operate as separate, independent roadways relevant to other local roadways.



# Proposed Configurations Alternative E

- **Existing Brent Spence Bridge will Remain**
  - Top Deck: Collector Distributor SB, 2 lanes with 2 full width shoulders
  - Lower Deck: Collector Distributor NB, 3 lanes with 1 full width shoulder
- **New Double Deck Bridge**
  - Top Deck: Interstate-71 SB, 3 lanes with 2 full width shoulders and Interstate-71 NB, 2 lanes with 2 full width shoulders
  - Lower Deck: Interstate-75 NB & SB, 3 lanes with 2 full width shoulders each directions



■ Interstate-71

■ Interstate-75

■ Local

# Proposed Configurations Alternative E

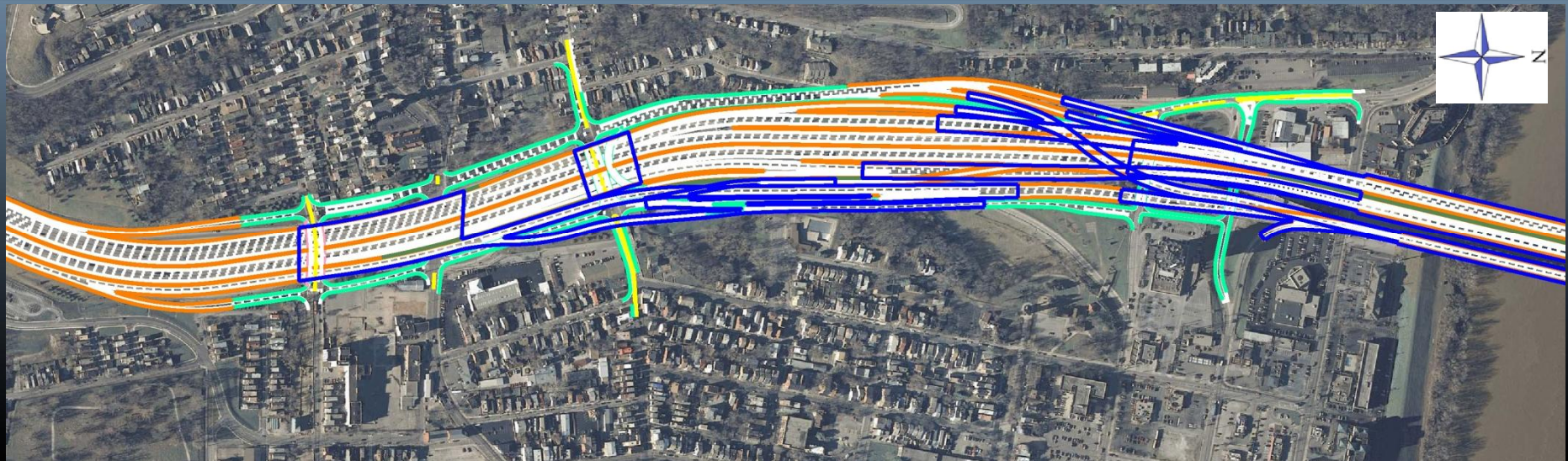


**I-71**  
2 LANES NB  
3 LANES SB

**Local**  
2 LANES SB  
3 LANES NB

**I-75**  
3 LANES NB  
3 LANES SB

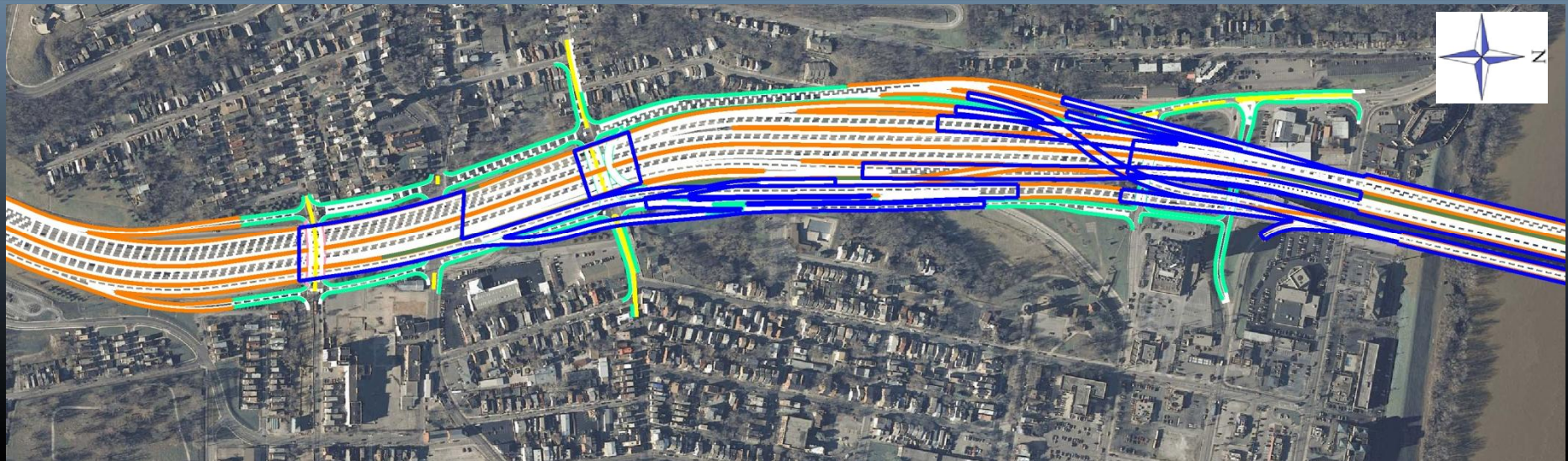
# Proposed Configurations Alternative E



- **Interstate 71/75 Southbound to Covington**

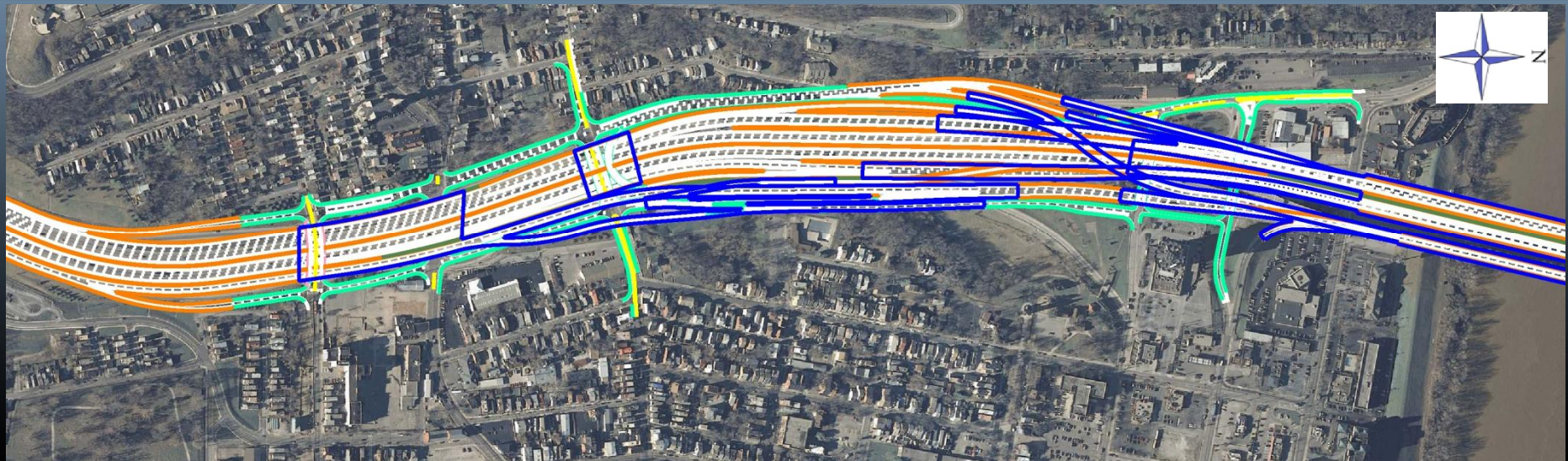
- Direct access from the Interstate to 9<sup>th</sup> Street
- Access from Collector Distributor to 9<sup>th</sup> Street
- New frontage road on east side of Interstate to access 5<sup>th</sup> Street from 9<sup>th</sup> Street exit
- Crescent Avenue/Bullock Street used to access Pike Street and 12<sup>th</sup> Street from 9<sup>th</sup> Street exit

# Proposed Configurations Alternative E



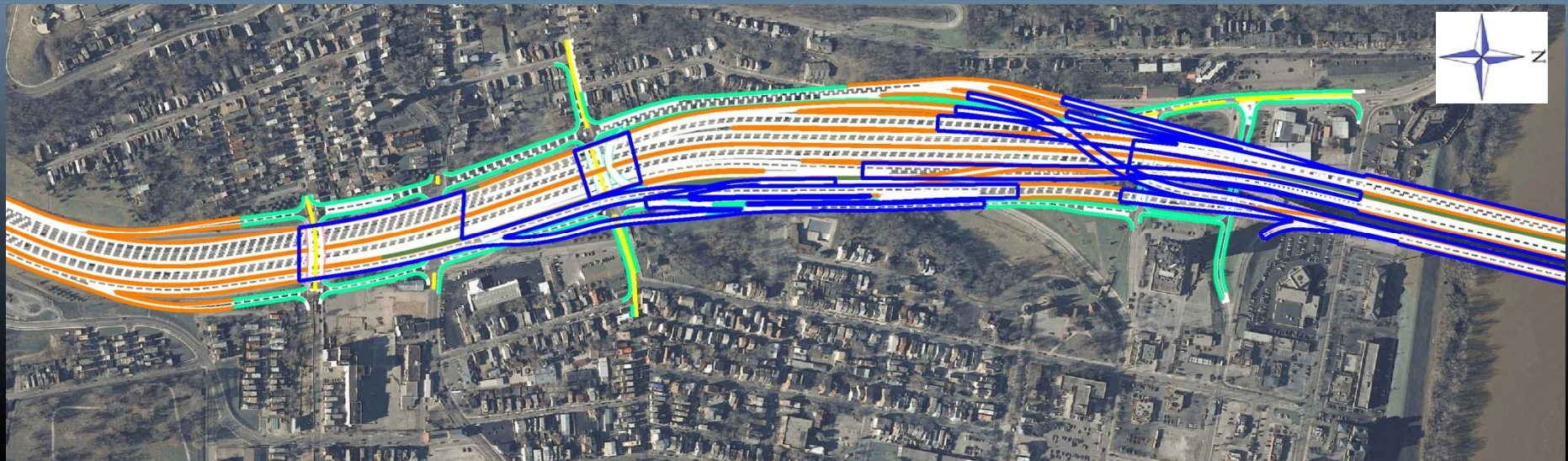
- **Interstate 71/75 Northbound to Covington**
  - Exit to Collector Distributor just south of 12<sup>th</sup> Street
  - Direct access from Collector Distributor to 12<sup>th</sup> and 5<sup>th</sup> streets
  - Access to Pike Street and 9<sup>th</sup> Street from Jillians Way frontage road from 12<sup>th</sup> Street
  - Additional access to 5<sup>th</sup> Street and 4<sup>th</sup> Street from Jillians Way frontage road from 12<sup>th</sup> Street

# Proposed Configurations Alternative E



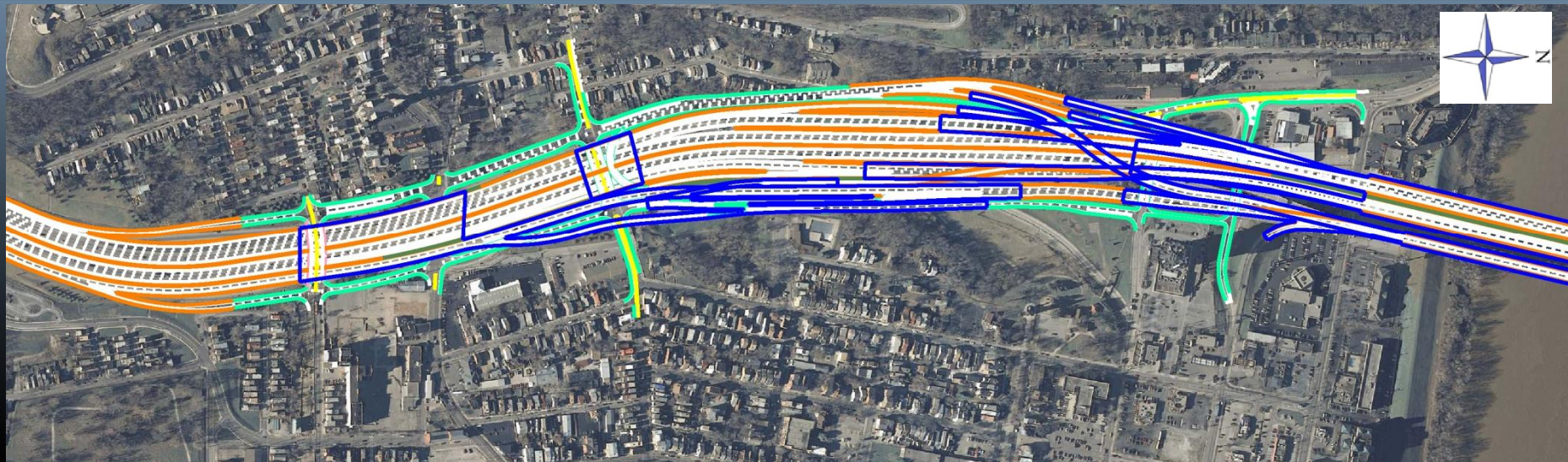
- **Covington to Interstate 71 Northbound**
  - Indirect access from 4<sup>th</sup> Street and 9<sup>th</sup> Street to Collector Distributor (existing bridge) to 2<sup>nd</sup> Street in Ohio
  - Clay Wade Bailey Bridge to 2<sup>nd</sup> Street in Ohio
  - Direct access from Crescent Avenue to Loop Ramp near 9<sup>th</sup> Street

# Proposed Configurations Alternative E



- **Covington to Interstate 75 Northbound**
  - Direct access from Jillians Way frontage road at 9<sup>th</sup> Street
  - Indirect access from 4<sup>th</sup> Street and 9<sup>th</sup> Street to Collector Distributor (existing bridge)

# Proposed Configurations Alternative E



- **Covington to Interstate 71/75 Southbound**
  - Crescent Avenue/Bullock Street to 12<sup>th</sup> Street on ramp
    - Access from 4<sup>th</sup>, 9<sup>th</sup>, and Pike streets



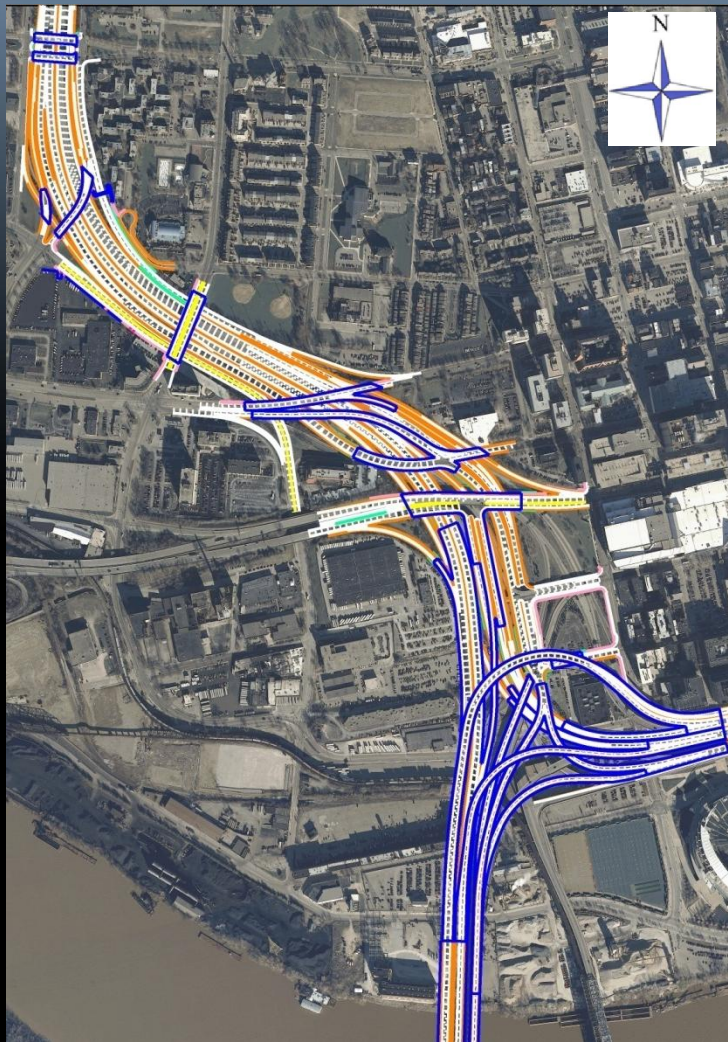
# Proposed Configurations Alternative E



**Alternative E**

- **Interstate 75 Southbound to Cincinnati**
  - Indirect access from Collector Distributor to
    - Freeman Avenue
    - 7<sup>th</sup> Street
    - 5<sup>th</sup> Street
    - 2<sup>nd</sup> Street
- **Interstate 71 Southbound to Cincinnati**
  - Direct access to US 50 WB and EB 6<sup>th</sup> Street
  - No direct access to Ezzard Charles Drive (Cincinnati Museum Center)

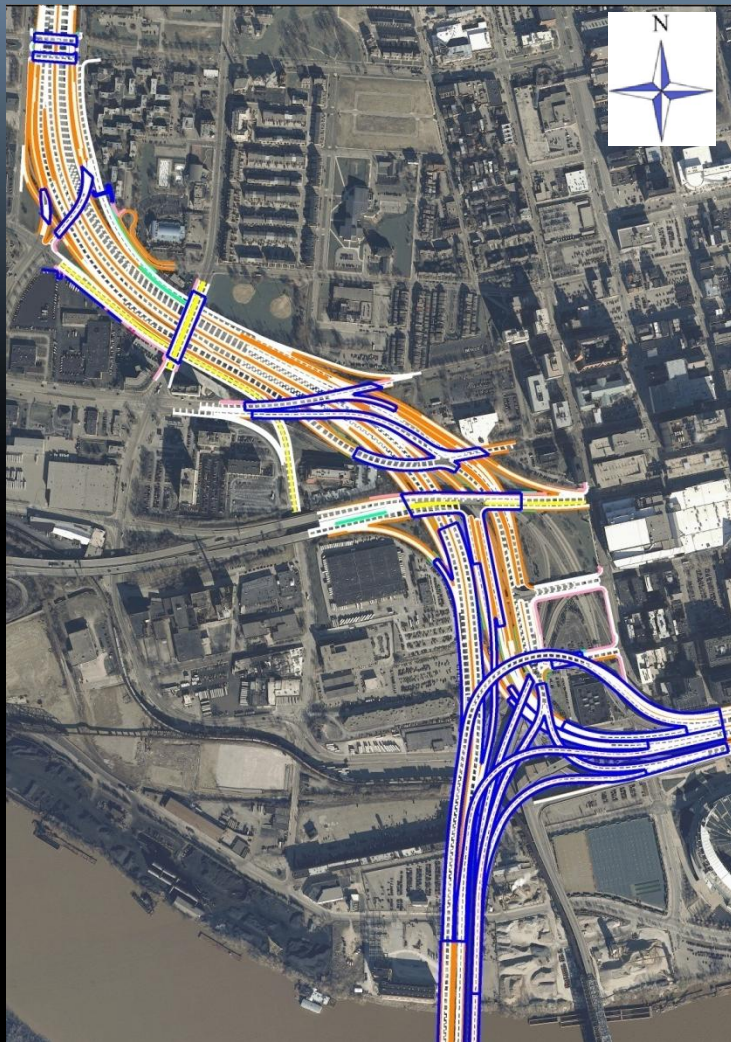
# Proposed Configurations Alternative E



**Alternative E**

- **Interstate 75 Northbound to Cincinnati**
  - Direct access to US 50 WB
  - Indirect access from Collector Distributor to
    - 2<sup>nd</sup> Street
    - 5<sup>th</sup> Street
    - West 8<sup>th</sup> Street
    - Ezzard Charles Drive (Cincinnati Museum Center)

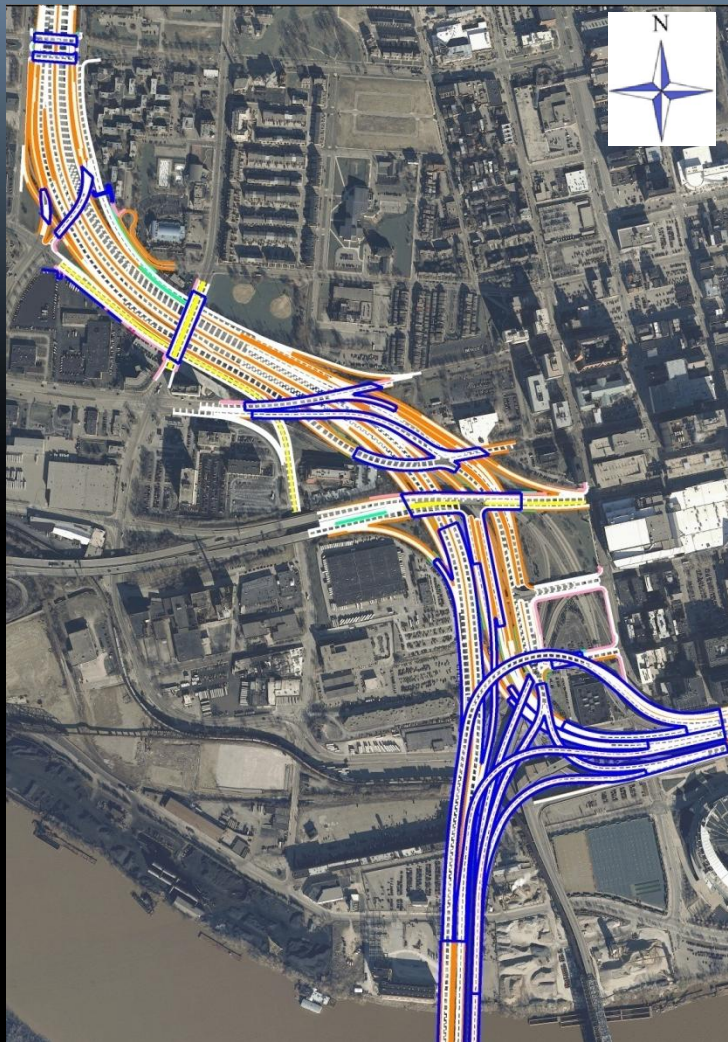
# Proposed Configurations Alternative E



**Alternative E**

- **Cincinnati to Interstate 75 Northbound**
  - Access from 4<sup>th</sup> Street to Collector Distributor
  - Indirect access from 6<sup>th</sup> and 9<sup>th</sup> streets to Winchell Avenue, connects at Western Hills Viaduct
- **Cincinnati to Interstate 71 Northbound**
  - Direct access from EB US 50 to NB I-71
  - Direct access from 6<sup>th</sup> Street to NB I-71

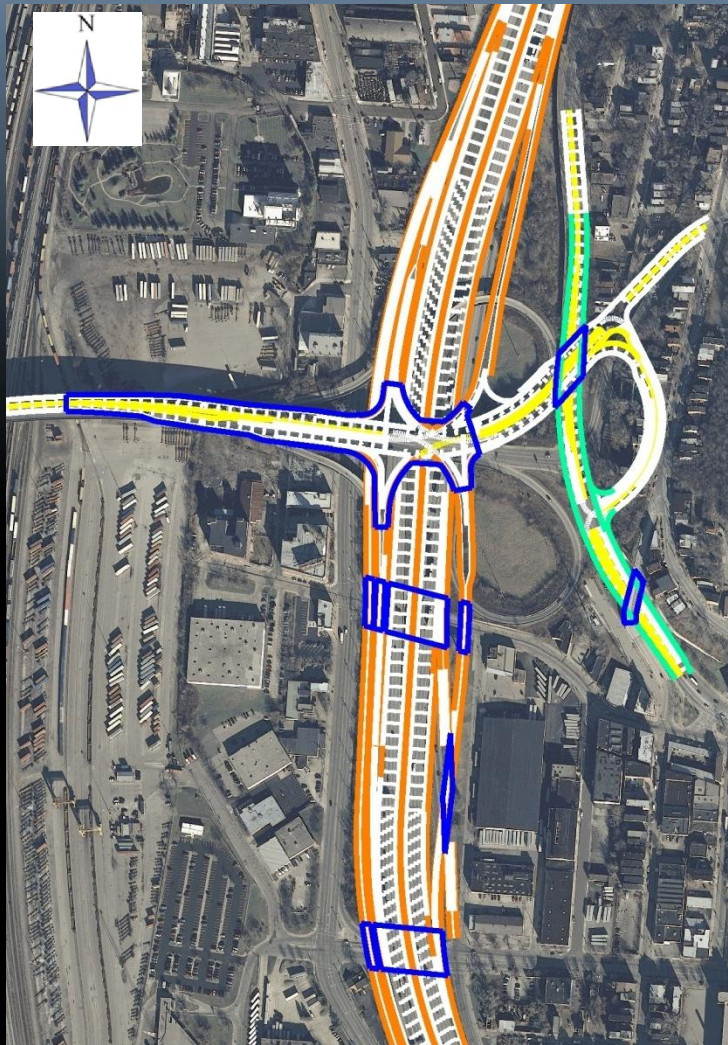
# Proposed Configurations Alternative E



- **Cincinnati to Interstate 71/75 Southbound**
  - Direct access from EB US 50 to SB I-75
  - Direct access from 3<sup>rd</sup> Street to SB I-71
  - Access from 4<sup>th</sup> Street and West 8<sup>th</sup> Street to Collector Distributor

**Alternative E**

# Proposed Configurations Alternative E



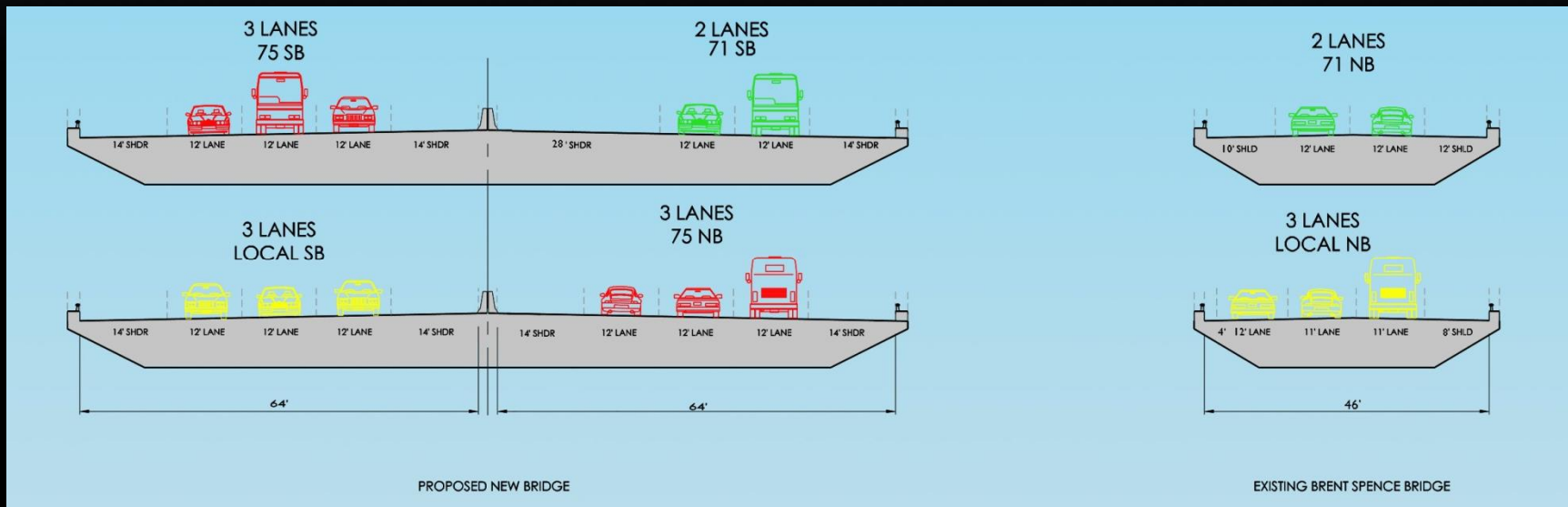
- **Western Hills Viaduct  
Single Point Urban Interchange  
(SPUI)**
  - Provides interstate access to/from  
WHV and Central Parkway

**Alternative E**

# Proposed Configurations Alternative I

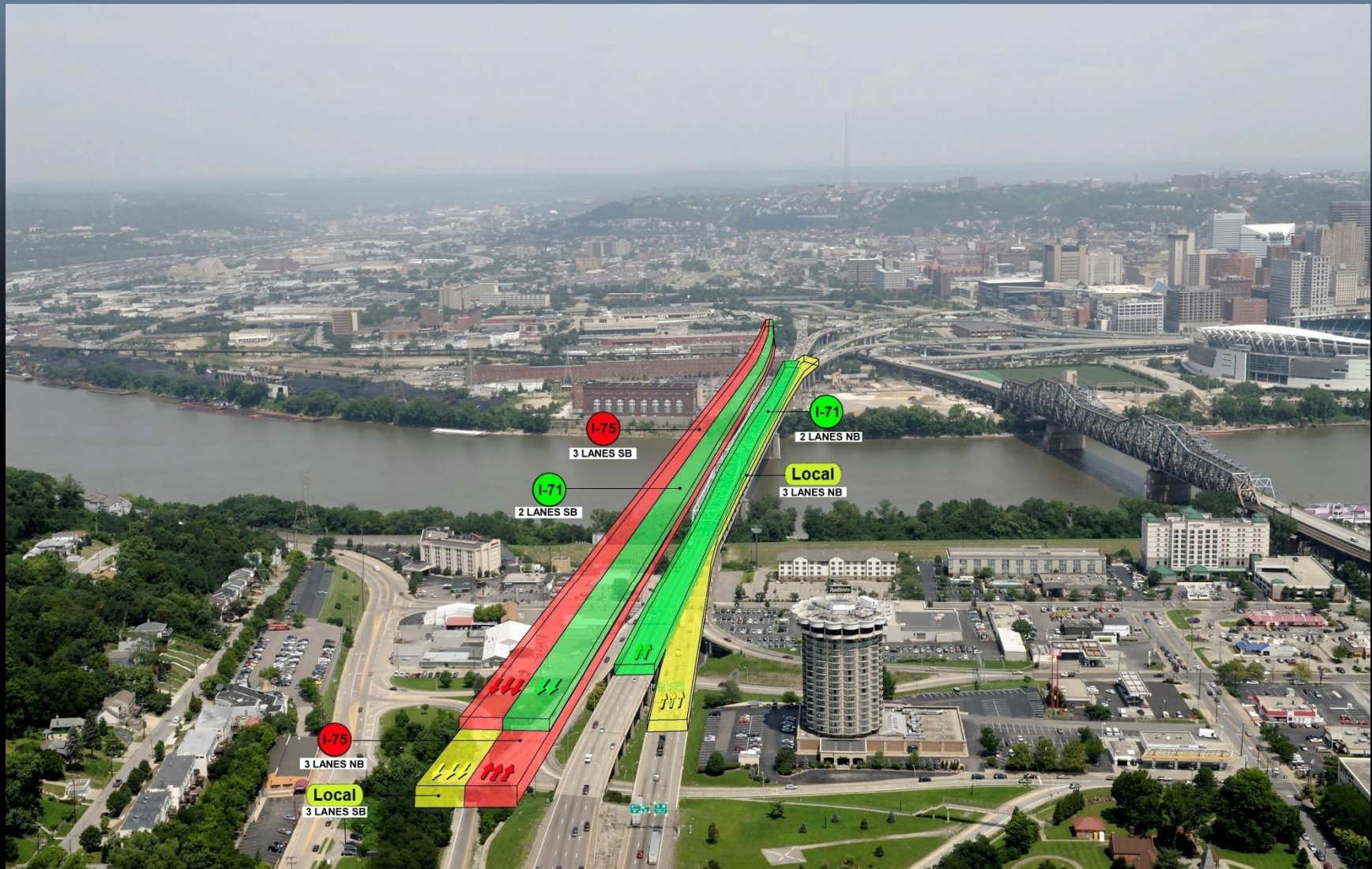


- **Existing Brent Spence Bridge will Remain**
  - Top Deck: Interstate-71 NB, 2 lanes with 2 full width shoulders
  - Lower Deck: Collector Distributor NB, 3 lanes with 1 full width shoulder
- **New Double Deck Bridge**
  - Top Deck: Interstate-71 SB, 2 lanes with 2 full width shoulders and Interstate-75 SB, 3 lanes with 2 full width shoulders
  - Lower Deck: Interstate-75 NB, 3 lanes with 2 full width shoulders and Collector Distributor SB, 3 lanes with 2 full width shoulders



■ Interstate-71
 ■ Interstate-75
 ■ Local

# Proposed Configurations Alternative I



# Proposed Configurations Alternative I



- **Interstate 71/75 Southbound to Covington**
  - Direct access to 5<sup>th</sup> Street and 9<sup>th</sup> Street from the Collector Distributor



# Proposed Configurations Alternative I



- **Interstate 71/75 Northbound to Covington**

- Exit to Collector Distributor just south of 12<sup>th</sup> Street
- Direct access from Collector Distributor to 12<sup>th</sup>
- Access to Pike Street, 9<sup>th</sup> Street, and 5<sup>th</sup> Street from Jillians Way frontage road from 12<sup>th</sup> Street

# Proposed Configurations Alternative I



- **Covington to Interstate 71 Northbound**
  - Indirect access from 4<sup>th</sup> Street to Collector Distributor (existing bridge) to ramp to Fort Washington Way - Similar to current conditions
  - Clay Wade Bailey Bridge to 2<sup>nd</sup> Street in Ohio
  - Direct access from Jillians Way frontage road at Pike Street

# Proposed Configurations Alternative I



- **Covington to Interstate 75 Northbound**

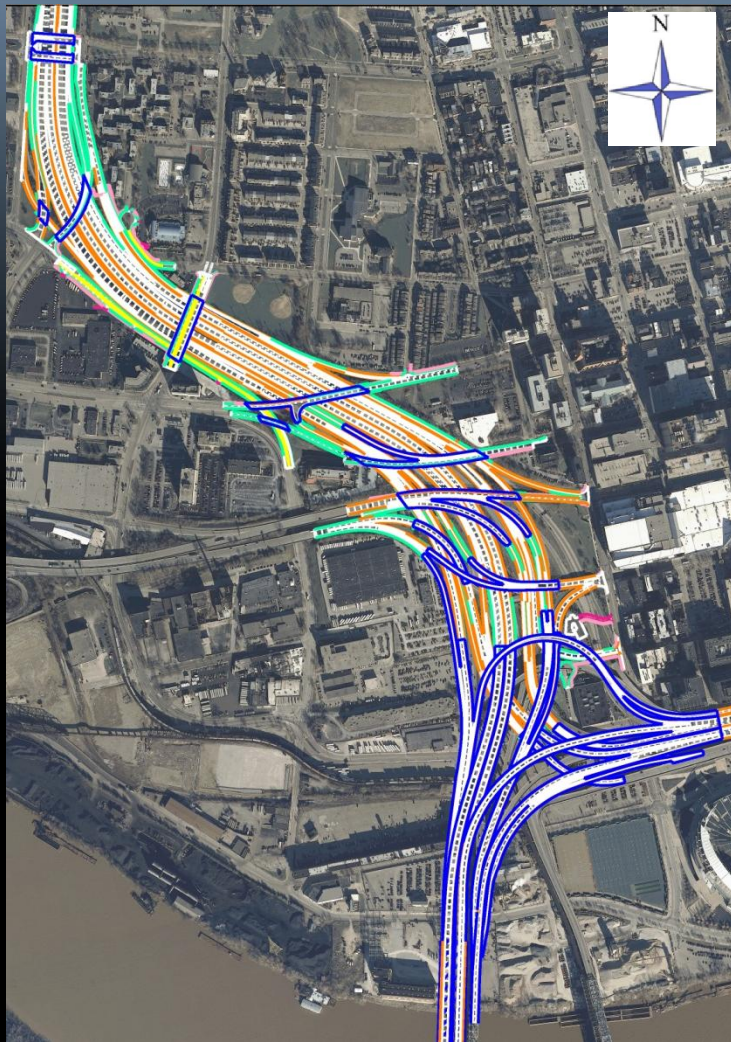
- Indirect access from 4<sup>th</sup> Street to Collector Distributor (existing bridge) - Similar to current conditions
- Indirect access from Jillians Way frontage road at Pike Street to Collector Distributor (existing bridge) - Similar to current conditions

# Proposed Configurations Alternative I



- **Covington to Interstate 71/75 Southbound**
  - Bullock Street to 12<sup>th</sup> Street on ramp
  - Direct connection from 4<sup>th</sup> Street to Bullock Street
  - Access from 4<sup>th</sup>, 9<sup>th</sup>, and Pike streets

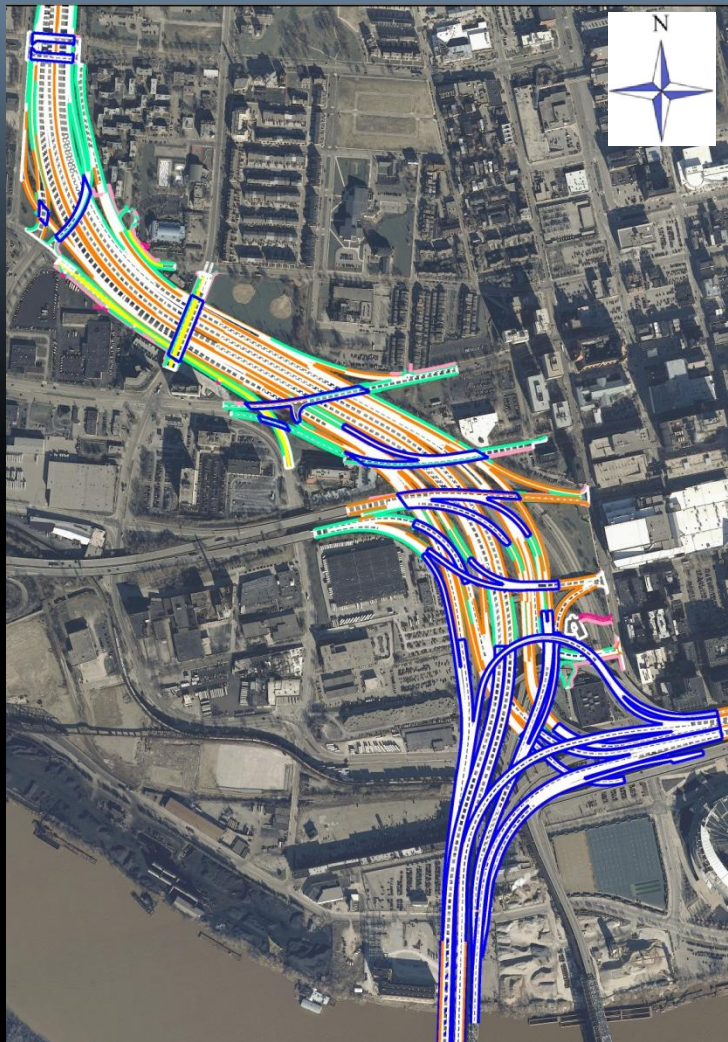
# Proposed Configurations Alternative I



**Alternative I**

- **Interstate 75 Southbound to Cincinnati**
  - Indirect access from Collector Distributor to
    - Freeman Avenue
    - 7<sup>th</sup> Street
    - 5<sup>th</sup> Street
    - 2<sup>nd</sup> Street
- **Interstate 71 Southbound to Cincinnati**
  - Direct access to US 50
  - Indirect access to Ezzard Charles Drive (Cincinnati Museum Center) from Collector Distributor

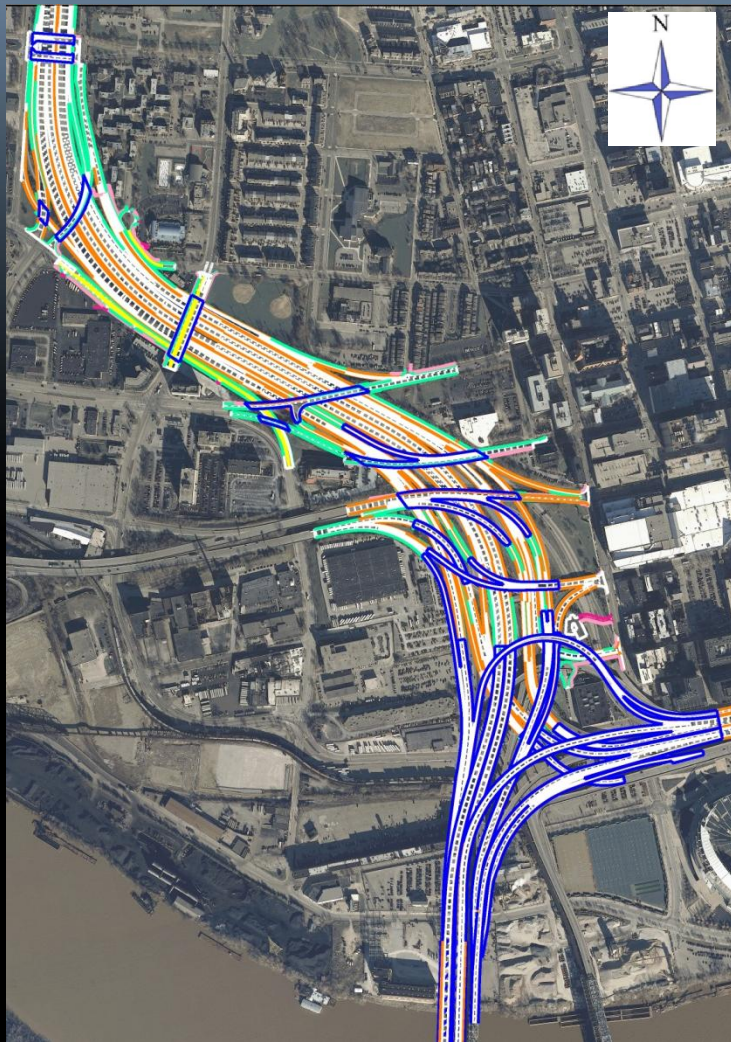
# Proposed Configurations Alternative I



- **Interstate 75 Northbound to Cincinnati**
  - Indirect access from Collector Distributor to
    - 2<sup>nd</sup> Street
    - 5<sup>th</sup> Street
    - US 50 WB
    - Ezzard Charles Drive (Cincinnati Museum Center)

**Alternative I**

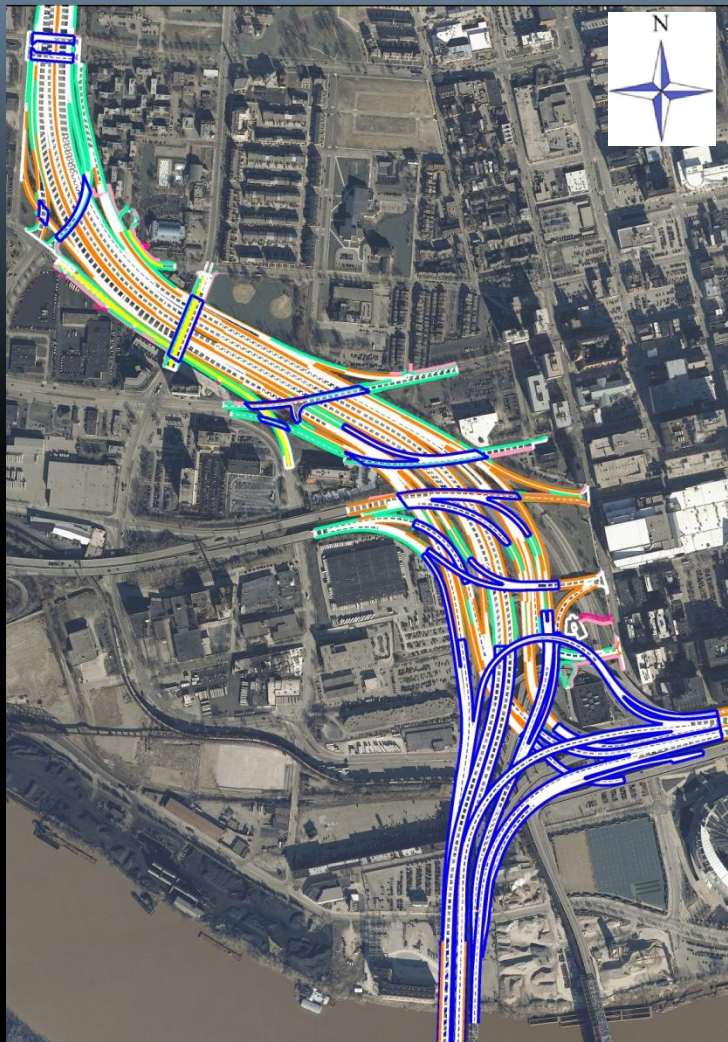
# Proposed Configurations Alternative I



Alternative I

- **Cincinnati to Interstate 75 Northbound**
  - Access from 4<sup>th</sup> Street to Collector Distributor
  - Indirect access from 6<sup>th</sup> and 9<sup>th</sup> streets to Winchell Avenue, connects at Western Hills Viaduct
- **Cincinnati to Interstate 71 Northbound**
  - Direct access from EB US 50 to NB I-71

# Proposed Configurations Alternative I

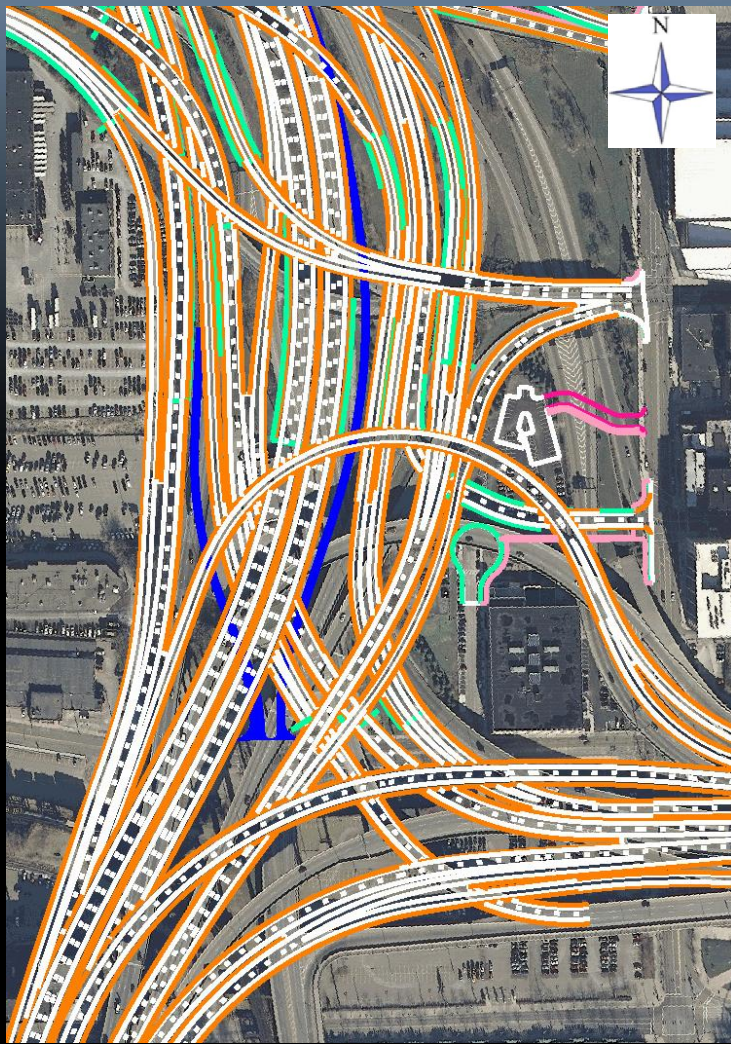


- **Cincinnati to Interstate 71/75 Southbound**
  - Access from EB US 50 to Collector Distributor
  - Access from 9<sup>th</sup> and 3<sup>rd</sup> streets to Collector Distributor

**Alternative I**



# Proposed Configurations Alternative I



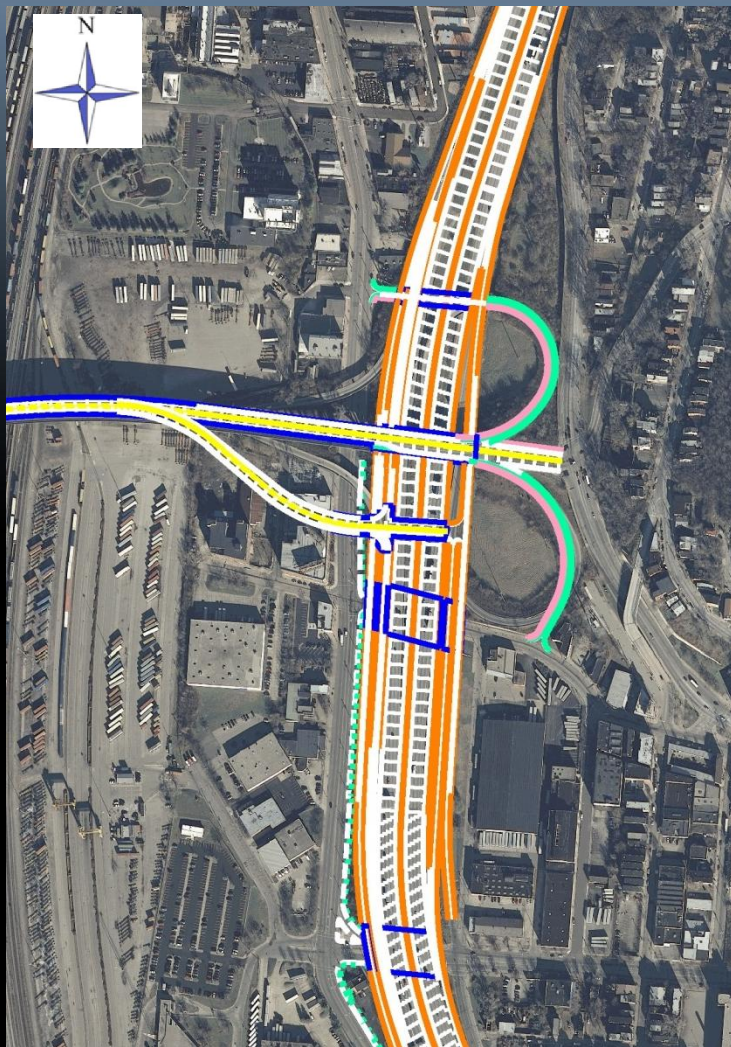
- **Clay Wade Bailey Bridge Connection**

**Connection Evaluated but not Recommended for Advancement**

- Provided a connection from SB Collector Distributor to 3<sup>rd</sup> Street and north end of CWB Bridge
- Provided a direct connection from north end of CWB Bridge and 3<sup>rd</sup> Street to I-75 Northbound

**Alternative I**

# Proposed Configurations Alternative I



Alternative I

- **Western Hills Viaduct  
Tight Urban Diamond Interchange (TUDI)**
  - Maintains current interstate access to/from WHV
  - Separates interstate traffic from local traffic movements
    - Upper Deck – Local Traffic
    - Lower Deck – Interstate Traffic



# Kentucky Mainline Alternatives



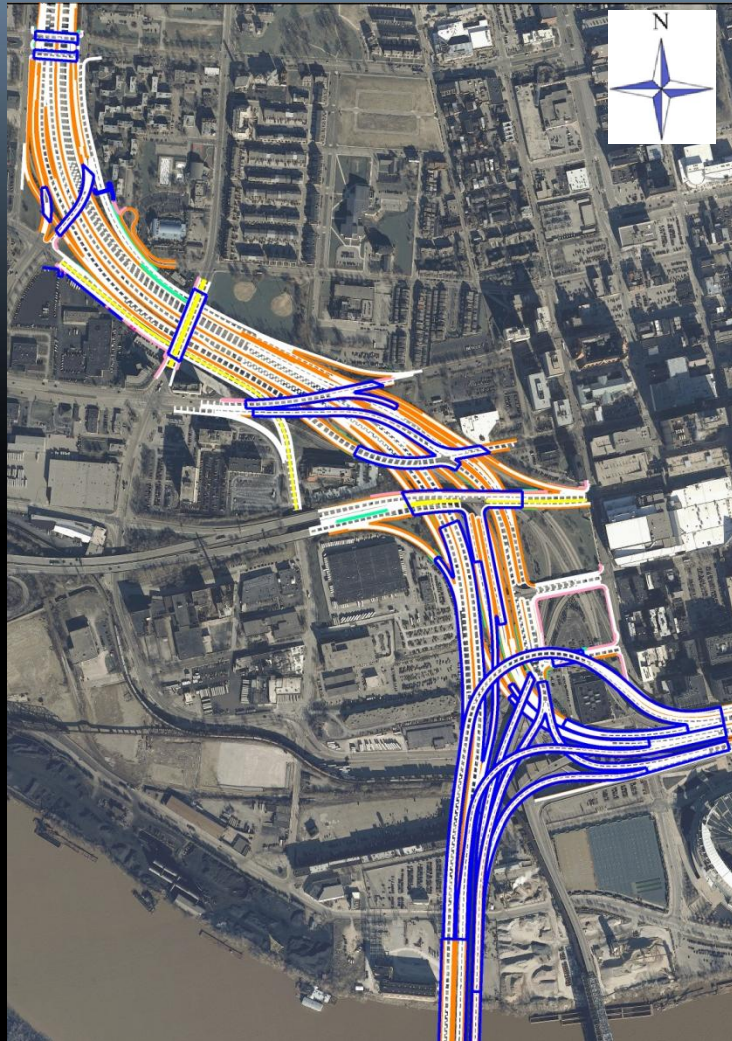
**Alternative E**



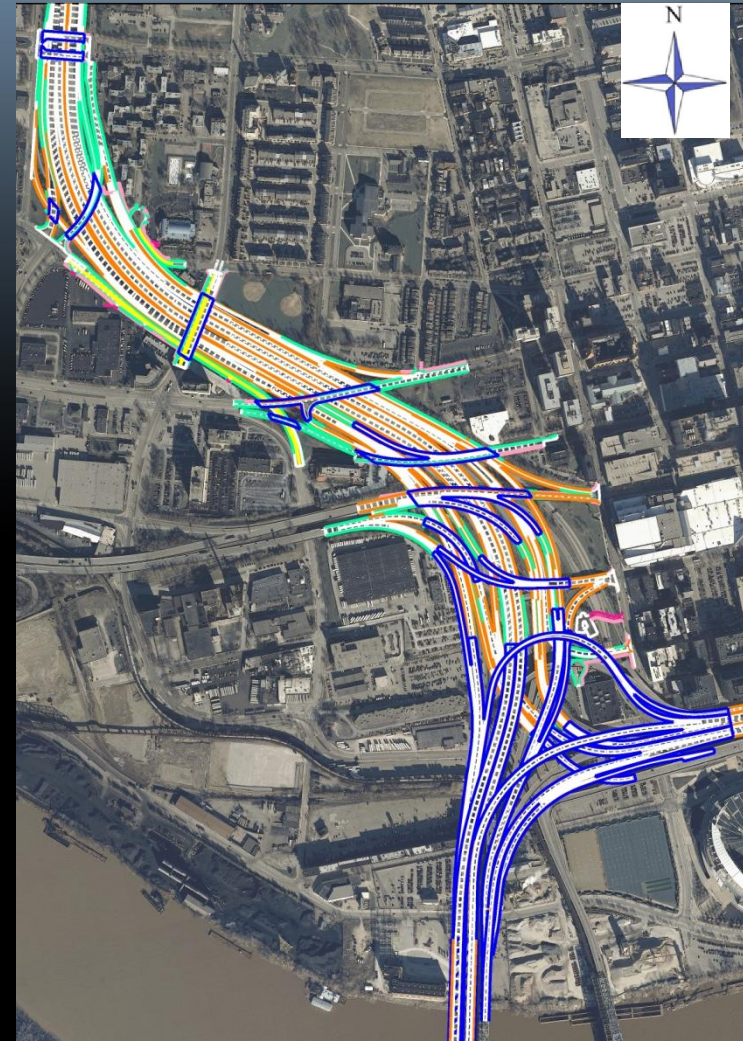
**Alternative I**



# Ohio Mainline Alternatives



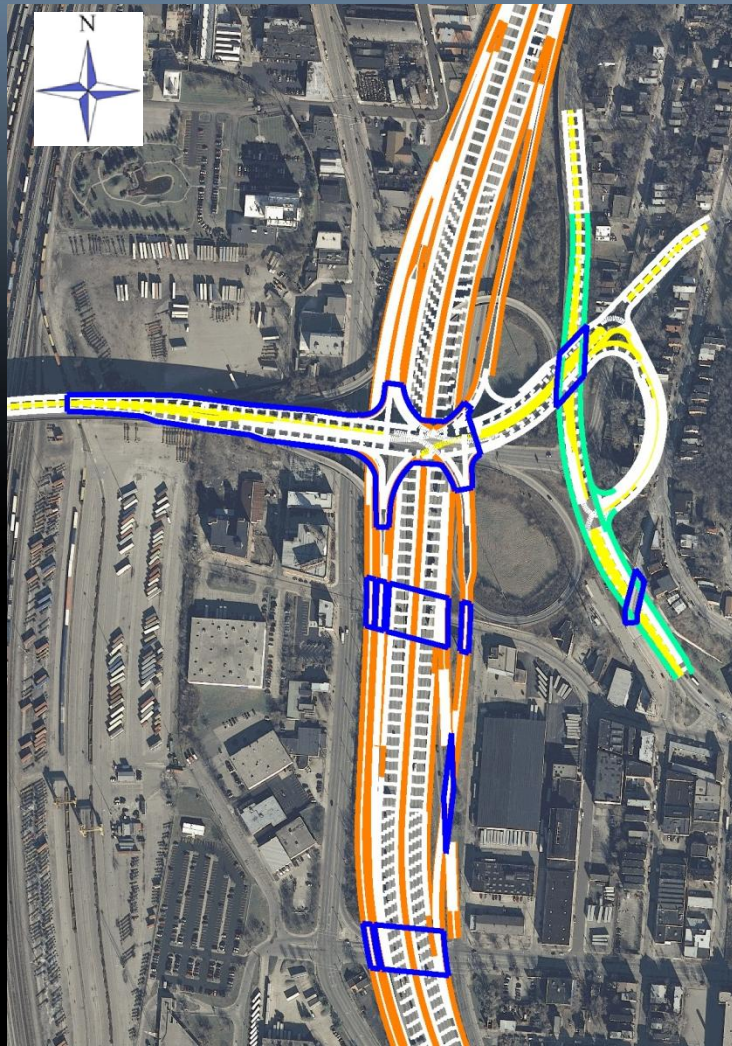
**Alternative E**



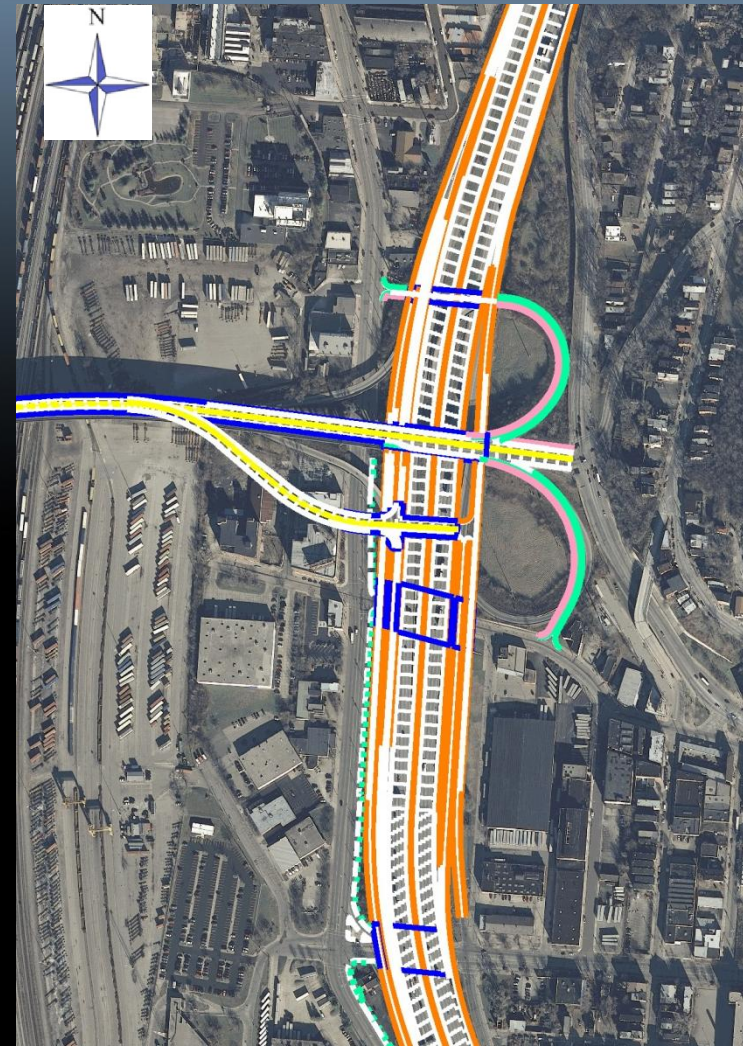
**Alternative I**



# Western Hills Viaduct Alternatives



**Alternative E (SPUI)**



**Alternative I (TUDI)**

# Estimated Costs (\$millions)

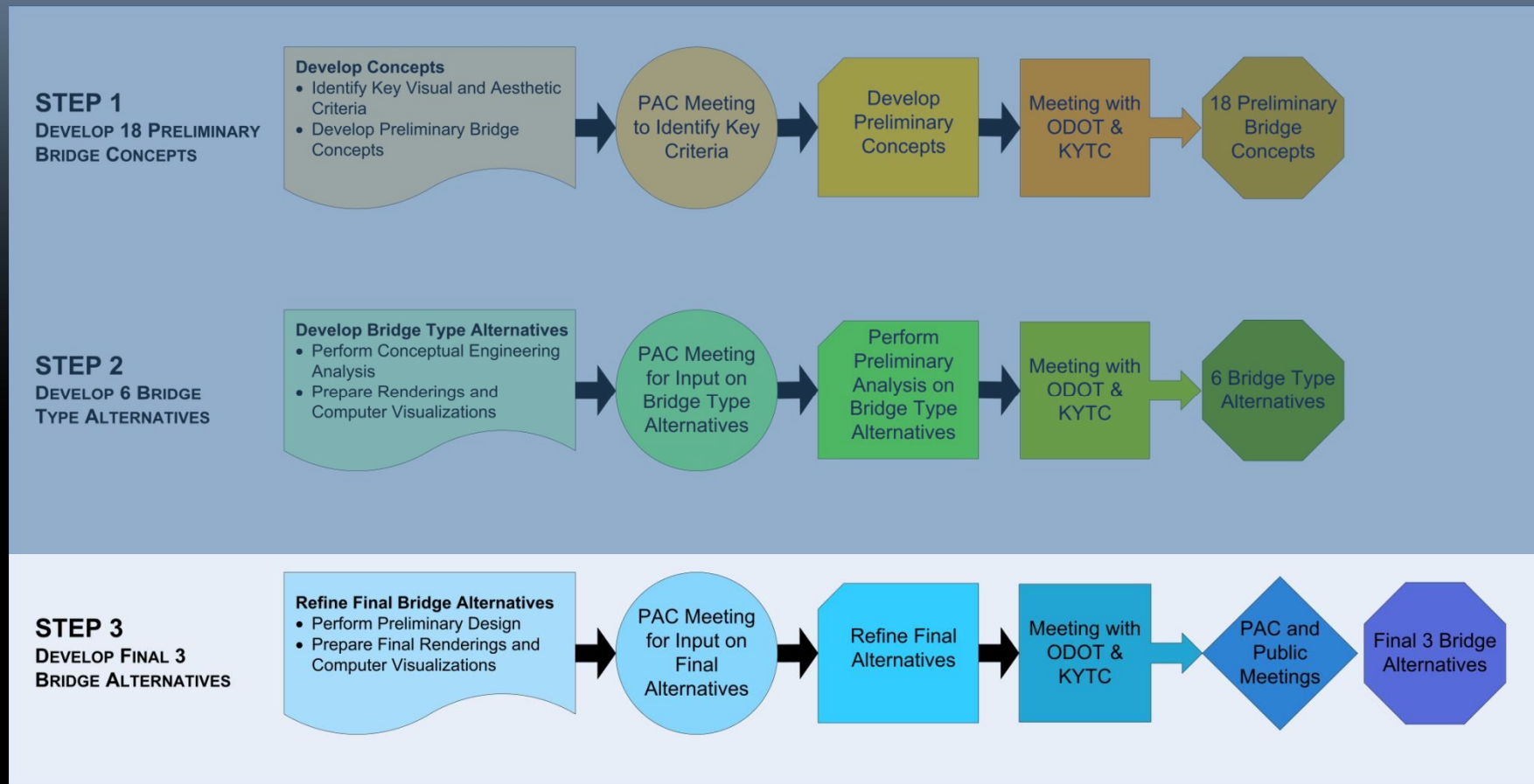


	Alternative E	Alternative I
Kentucky	\$699.7	\$642.4
Ohio	\$930.5	\$855.6
Existing Bridge	\$73.5	\$73.5
New Bridge	\$730.2	\$730.2
<b>Total</b>	<b>\$2,433.9</b>	<b>\$2,301.7</b>

	SPUI	TUDI
Western Hills Viaduct	\$270.0	\$142.2



# Bridge Type Selection Process



# Bridge Type Selection Alternative 1

U.S. Department of Transportation  
Federal Highway Administration





# Bridge Type Selection Alternative 3

U.S. Department of Transportation  
Federal Highway Administration



# Bridge Type Selection Alternative 6

U.S. Department of Transportation  
Federal Highway Administration



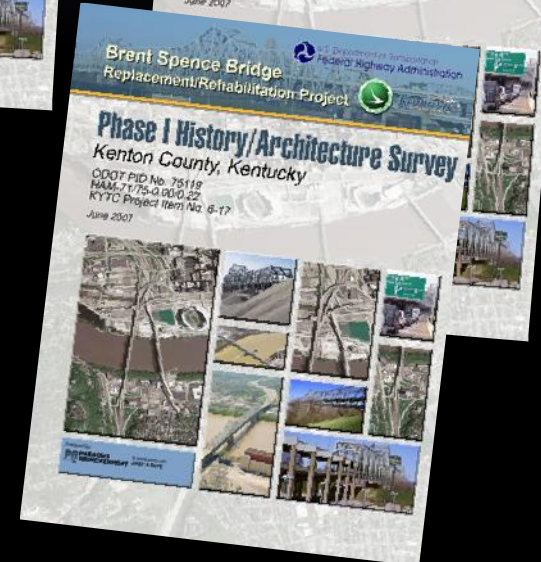
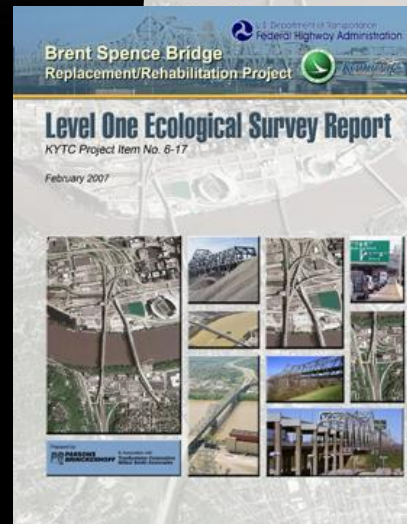
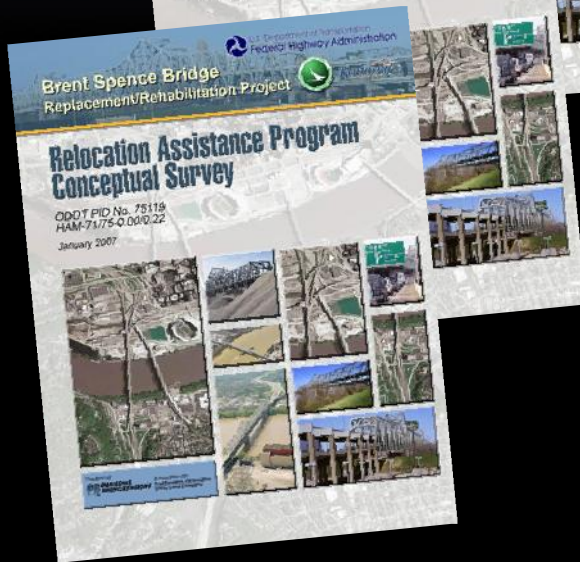


# Environmental Studies

- **Ecological resources**
- **Air quality**
- **Noise levels**
- **Historic and archaeological resources**
- **Hazardous materials**
- **Community resources**
- **Residential and business displacements**



# Environmental Studies





# Recommended Preferred Alternative

## Alternative I

- Design features provide better level of service on the freeway system
- In Kentucky, direct access provided to 5<sup>th</sup> Street in southbound direction
- In Ohio, design is based on a free flow C-D roadway system
- Minimizes environmental impacts
- Lower costs



## Next Steps

- **FHWA Legal Sufficiency Review of the Environmental Assessment – April 2011**
- **Hold Public Hearing – May 2011**
- **Issuance of FONSI – August 2011**
- **Detailed Design – August 2011**
- **Right of Way Acquisition – 2012-2015**
- **Construction Start – 2014 / 2015**
- **Construction Complete – 2022**



# Contact Information



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