

city of
CINCINNATI

Western Hills Viaduct Preliminary Engineering Study



September 2013
ODOT PID 82353

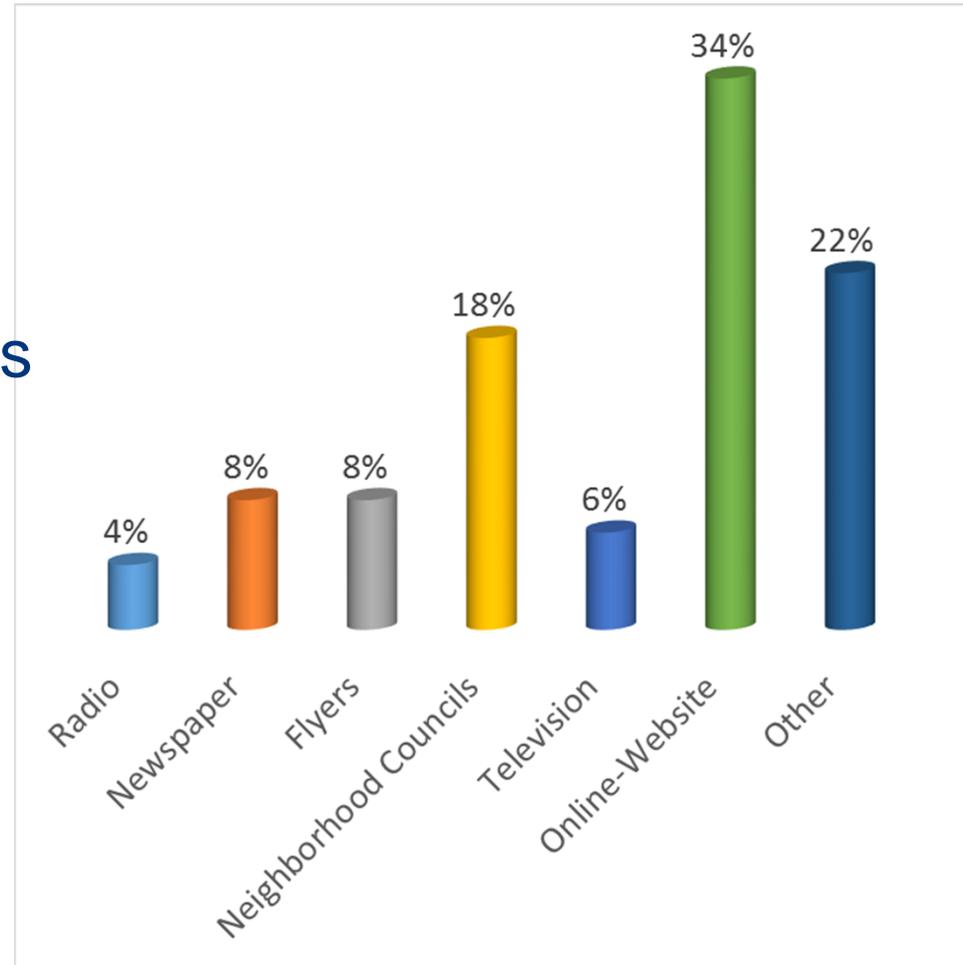


What We Will Do Today

- **Understand who is in attendance today**
- **Review existing conditions**
- **Update and explain work done to date**
- **Discuss alternative corridors and bridge configurations**
- **Review next steps and schedule**
- **Questions?**

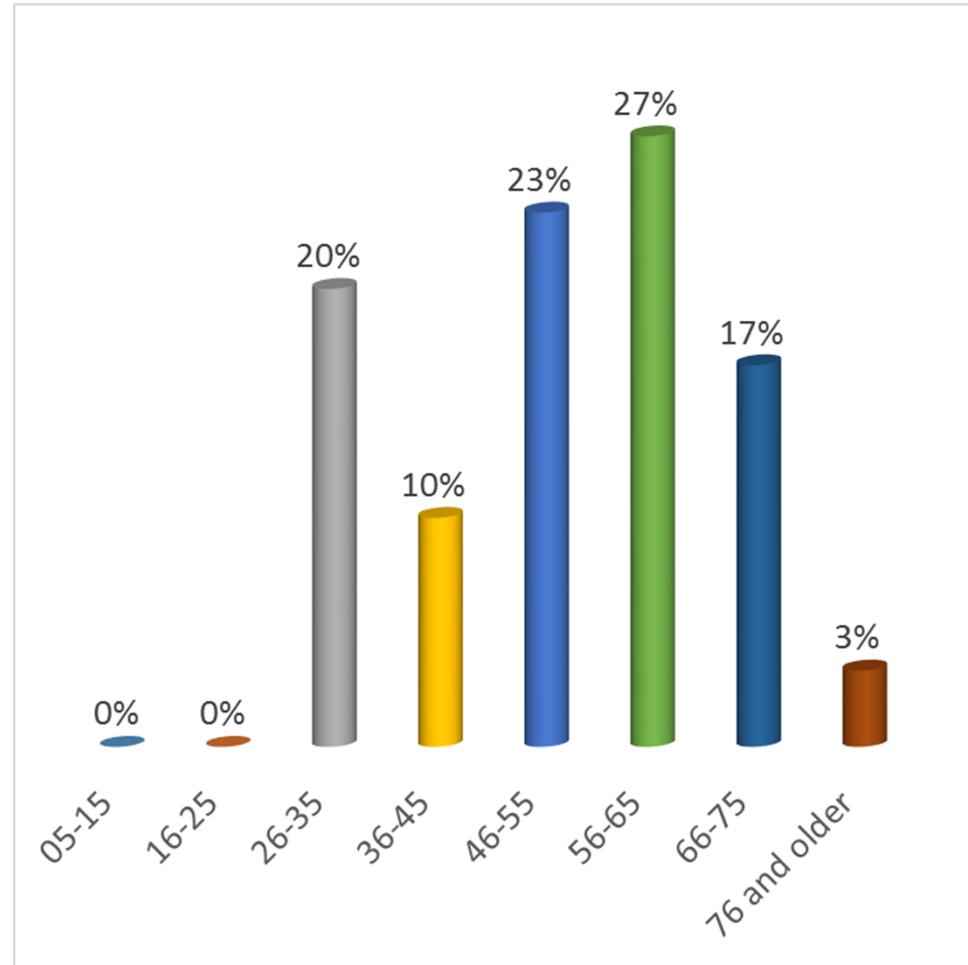
How Did You Hear About this Meeting? (choose up to 3)

1. Radio
2. Newspaper
3. Flyers
4. Neighborhood Councils
5. Television
6. Online-Website
7. Other



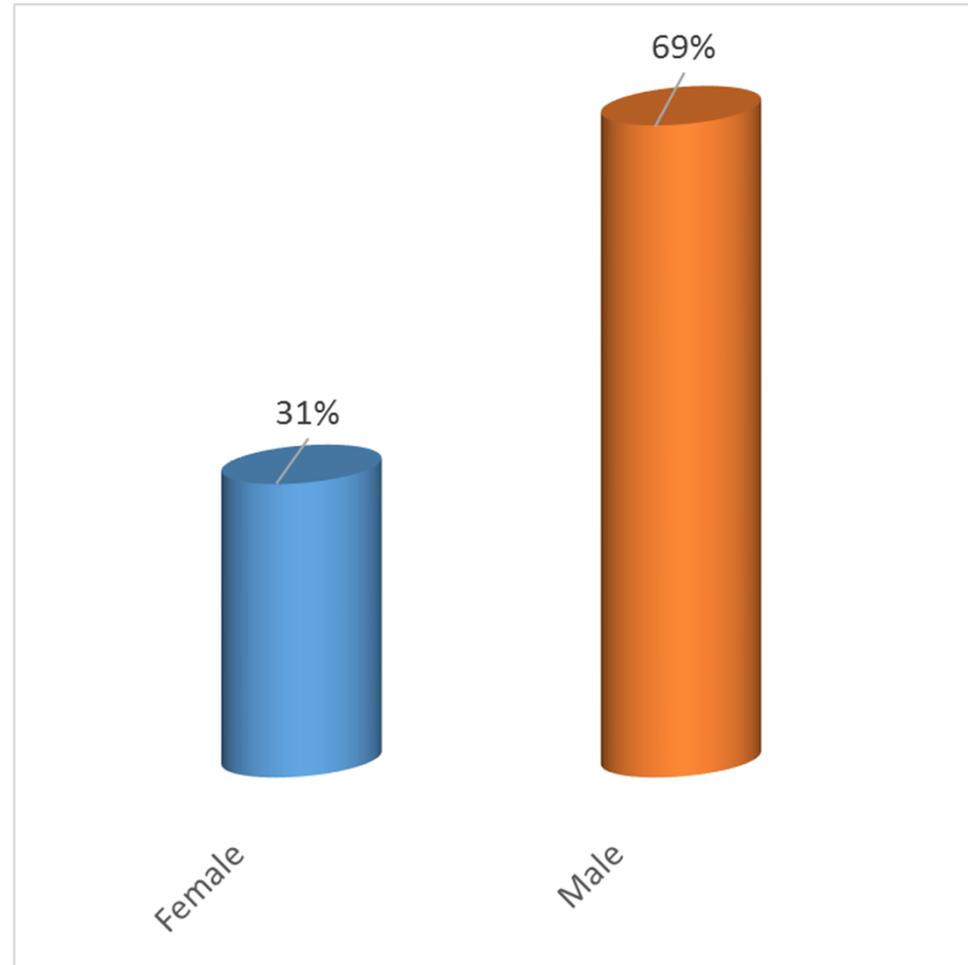
How Young Are You?

1. 5-15
2. 16-25
3. 26-35
4. 36-45
5. 46-55
6. 56-65
7. 66-75
8. 76-infinity



Male or Female?

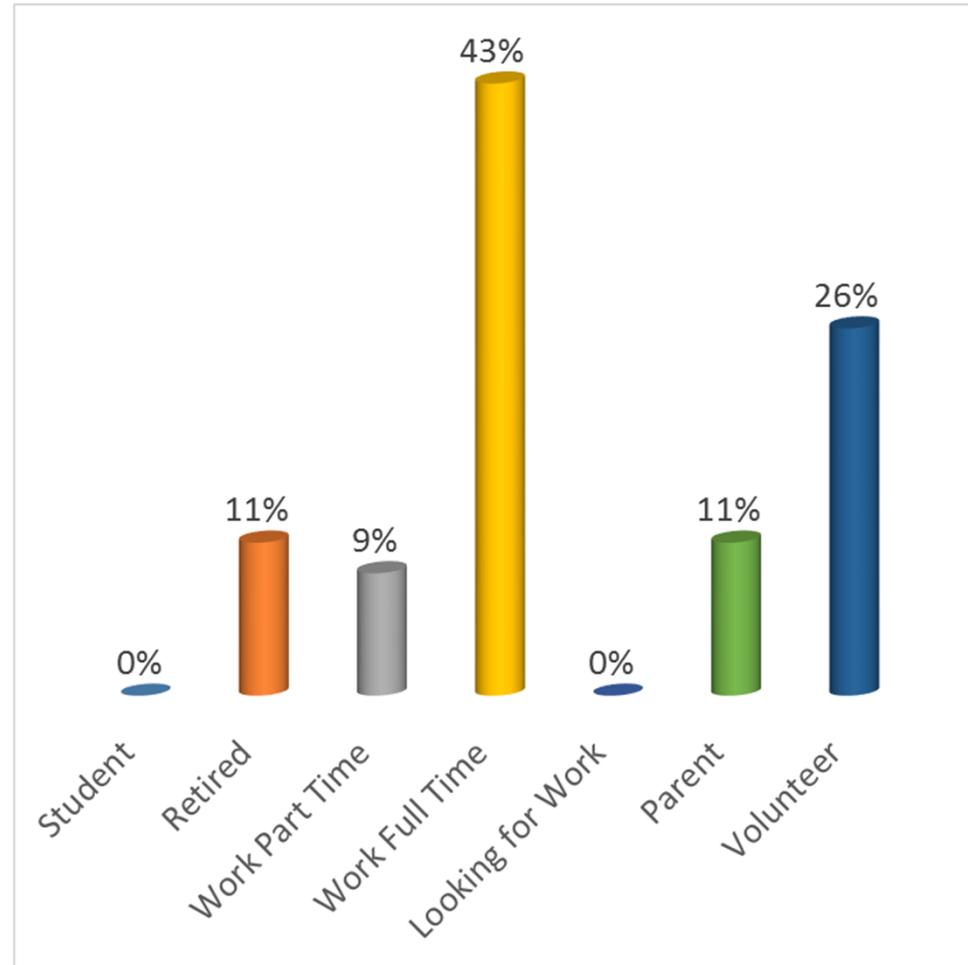
1. Female
2. Male

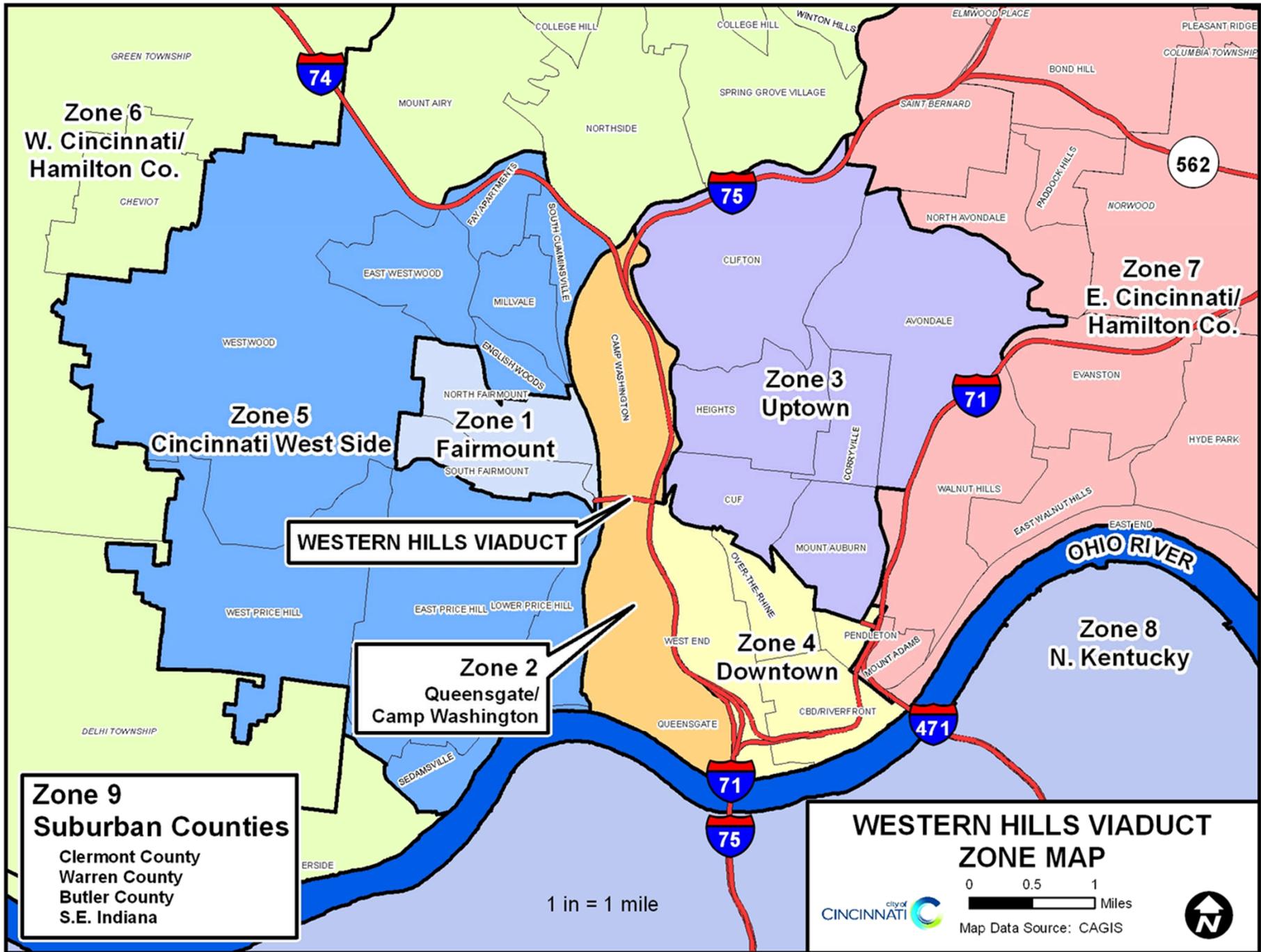


Some Things I Do

(choose up to three)

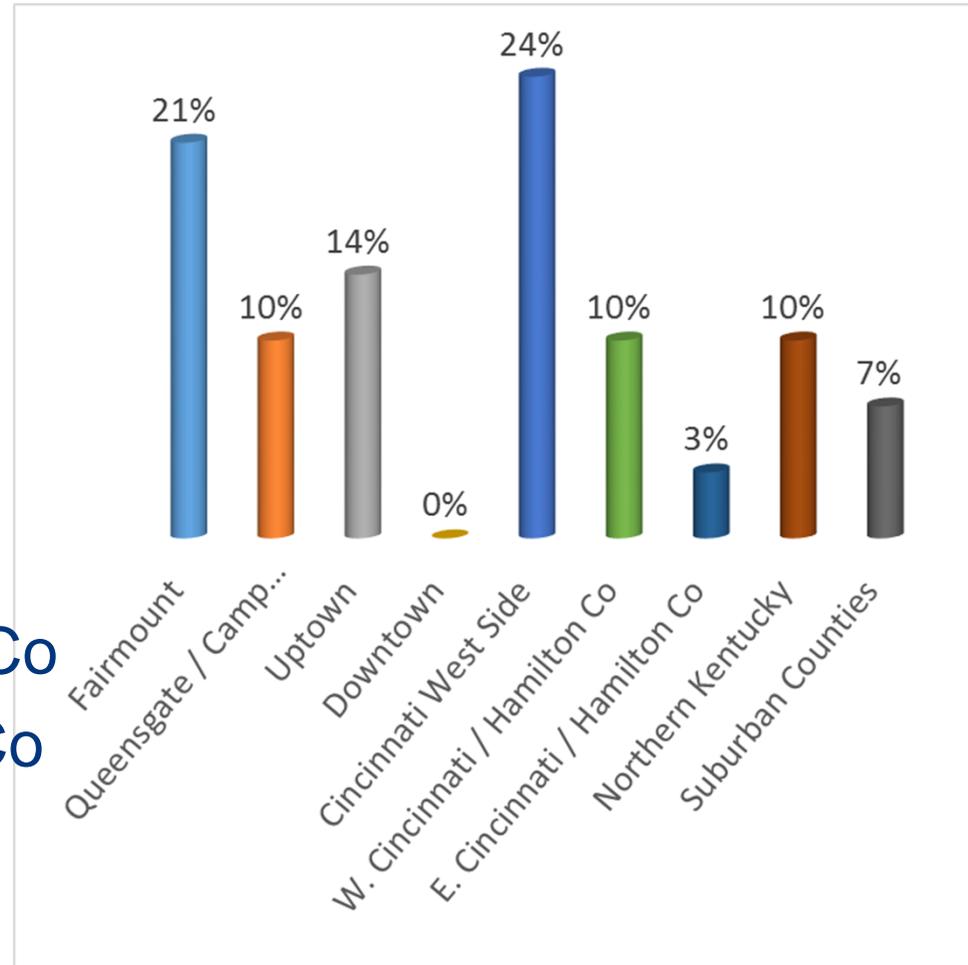
1. Business Owner
2. Student
3. Retired
4. Work Part Time
5. Work Full Time
6. Looking for Work
7. Parent
8. Volunteer





Where Do You Live?

1. Fairmount
2. Queensgate/Camp Washington
3. Uptown
4. Downtown
5. Cincinnati West Side
6. W. Cincinnati/Hamilton Co
7. E. Cincinnati/Hamilton Co
8. Northern Kentucky
9. Suburban Counties



Existing Conditions

- **Constructed in 1932 with major rehabilitation in 1977.**
- **Reaching the end of its design life.**
- **Structurally deficient and functionally obsolete**
- **Rated 4D (Poor Condition, Temporary Shoring)**
- **Concrete Deterioration and Structural Steel Deterioration**



Purpose and Need

To rehabilitate or replace the existing Western Hills Viaduct to remove fracture critical elements, provide a minimum condition rating of 7 (Good Condition), and improve approach geometry while maintaining local and regional connectivity.

Input from 2012 Public Meetings

- The Viaduct is mostly used for commuting to Downtown and Uptown from the Western neighborhoods.
- Trip lengths are typically 20-30 minutes.
- Bike and pedestrian accommodations are poor and therefore lightly used.
- Maintain existing connections.
- Make connections more intuitive to simplify wayfinding.
- Improve geometry and safety.
- Acceptable closure period is up to six months.
- <http://www.cincinnati-oh.gov/dote/dote-projects/western-hills-viaduct/>

Project Status

- Project Initiated Summer 2011
- Public Meetings January 2012
- Alternatives developed Summer 2012–2013
- Ongoing Coordination with Utilities, ODOT and Railroads
- **Public Meeting September 2013**
- Refine Alternatives
- Public Meeting Spring 2014
- Discuss Preferred Alternative Summer 2014
- Select Preferred Alternative Fall 2014
- Secure Funding for Design and Construction-ongoing



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Project Goals

Rehabilitate Existing Viaduct (Replace upper and lower decks, remove or retrofit all existing fracture critical details, and provide for the in-depth inspection and repair of any remaining structural elements) **or Replace Existing Viaduct** with new single or double deck structure with access to Westwood, Harrison, Spring Grove, I-75 and Central Parkway.

- Tie into the revised I-75 Interchange south of the existing Viaduct as proposed by ODOT
- Minimize impacts to railroad operations during and after construction.
- Accommodate the Lick Run Valley Conveyance System (VCS) in South Fairmont being implemented by the Metropolitan Sewer District of Greater Cincinnati.
- Tie into the Westwood Improvement Project proposed by the City of Cincinnati, DOTE in conjunction with the Lick Run VCS.
- Maintain traffic during construction to the extent practical.
- Improve the geometry of the roadway connections.
- Improve pedestrian and bicycle access.

ODOT Coordination

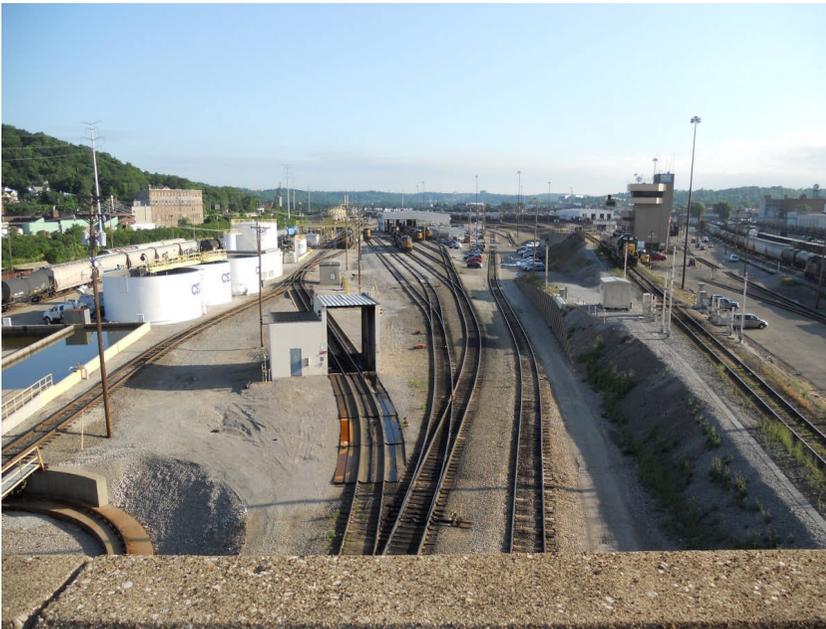
Coordination with ODOT for the reconstruction of I-75 interchange at the Western Hills Viaduct

- Construction Schedule
- Maintenance of Traffic
- Utilities
- Funding
- Partial Interchange
- Interstate Traffic on same level



Railroad Coordination

Coordination with CSX and Norfolk Southern is a critical element of the project. Railroad operations will need to be considered in design and maintained during construction. Railroad coordination meetings were held during 2012 - 2013. Additional meetings planned.



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Railroad Coordination

Design Issues

- Classification Yard to the North
- Intermodal Yards to the South
- Height above Tracks (Vertical Clearance)
- Clearance to Piers (Horizontal Clearance)
- Relocate Utilities over or under rail yard



Railroad Coordination

Construction & Demolition Issues

- Classification Operations Maintained
- Intermodal Operations Maintained
- Limitations on Time available for Construction
- Access to site limited (Rail, Millcreek, I-75)



MSD Coordination

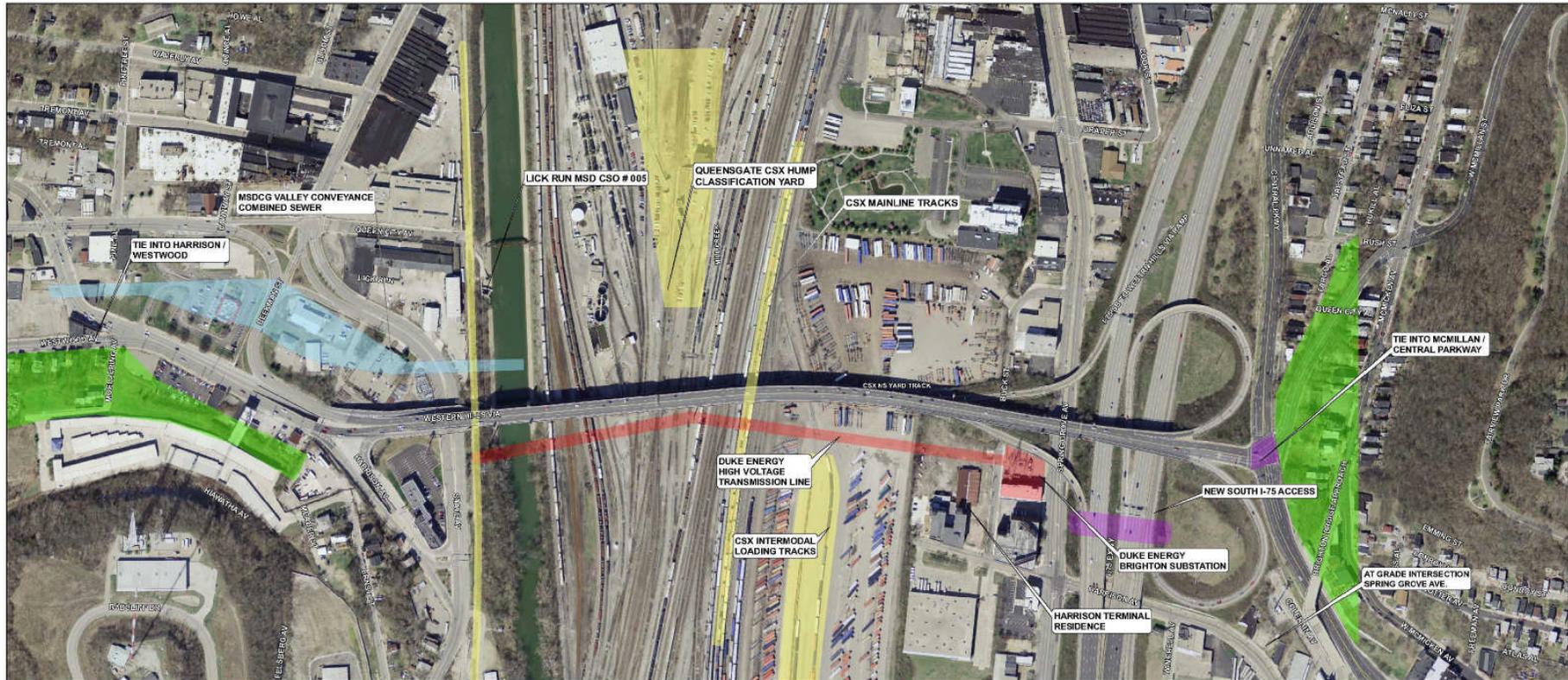
- **MSDGC is currently in the design and property acquisition phase of its Lick Run VCS.**
- **The VCS will separate storm and sanitary sewers to reduce combined system overflows to the Mill Creek.**
- **The VCS will remove Beekman Street and reconstruct Harrison and Westwood intersection.**
- **The VCS is a design constraint for northern alignments.**



MSD Coordination

- **Planning and Design Underway (CDOTE/MSDGC)**
- **VCS construction will precede Western Hills Viaduct**
- **New stormwater conveyance between Westwood and Queen City**
- **Westwood widened and converted to two-way operation**
- **Queen City converted to two-way operation**
- **Western Hills Viaduct work will tie into new intersection of Harrison and Westwood.**

Design Constraints



Alternatives Being Studied

The following general alternatives have been developed and evaluated:

- **Reconstruct the existing Viaduct (replace decks, upper level salvage columns and foundations)**
- **Replace the entire Viaduct with a two level structure. Various alignments and span arrangements.**
- **Replace the entire Viaduct with a single level structure. Various alignments and span arrangements.**
- **Three corridors were analyzed. Along the existing Viaduct (middle), north of the existing bridge, and south of the existing Viaduct.**

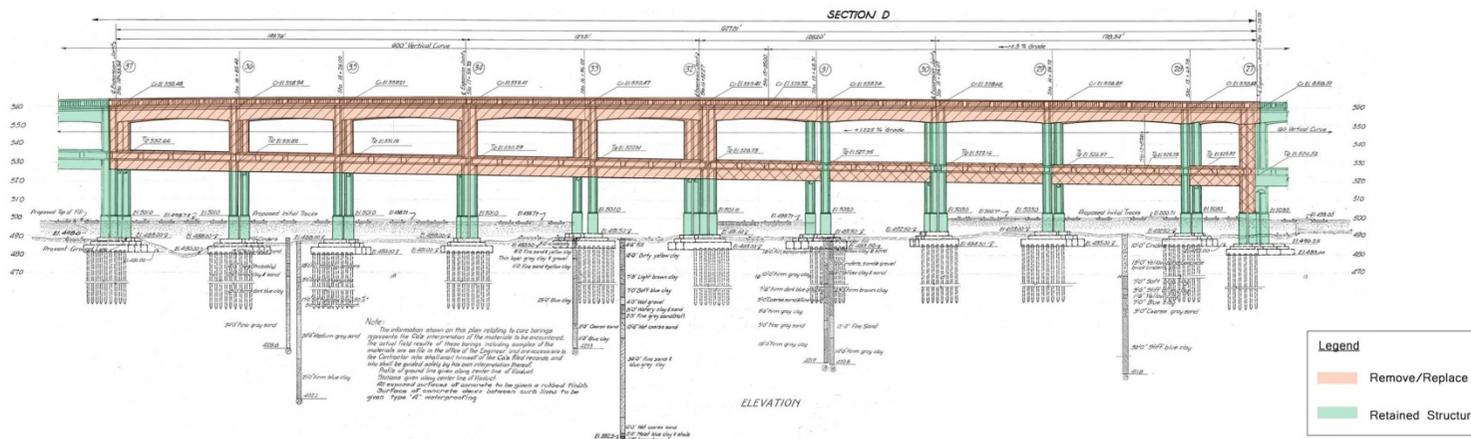
Rehabilitation Alternative



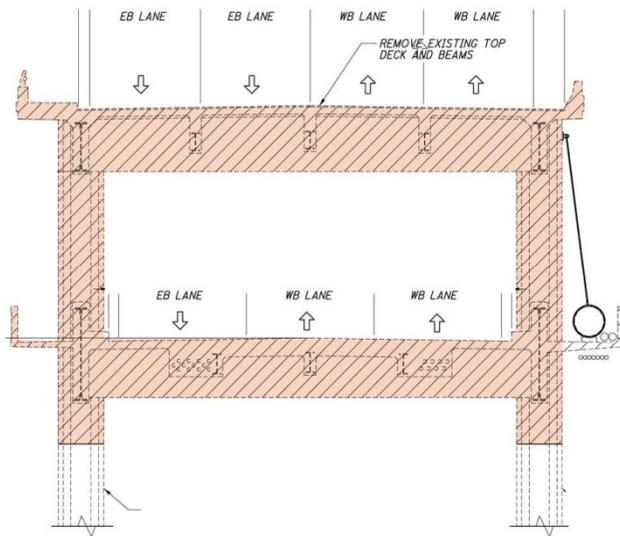
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Rehabilitation Alternative

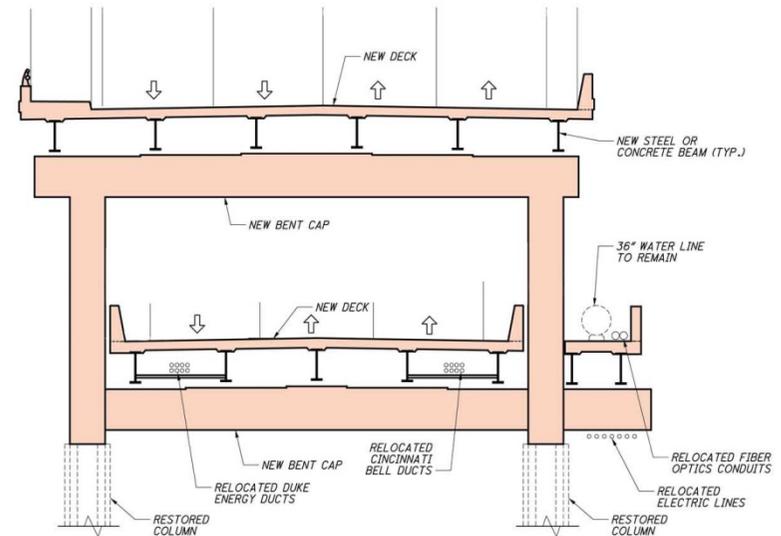
- Requires major reconstruction
- Remove both decks and superstructure
- Salvages lower columns, arches, and foundations
- New lower ramps to I-75 and Harrison



Rehabilitation Alternative



TYPICAL SECTION - REMOVAL
BENT 27 THRU BENT 47*



TYPICAL SECTION - REPLACEMENT
BENT 27 THRU BENT 47*

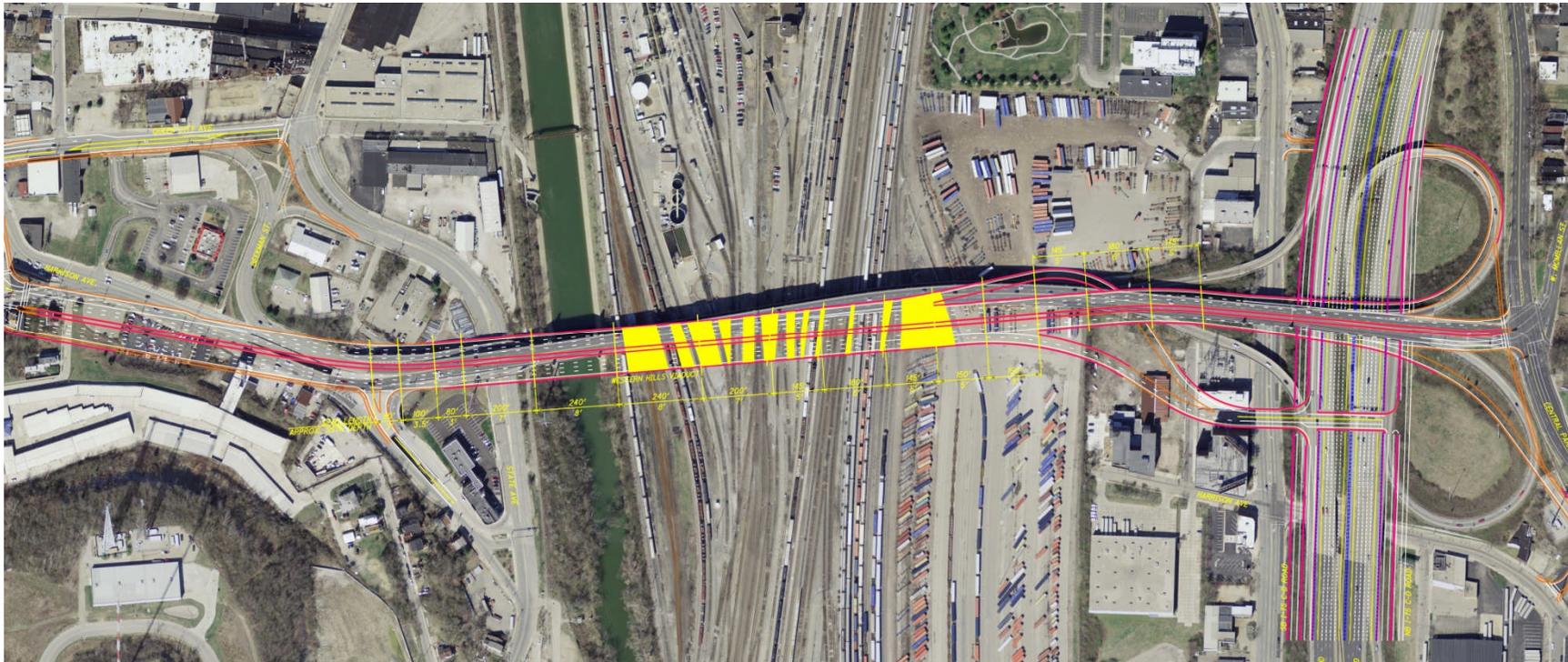
Legend	
	Remove/Replace
	Retained Structure

Rehabilitation Alternative

- Long term (2 years +) closure
- Cannot meet all current design standards
- Limited ability to improve bike/ped facilities
- Diminished life expectancy
- Reduced rights of way requirements
- Estimated Costs \$100M

Replacement Alternatives

Representative Middle Alignment



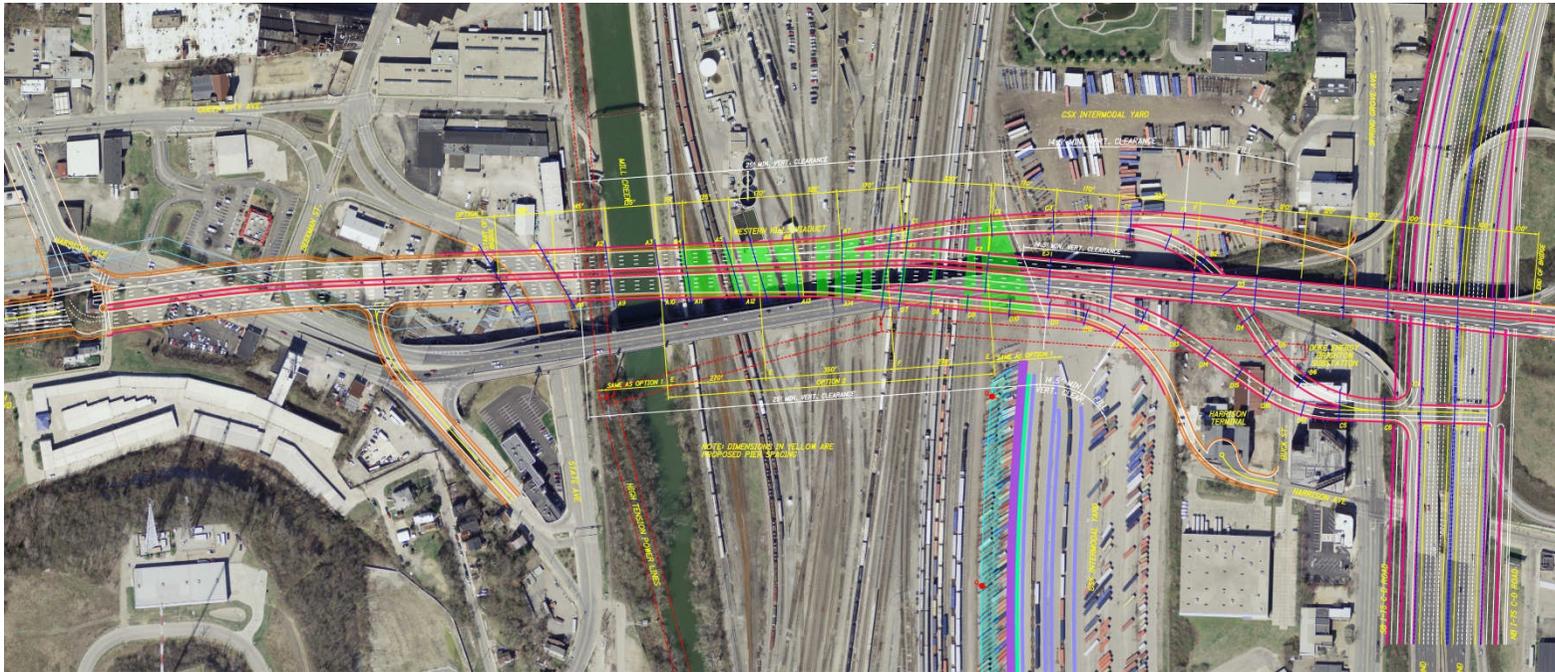
September 2013

Design Issues

- **Longest duration closure 3+ years due to required demolition prior to construction**
- **Temporary Support of Utilities during construction needed**
- **Estimated Costs \$170-\$200M**
- **Moderate right of way requirements**
- **Greater life expectancy**
- **Provides improved bike/ped facilities**

Replacement Alternatives

Representative Northern Alignment



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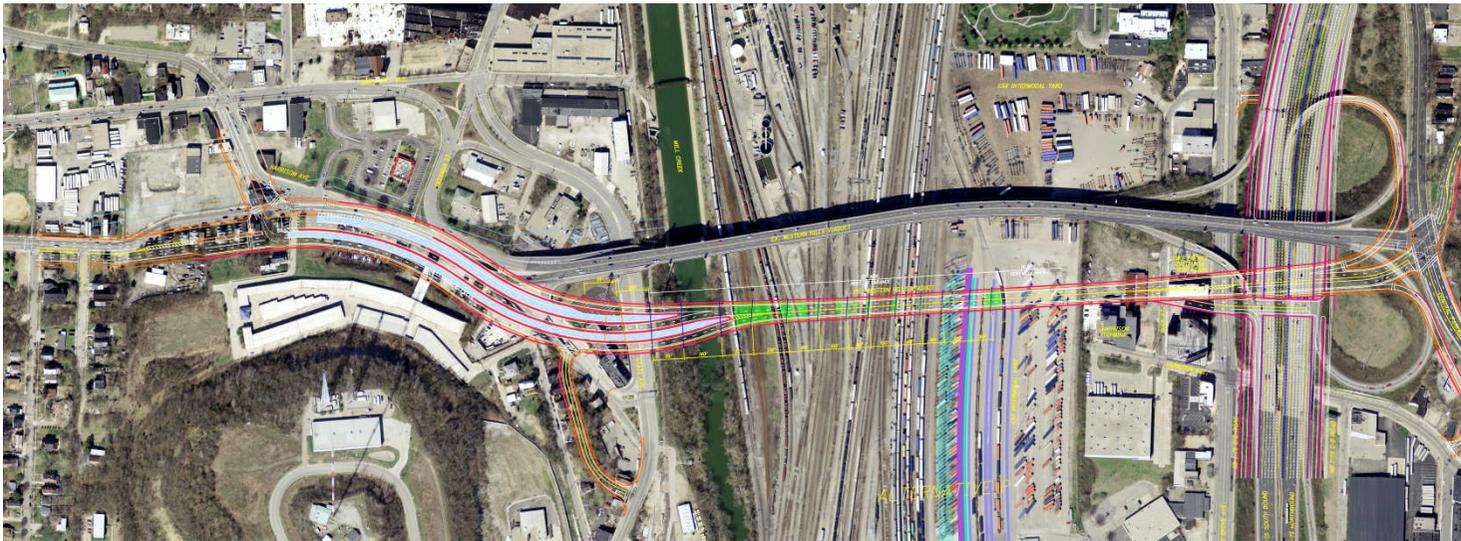


Design Issues

- Requires partial demolition of Viaduct during construction (1+ years)
- Interferes with Lick Run VCS
- Unfavorable approach geometry
- Impacts CSX Fuel Storage Facility and Hump Track
- Additional right of way requirements
- Estimated Costs \$170-\$200M
- Greater life expectancy
- Avoids CSX Intermodal Yard
- Provides improved bike/ped facilities

Replacement Alternatives

Representative Southern Alignment



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Design Issues

- **Shortest duration of road closure (6 months or less) due to use of existing Viaduct to maintain traffic during construction.**
- **Favorable approach geometry**
- **Greater life expectancy**
- **Provides improved bike/ped facilities**
- **Estimated Costs \$170-\$200M**
- **Additional right of way requirements**
- **Impacts CSX Intermodal Yard**

Evaluation Category		Rehabilitation	Northern Alignments	Middle Alignments	Southern Alignments
Purpose and Need Goals	Eliminate Fracture Critical Members	Positive	Positive	Positive	Positive
	Improve Structure Condition Rating	Neutral	Positive	Positive	Positive
	Vehicular Level of Service	Neutral	Positive	Positive	Positive
	Reduce Design Exceptions	Negative	Neutral	Positive	Neutral
	Improved Pedestrian Accommodations	Negative	Positive	Positive	Positive
	Accommodate Bicycle Facilities	Negative	Neutral	Positive	Positive
	Maintain Traffic During Construction	Negative	Neutral	Negative	Positive
	Disruption to Railroad Operations	Negative	Negative	Negative	Negative
Connectivity	Connectivity to Planned I-75 Interchange	Neutral	Negative	Neutral	Positive
	Connectivity to Westwood Blvd.	Neutral	Positive	Neutral	Positive
	Connectivity to State Street	Positive	Negative	Negative	Neutral
	Connectivity to Spring Grove Ave	Neutral	Negative	Neutral	Neutral
	Connectivity to Central Parkway	Neutral	Negative	Neutral	Positive
Railroad/Utility Impacts	Construction Access	Neutral	Negative	Neutral	Negative
	Impacts to Railroad Intermodal Yard	Neutral	Positive	Neutral	Negative
	Impacts to Railroad Classification Yard	Neutral	Negative	Neutral	Positive
	Impacts to Duke Energy Electrical Lines	Neutral	Positive	Neutral	Negative
	Impacts to GCWW Water Main	Negative	Neutral	Negative	Neutral
	Preserve Portions of Existing Bridge	Positive	Negative	Negative	Neutral
	Impacts to Lick Run VCS	Neutral	Negative	Neutral	Positive
Environmental Impacts	ESA sites	Positive	Neutral	Neutral	Negative
	Properties Impacted	Positive	Neutral	Positive	Negative
	Ecological Impacts	Positive	Neutral	Positive	Neutral
	Cultural/Historic or 4F impacts	Positive	Neutral	Neutral	Neutral
	Environmental Justice	Positive	Neutral	Neutral	Neutral
	Relocations	Positive	Neutral	Positive	Neutral

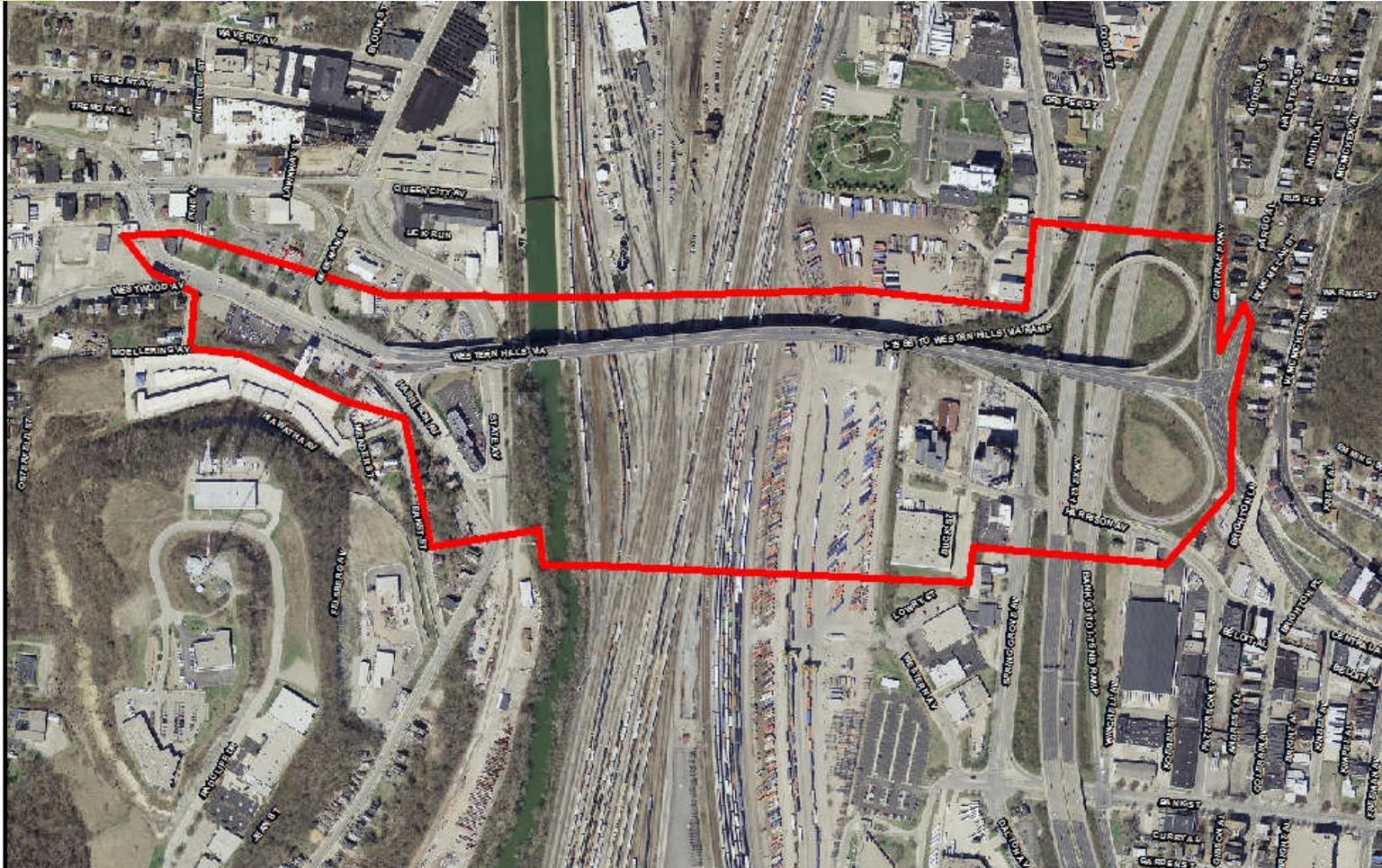
Legend

- Positive
- Neutral
- Negative

Alternative for Further Study

- The Southern Corridor has been identified for further study following this evaluation process.
- Feasible alternatives and bridge configuration will be identified following further study.
- Input on the design and structure type will be taken at the next meeting.

Project Study Area



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Other Important Considerations for the Southern Alternative Corridor?

1. Who will pay for it?
2. What is the future traffic demand?
3. Who uses it now, and who will use it in the future?
4. Impact on Duke Energy Substation
5. Ask ODOT to consider connecting into top level of existing viaduct, to avoid taking BIS building or Harrison Terminal Lofts.
6. Premature to consider I-75 access as design constraint
7. Consider Mill Creek Greenway Trail connections
8. Will Harrison Terminal Lofts be impacted?
9. Access to Mill Creek
10. Make it look better than Ludlow

Single Deck Bridge Properties

Double Deck Bridge Properties

- Participants indicated a preference for a single deck bridge.
 - **Construction and maintenance impacts to Railroad are greater with single deck.**
 - **Bike/ped required to cross ramps to the interstate and Spring Grove unless in median**
- Will require less right of way.
 - Upper deck is easier to construct and maintain.
 - Bike/ped lane on upper deck with local traffic only.
 - **Will require a taller structure.**
 - **Bike/ped only cross Spring Grove Ramp unless in median**
- **We will discuss them and then get your opinions.**

Single Deck Bridge

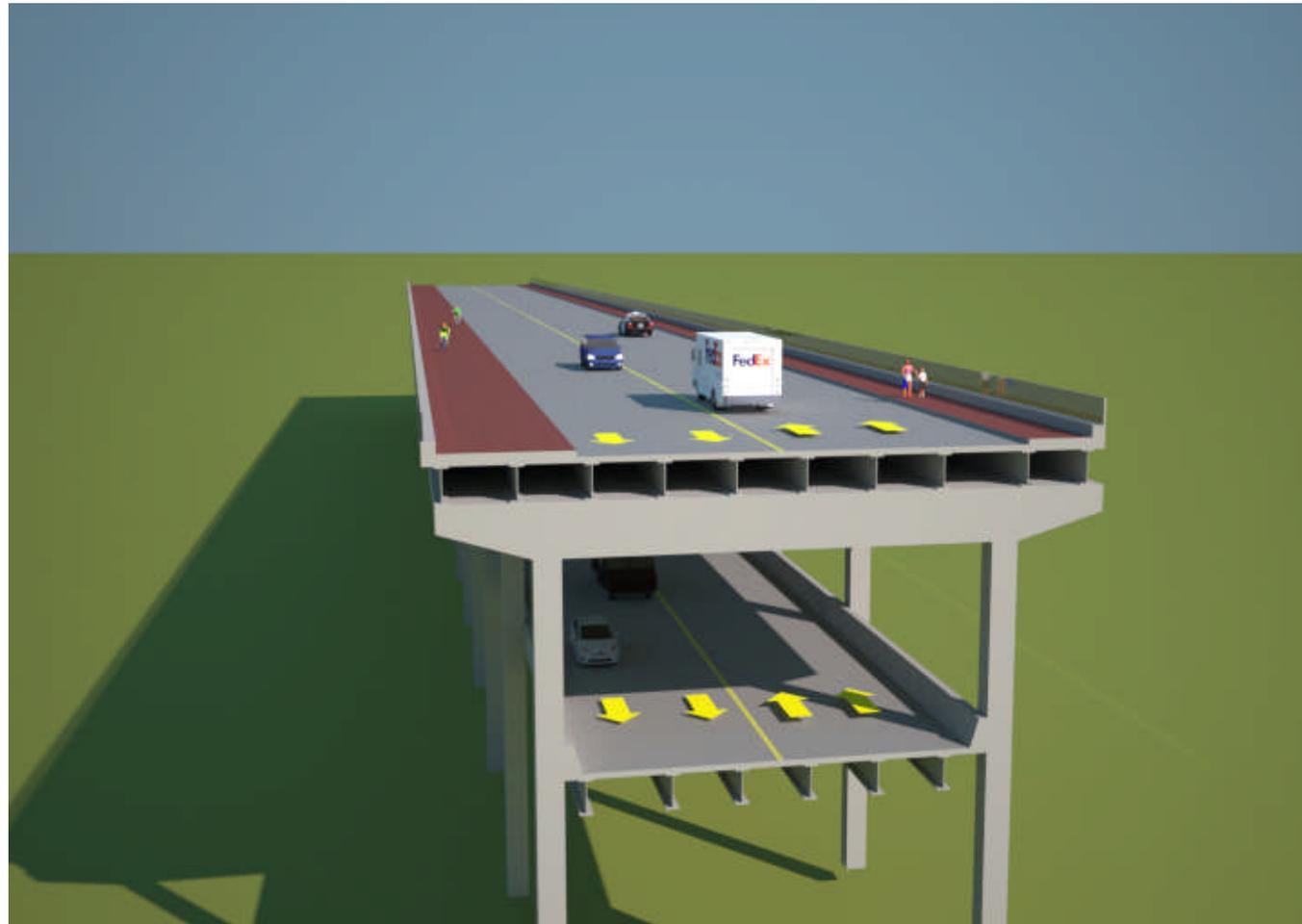
(Bike/peds in Median)



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Double Deck Bridge

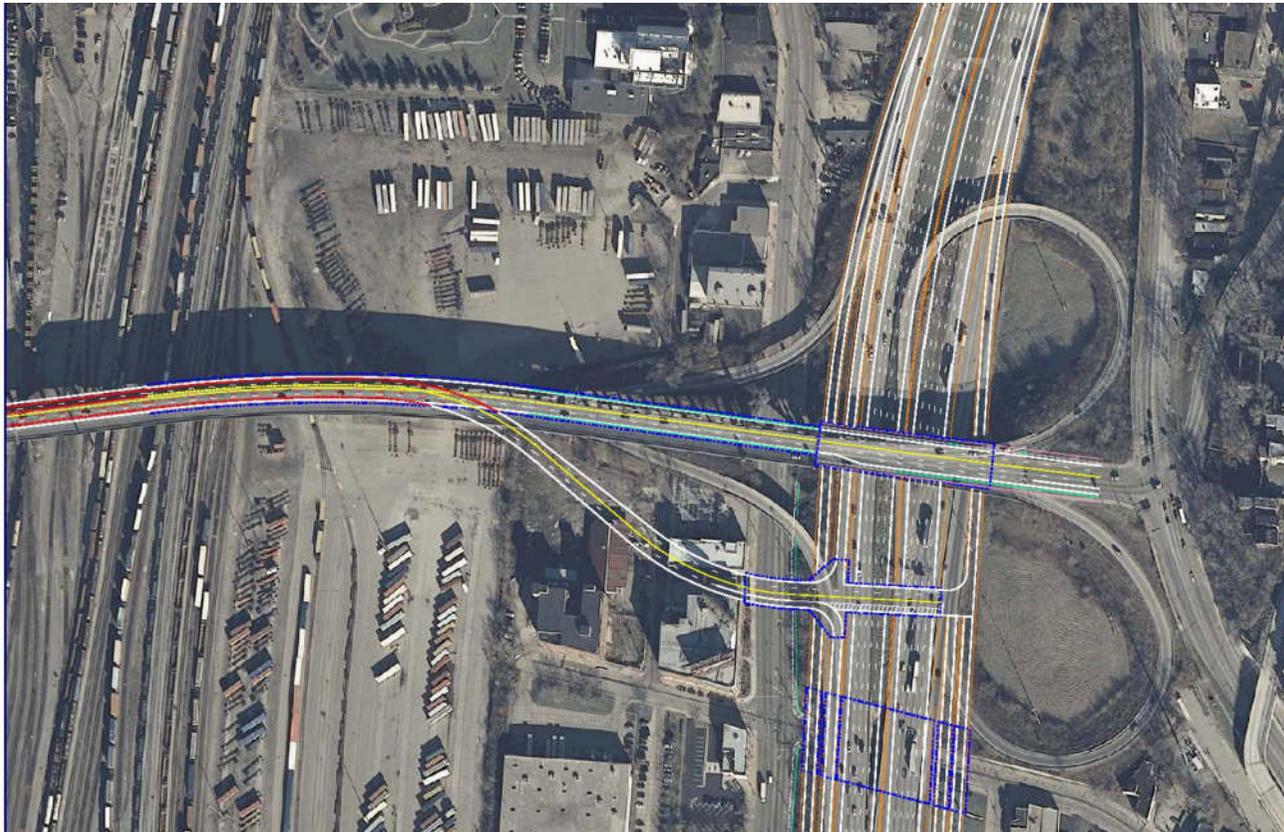
(Bike/peds Upper Deck)



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ODOT I-75 Interchange

(Bike/peds Upper Deck)



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Comments, Concerns, or Observations on Single Deck?

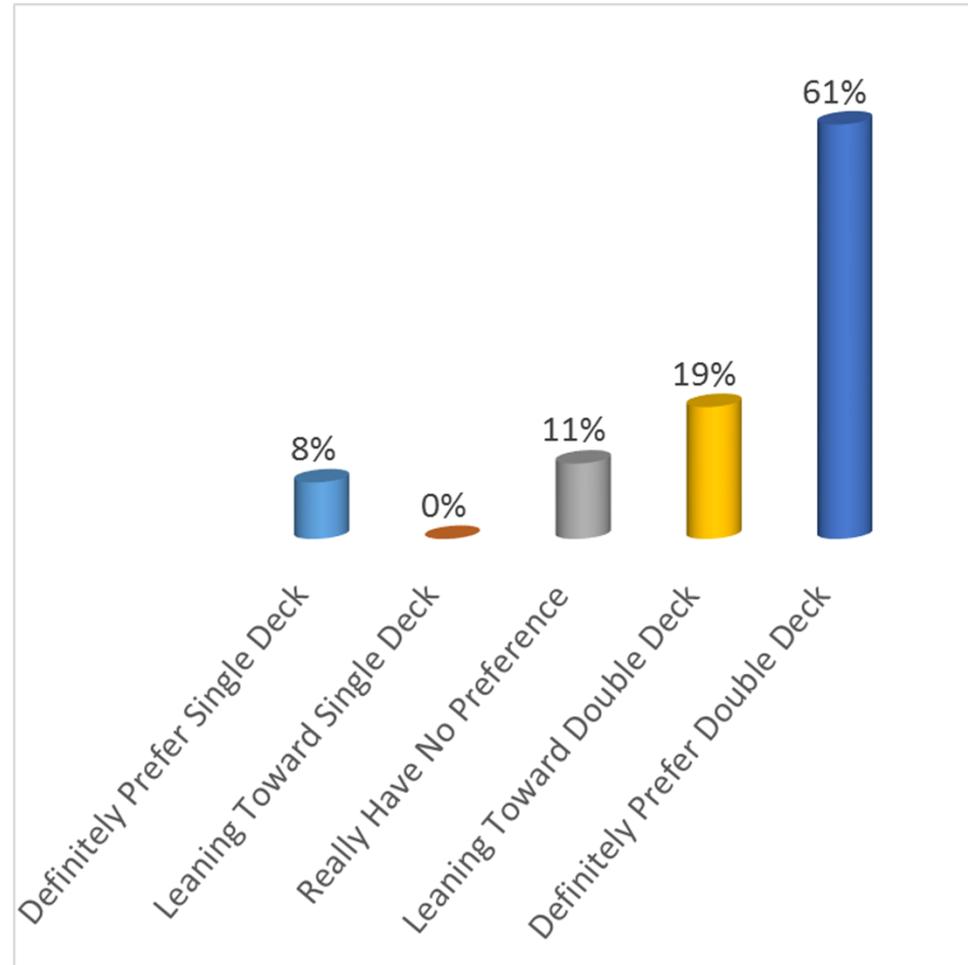
1. Limited pedestrian view
2. Maintenance
3. Possible slightly higher cost
4. Consider the advantages of intersections when possible to make it easier for bike/ped
5. Enough capacity for future?
6. Could it accommodate light rail?

Comments, Concerns, or Observations on Double Deck?

1. Pedestrians on
lower level?

Single vs. Double

1. Definitely Prefer Single Deck
2. Leaning Toward Single Deck
3. Really Have No Preference
4. Leaning Toward Double Deck
5. Definitely Prefer Double Deck



Next Steps

How We Will Use This Information

- **A summary of meeting information will be available on the website.**
- **We will use this information to develop feasible alternatives in the Southern Corridor.**
- **Design and structure type will be discussed at the next meeting for feedback.**

Study Timeline

Gathering information on



Existing conditions and goals for the project

Spring 2012

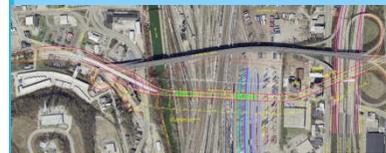
Discussion of



conceptual alternatives

Summer 2013

Input on



the feasible alternatives

Spring 2014

Discussion of



The preferred alternative

Fall 2014

September 2013

Western Hills Viaduct



city of
CINCINNATI

Questions?



September 2013



Additional Information

For additional information:

<http://www.cincinnati-oh.gov/dote/dote-projects/western-hills-viaduct>

or contact:

Richard Szekeresh, P.E.

City of Cincinnati, Department of
Transportation & Engineering
801 Plum Street, City Hall, Room 450
Cincinnati, Ohio 45202

P: (513) 352-3419

E: richard.szekeresh@cincinnati-oh.gov

or:

Bill Shefcik, P.E.

City of Cincinnati, Department of
Transportation & Engineering
801 Plum Street, City Hall, Room 450
Cincinnati, Ohio 45202

P: (513) 352-5273

E: bill.shefcik@cincinnati-oh.gov