

Presentation

Brent Spence Bridge

Replacement/Rehabilitation Project

PID No. 75119

HAM-71/75-0.00/0.22

KYTC Project Item No. 6-17



U.S. Department of Transportation
Federal Highway Administration



Welcome

**Please Sign In - Verify Name,
Address, Phone and E-Mail**

Brent Spence Bridge

Replacement/Rehabilitation Project

PID No. 75119
HAM-71/75-0.00/0.22
KYTC Project Item No. 6-17



Project Aesthetics Committee Meeting #3 • September 25, 2009



Agenda



Welcome

Meeting Purpose / Project Update

Brent Spence Bridge Configurations

Review Role of Project Aesthetic Committee

Overall Project Aesthetics Context

Existing Brent Spence Bridge Corridor

Bridge 101 – Various Possible Bridge Types

Bridge Case Studies

Development of Evaluation Criteria

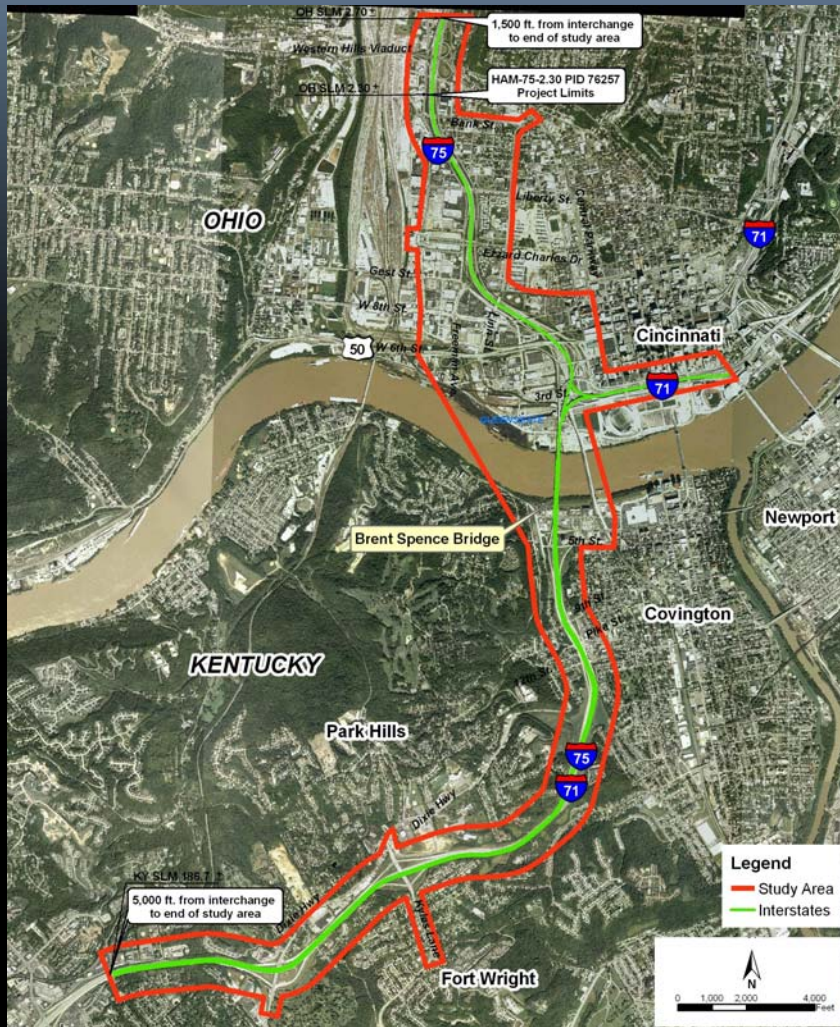
Questions and Answers

Goals for Meeting



- **Present an Update of the Project**
 - Work completed to date
 - Work to be completed in next step
- **Present Context of Aesthetics along I-75**
 - Adjacent I-75 Projects Aesthetics Decisions
 - ODOT/KYTC Aesthetics Goals
- **Develop Key Design Criteria for Project**
 - Begin Developing Overall Project Criteria
 - Develop Bridge Criteria to Aid with Evaluation of Bridge Concepts and Types

Study Area



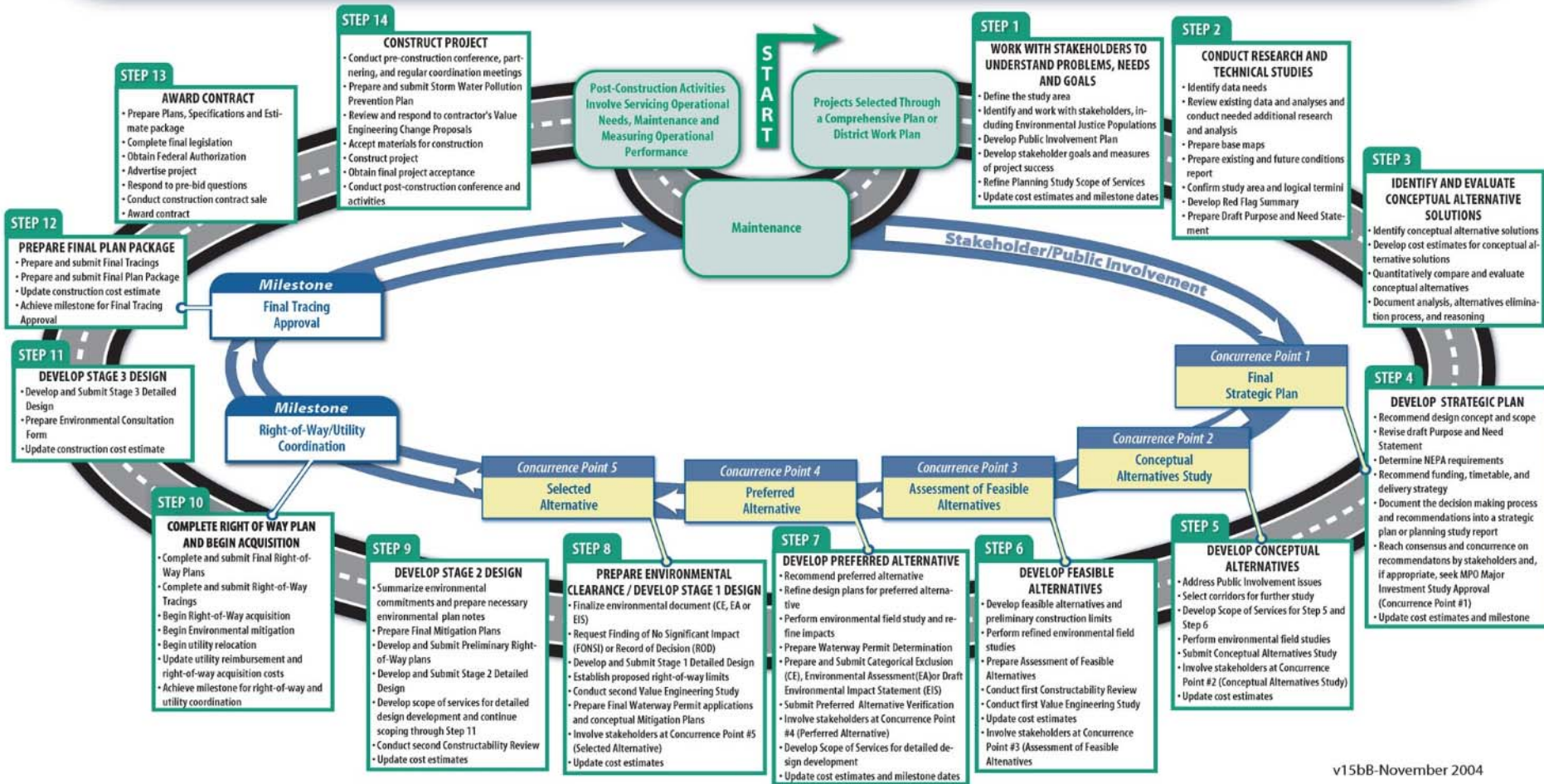
- Study Area 3.21 Sq Miles
- Project Length 7.8 Miles
 - KY 5.1 Miles (26,807 ft)
 - Oh 2.7 Miles (14,256 ft)
- Existing Bridge Length
 - 1,736.5 Feet
 - 4% of Project Length



Project Development Process



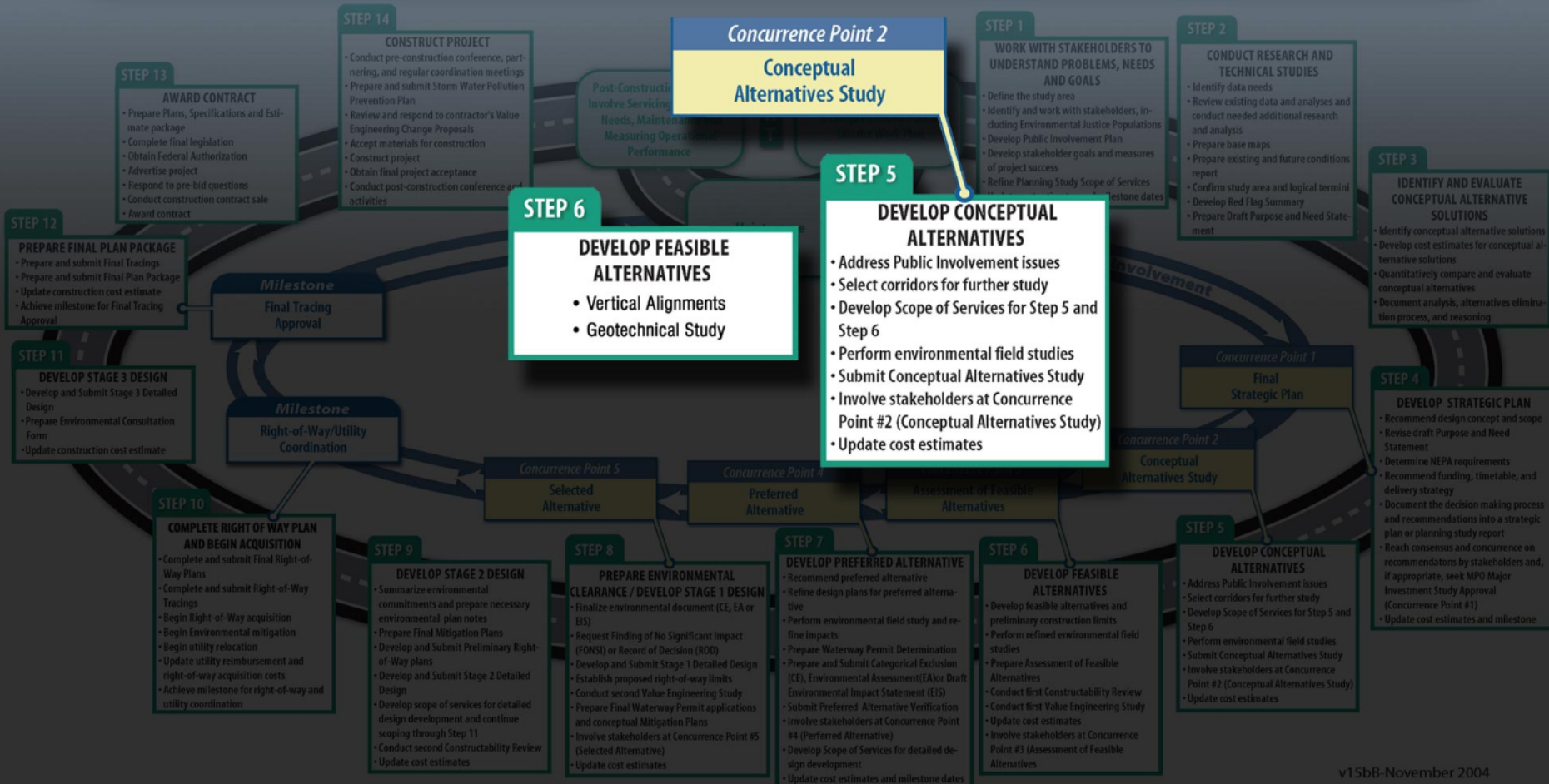
Ohio Department of Transportation Project Development Process (PDP) for Major Projects



Project Development Process Steps 5/6 Update



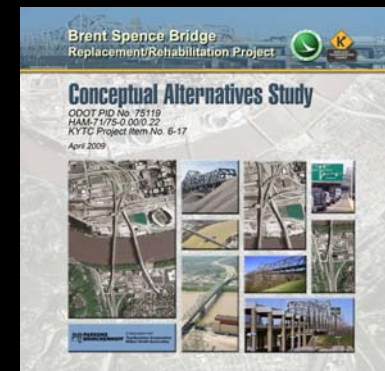
Ohio Department of Transportation Project Development Process (PDP) for Major Projects



Work Completed During Steps 5/6



- **Certified Traffic Data & Traffic Analysis Reports**
- **Horizontal and Vertical Design Development for the Five Alternatives out of previous steps**
- **Environmental Field Studies and Reviews**
- **Conceptual Alternatives Study Report**
 - **Final Report Submission, April 2009**
 - **Two Alternatives to be carried forward**
 - **Hybrid of Alternatives C and D**
 - **Alternative E**



Proposed Configurations

Option 1 – Alternative Hybrid C-D

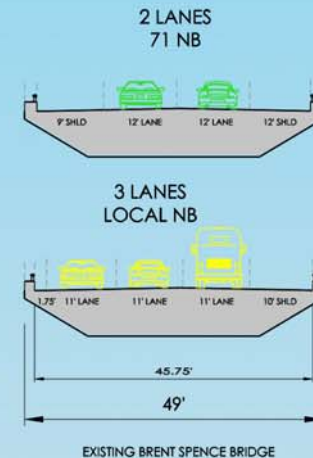
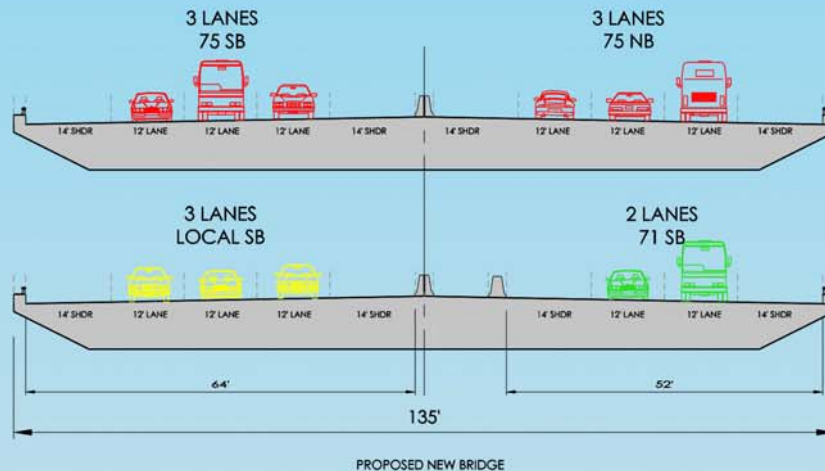


- **Existing Brent Spence Bridge will Remain**

- **Top Deck:** Interstate-71 NB, 2 lanes with 2 shoulders
- **Lower Deck:** Collector Distributor NB, 3 lanes with 1 shoulder

- **New Double Deck Bridge**

- **Top Deck:** Interstate-75 NB & SB, 3 lanes with 2 shoulders each directions
- **Lower Deck:** Interstate-71 SB, 2 lanes with 2 shoulders and Collector Distributor SB, 3 lanes with 2 shoulders



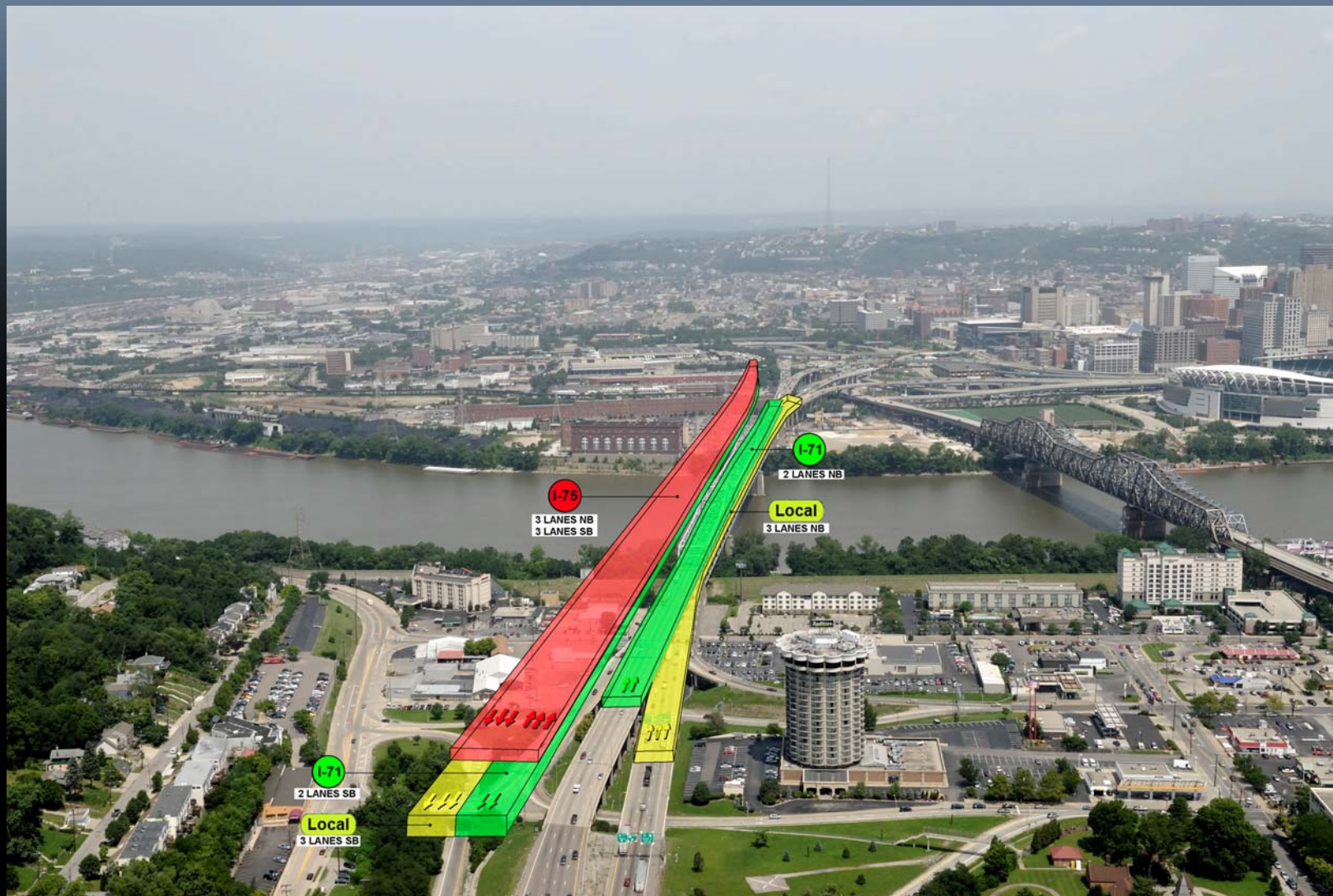
 Interstate-71

 Interstate-75

 Local

Proposed Configurations

Option 1 – Alternative Hybrid C-D



Proposed Configurations Option 2 – Alternative E

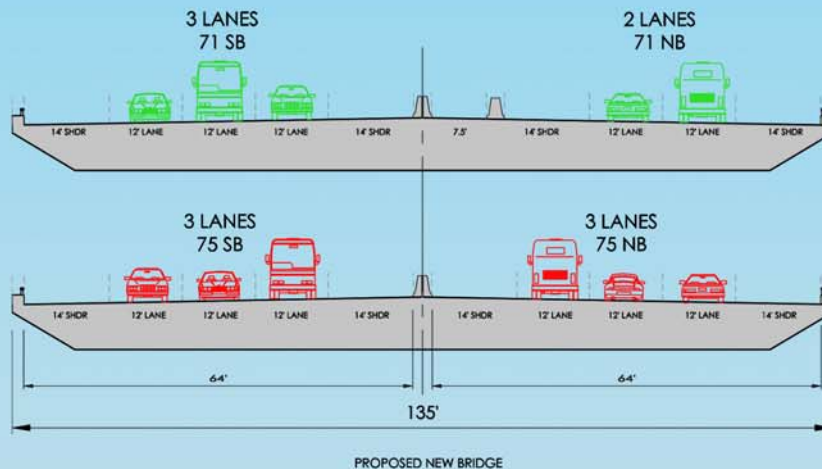


- **Existing Brent Spence Bridge will Remain**

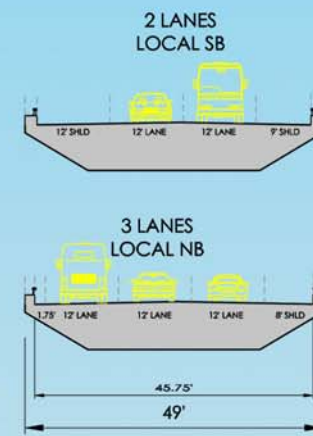
- **Top Deck:** Collector Distributor SB, 2 lanes with 2 shoulder
- **Lower Deck:** Collector Distributor NB, 3 lanes with 1 shoulder

- **New Double Deck Bridge**

- **Top Deck:** Interstate-71 SB, 3 lanes with 2 shoulders and Interstate-71 NB, 2 lanes with 2 shoulders
- **Lower Deck:** Interstate-75 NB & SB, 3 lanes with 2 shoulders each directions



PROPOSED NEW BRIDGE



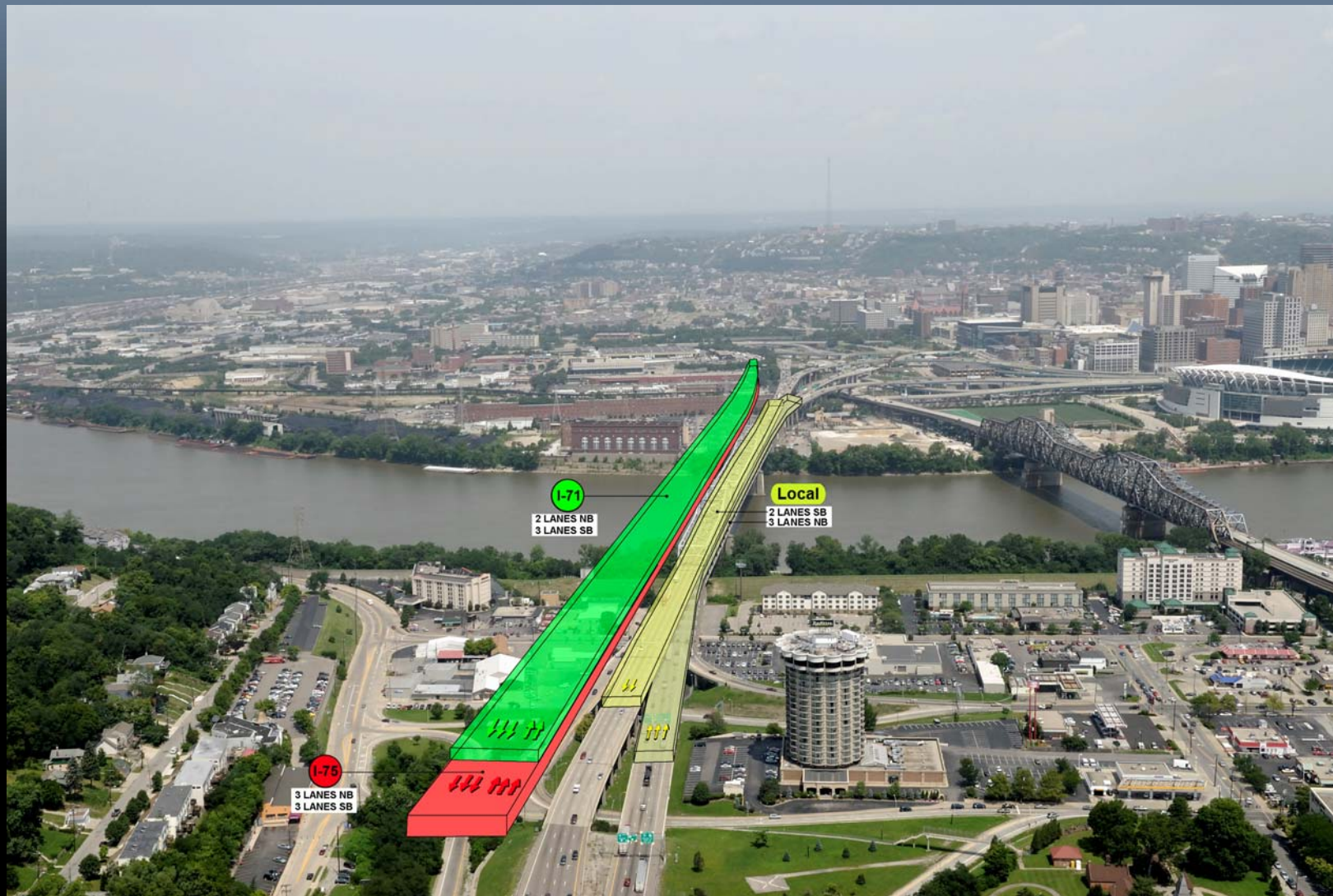
EXISTING BRENT SPENCE BRIDGE

 Interstate-71

 Interstate-75

 Local

Proposed Configurations Option 2 – Alternative E



Scope of Work – Steps 6/7/8



- **Work to be Performed**
 - Refine Design Plans for Preferred Alternatives
 - Perform Environmental Field Studies and Refine Impacts based on refine engineering work
 - Perform Main River Bridge Structure Type Study
 - Draft Aesthetic Design Guidelines Document
- **Assessment of Feasible Alternatives**
 - Recommend Preferred Roadway Alternative
 - Selection of Three Bridge Alternatives
- **NEPA Document**
 - Environmental Elements
 - Finalize Environmental Document



Charter Agreement



BRENT SPENCE BRIDGE PROJECT AESTHETIC COMMITTEE CHARTER



The Ohio Department of Transportation (ODOT) and the Kentucky Transportation Cabinet (KYTC) are acutely aware of the communities' desire to provide for an aesthetically pleasing corridor through the Cities of Cincinnati, Ohio and Covington, Kentucky. Because ODOT and KYTC also believe that transportation projects can be attractive as well as safe and efficient, the Brent Spence Aesthetic Committee shall be established. The States are looking for a context sensitive solution that involves a collaborative, interdisciplinary approach in which citizens and agencies are part of the planning and design team. Context sensitive solutions ask questions first about the need and purpose of the transportation project, and then address equally, safety, mobility, and preservation of scenic, aesthetic, historic, environmental, and other community values. The Aesthetic Committee is tasked to provide assistance to the transportation agencies and the project Advisory Committee in achieving a desirable result.

The Aesthetic Committee shall provide assistance and input on the project corridor's vision, and shall be guided by the following general tenets:

- The committee shall provide to the advisory committee aesthetic guidelines and recommendations to be incorporated into the project's design. Overall design decisions for the project and design features based upon the aesthetic guidelines and recommendations shall be made by the agencies and advisory committee.
- Decisions need to be, financially feasible, and capable of being implemented.
- Safety shall not be compromised.
- All design standards with regards to lighting, signing, and geometry shall be followed.
- Bridge structure types will be selected in accordance with current ODOT and KYTC requirements. The Aesthetic Committee will provide input on the aesthetic treatments of the selected alternative.
- Aesthetic treatments shall focus on pattern, color, texture, shape, lighting, and landscaping as opposed to adding extraneous elements solely for the sake of appearance.
- Funding considerations shall include initial costs and future maintenance costs.
- Aesthetic improvements can be achieved with minimal increases in anticipated construction cost; typically a cost of 1% of the total construction cost is allowed for aesthetic treatment.
- The state agencies shall have final approval and authority over inclusion of recommended aesthetic treatments and their necessary funding. Additional sources of funding may be identified or developed by the Aesthetic Committee to supplement the funding provided by the state agencies. The States shall approve the use or make stipulations in the use of these additional funding sources.

Committee Membership and Roles:

The committee shall be made up of representatives from various community groups and organizations from both States. In addition, the Transportation agencies and the project consultant (Project Team) shall also be represented. The size of the committee is limited to twenty-five members to facilitate productive meetings. The membership of the committee was developed by the Project Team to insure equal representation from each state and to provide the necessary expertise. The membership list for this committee is attached. The Aesthetic Committee shall be a sub-committee to the project's Advisory Committee. Because of this structure, the Aesthetic Committee shall be chaired by an individual representing one of the members of the Advisory Committee. The Project Team has selected The City of Cincinnati Architect to chair this committee. The Advisory Committee Membership list is also attached to this charter. The States will have final authority on decisions affecting membership of the committee.

The Aesthetic Committee Members shall be responsible for developing the vision for the project and associated goals, developing methods to reach consensus on the aesthetic vision, provide recommendations to the project team on aesthetic treatments, communicate decisions back to their respective agencies/constituents, and identify project issues and community values. The Project Team shall be responsible for developing the schedule for the project as well as determining specific points for aesthetic committee input. The Project Team is also tasked with insuring communication between the Aesthetic Committee and Advisory Committee is maintained. In addition, the Project Team will be responsible for documentation of meetings, recommendations, and decisions of all issues with respect to the committee and project.

Decision Making Process:

The Aesthetic Committee shall operate by consensus whenever possible. Consensus does not necessarily mean agreement or active support by each member. Those not objecting are not necessarily indicating that they favor a decision, but merely that they can "live with it." In the absence of consensus, a majority of two-thirds of the members present is required for approval of an action/recommendation. A quorum of nine members is required for any decisions to be made. Participation in the aesthetic committee is limited to its members. All meetings are open to the public, and non-members shall attend as observers and may be invited to offer comments, if time allows. All actions and recommendations shall be taken by the Project Team to the Advisory Committee for concurrence. Final decisions on actions and recommendations shall be made by ODOT and KYTC.

- **Role of Project Aesthetic Committee (PAC)**
 - Provide aesthetic guidelines and recommendations for the project corridor.
 - Provide input on aesthetic treatments of bridge structure types.



Aesthetics – Adjacent I-75 Projects



I-75 Thru the Valley Project and I-75 Mill Creek Expressway Project developed a Joint Aesthetic Design Guidelines

- Bridges
- Community Identification
- Noise Walls
- Lighting
- Landscaping
- Retaining Walls





Aesthetics – Adjacent I-75 Projects

I-75 Aesthetics

Aesthetic decisions for the I-75 Thru the Valley and the I-75 Mill Creek Expressway projects

The aesthetic decisions for the I-75 Thru the Valley and the I-75 Mill Creek Expressway projects consist of bridges, community identification, noise walls, lighting, landscaping and retaining walls. Final aesthetic decisions were chosen with the assistance of the I-75 Aesthetics Committee, which consisted of local officials and organizations from the I-75 Thru the Valley and the I-75 Mill Creek Expressway Implementation Committees. The aesthetic decisions are listed below.

Bridges

Bridge Color.

Consensus: **To be determined**

Once the bridge type (steel or concrete) is determined, a bridge color can be chosen. As bridge designs are completed, ODOT will work with communities in choosing colors for their communities. Sharp contrasts in color will be avoided, while a smooth transition in color along the corridor will be the ultimate goal.

Bridge Texture.

Consensus: **Rustic Ashlar**

Rustic Ashlar will be used as the bridge texture throughout the corridor and in those areas of the City of Cincinnati which Rustic Ashlar fits into the design of their interstate master plan.

Bridge Design.

Consensus: **Geometric**



Bridge Elements.
Consensus: **Texas Rail**

Bridge Fencing.

Consensus: **Straight Fencing**



Community Identification

Community Identification.

Consensus:

Community Names & Community Seals

Since Texas Rail was chosen, ODOT will work to

place community names where possible (i.e. bridge abutments), though some bridges may not be able to host a community name.

One community seal will be chosen for each community and spaced appropriately along available surfaces (i.e. noise walls, appropriate sized retaining walls, etc.).



Noise Walls (facing the highway*)

Noise Wall Type.

Consensus: **Rustic Ashlar**



*Property side of noise walls to be determined at separate meetings with affected property owners.

Noise Wall Color.

Consensus: **To be determined**

Once the bridge type (steel or concrete) and bridge color are determined, a noise wall color can be chosen. ODOT will work with communities in choosing a smooth-transition of noise wall color, along the corridor, in order to avoid sharp contrasts.

Landscaping along Noise Walls.

Consensus: **Yes**

Landscaping along noise walls can be planted and maintained by local entities if an agreement is made with ODOT.



Lighting

Lighting Type

(At Systems Interchanges i.e. I-74, Norwood Lateral and SR 126).

Consensus:

High Mast Lighting



Lighting Type (In-between Interchanges and at non-systems interchanges).

Consensus:

South of I-74/I-75: Cobra Lighting



North of I-74/I-75: Low Mast Lighting

Decorative Lighting on Bridges.

Consensus: **Yes**

Decorative lighting on bridges can be purchased and maintained by local entities if an agreement is made with ODOT.



Landscaping

Landscaping near Interchanges.

Consensus: **Yes**

Landscaping of interchanges can be purchased and maintained by local entities if an agreement is made with ODOT. ODOT will work with communities to provide grading and areas for landscaping.

Planting trees near the Interstate.

Consensus: **Yes**

Trees near the interstate can be planted and maintained by local entities if an agreement is made with ODOT and all safety requirements are met.



Retaining Walls

Retaining Walls.

Consensus:

Lockland Split Retaining Walls: Canal Scene



Other Retaining Walls: Rustic Ashlar with community seals



Contacts

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ee.peterson@mecompanies.com

Project Websites:

www.thruthevalley.com

www.i75millcreekexpressway.com

Project Aesthetics



Produce Draft Aesthetic Design Guidelines for the following goals

Goal 1 – Minimize impacts on the surrounding areas and enhance economic development

Goal 2 – Establish new gateway between Kentucky and Ohio

Goal 3 – Emphasis on simplicity and clarity of design



Project Aesthetics



Goal 1 – Minimize impacts on the surrounding areas and enhance economic development

Evaluation Criteria:

- The width, footprint and scale of the highway and bridge(s)
- The coverage of the footprint of the bridge, interchange and approaches
- The height of the structure
- Enhancement of connections between neighborhoods
- Encroachment on development areas
- Opportunity for buffer and landscape areas
- Impact on Historic resources and the overall environment



Project Aesthetics



Goal 2 – Establish new gateway between Kentucky and Ohio

Evaluation Criteria:

- **Appropriate scale and visual mass**
- **Compatibility with the surrounding bridges**
- **Simplicity of bridge(s) configuration**
- **Overall width and footprint over the river**
- **Memorable and innovative Structure**
- **Enhancement of views along the alignment and river**





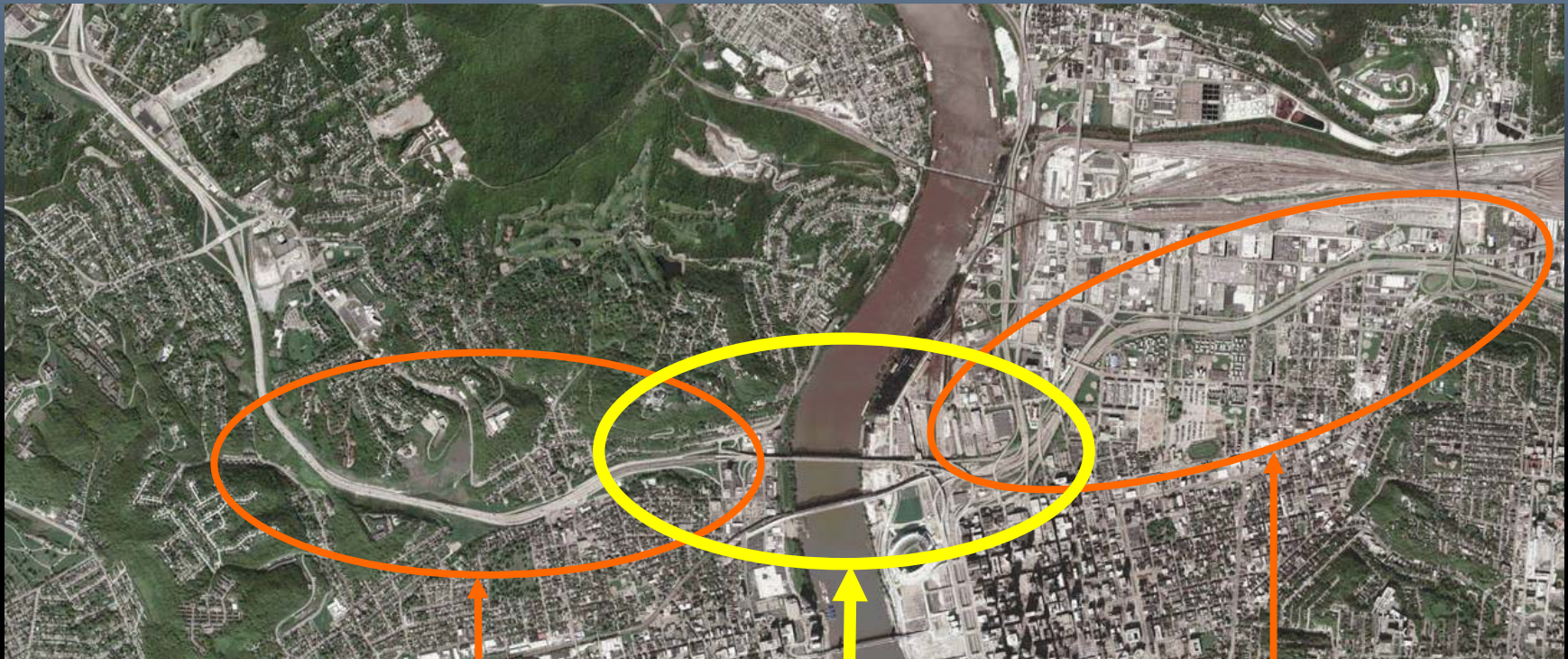
Goal 3 – Emphasis on simplicity and clarity of design

Evaluation Criteria:

- **Simplicity and organization of structures and ramps configurations**
- **The clarity of road hierarchy and way finding**
- **The visual complexity of the ramps and interchange**
- **The number and location of pier and other support structures**
- **The visual quality of the underside of the structure**



Existing Brent Spence Bridge Corridor Aesthetic Evaluation Zones



Kentucky
Context

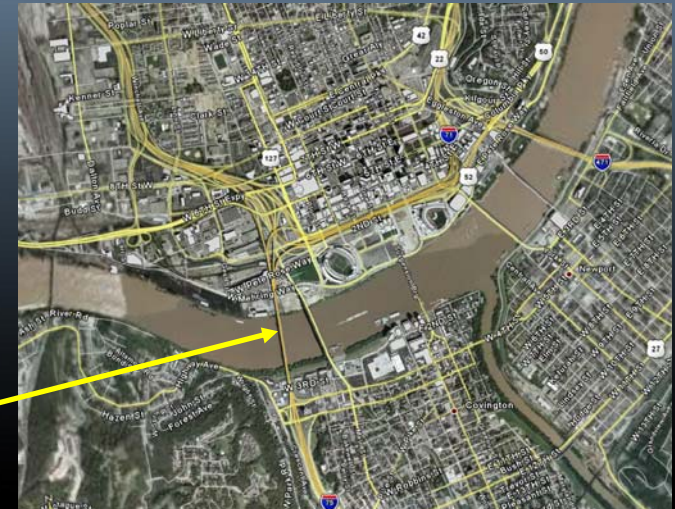
River Zone

Ohio Context



Bridge Zone Context

- Urban Context
- Variety of Bridge Types
- City of Cincinnati Urban Fabric
- Ohio River Environs



Brent Spence Bridge

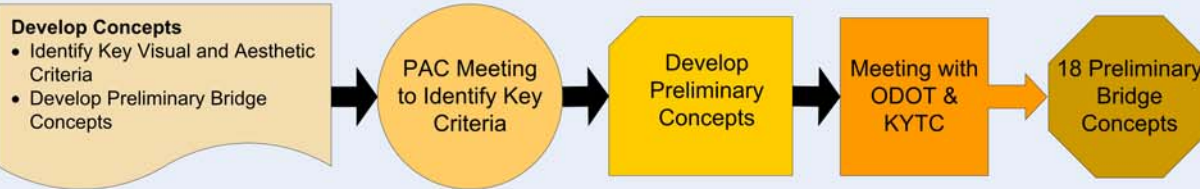
Brent Spence Bridge



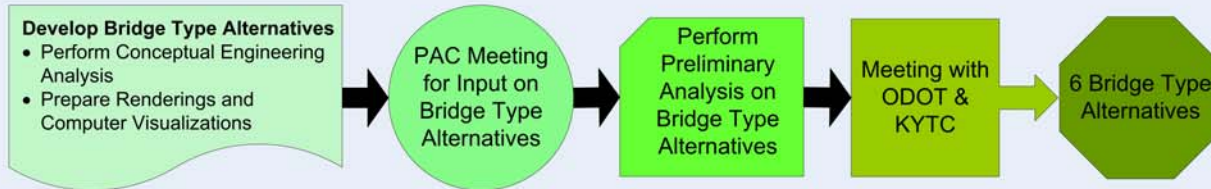


Bridge Type Selection Process

STEP 1 DEVELOP 18 PRELIMINARY BRIDGE CONCEPTS



STEP 2 DEVELOP 6 BRIDGE TYPE ALTERNATIVES



STEP 3 DEVELOP FINAL 3 BRIDGE ALTERNATIVES



Bridge Type Selection Process

Key Dates



- **First PAC Meeting – September 25, 2009**
 - Identify Key Aesthetic Criteria for Development of 18 Preliminary Bridge Concepts
- **Second PAC Meeting – January/February 2010**
 - Input on Selection of 6 Bridge Type Alternatives
- **Third PAC Meeting – April 2010**
 - Input on Selection of Final 3 Bridge Alternatives
- **Fourth PAC Meeting – November 2010**
 - Presentation of Final 3 Bridge Alternatives

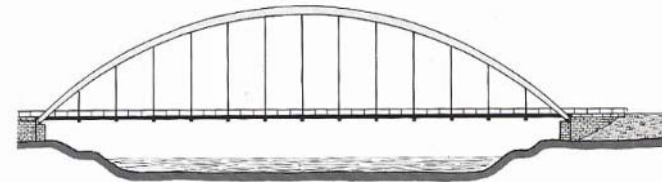
Bridge 101



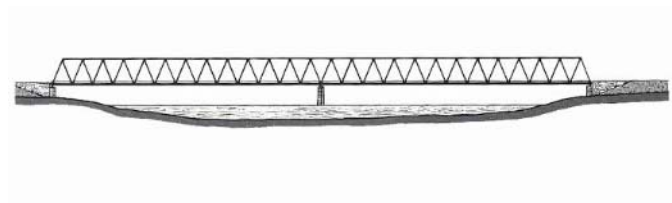
Cable Stayed Bridges



Arch Bridges



Truss Bridges





Suspension Bridges

- High cost per square feet
- Traditionally used for spans over 2000 ft
- Large anchors / foundations at river shorelines



New River Bridge River Zone Context



Truss
(Brent Spence Bridge)

Truss & Truss
(C&O Railroad Bridge &
Clay Wade Bailey Bridge)

Truss
(Cincinnati Southern Bridge)

Suspension
(John A. Roebling Bridge)

Truss
(Taylor-Southgate Bridge)

Truss
(Newport Southbank Bridge,
formerly L&N Bridge)

Arch
(Daniel Carter
Beard Bridge)





Existing Brent Spence Bridge

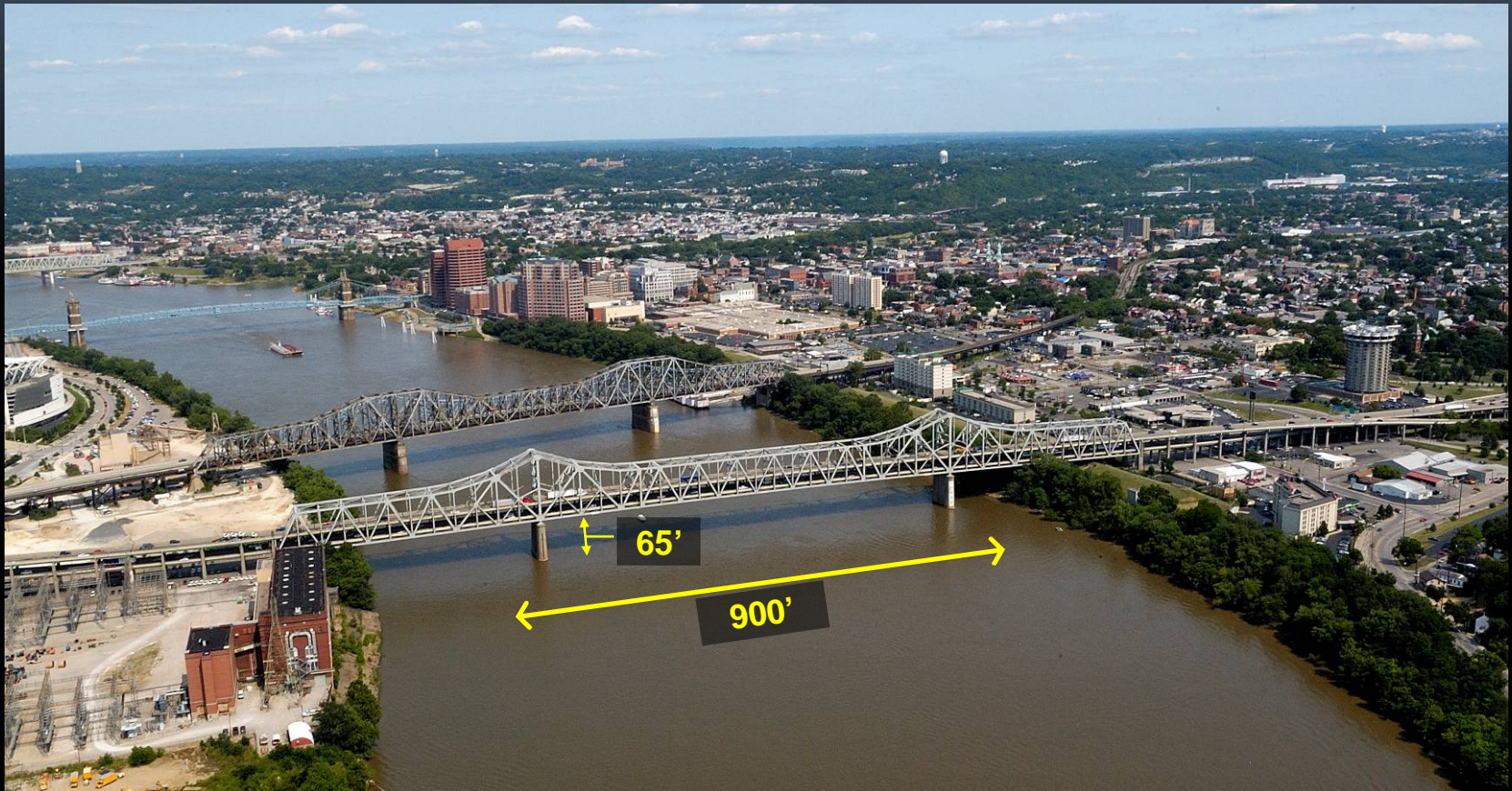
- Long Span Bridge
- Truss Bridge Type
- Double Deck Bridge
- 4 lanes in each direction – no shoulders





Bridge Design Parameters

- Double Deck Bridge has Smaller Footprint
- Existing Brent Spence Bridge stays in place



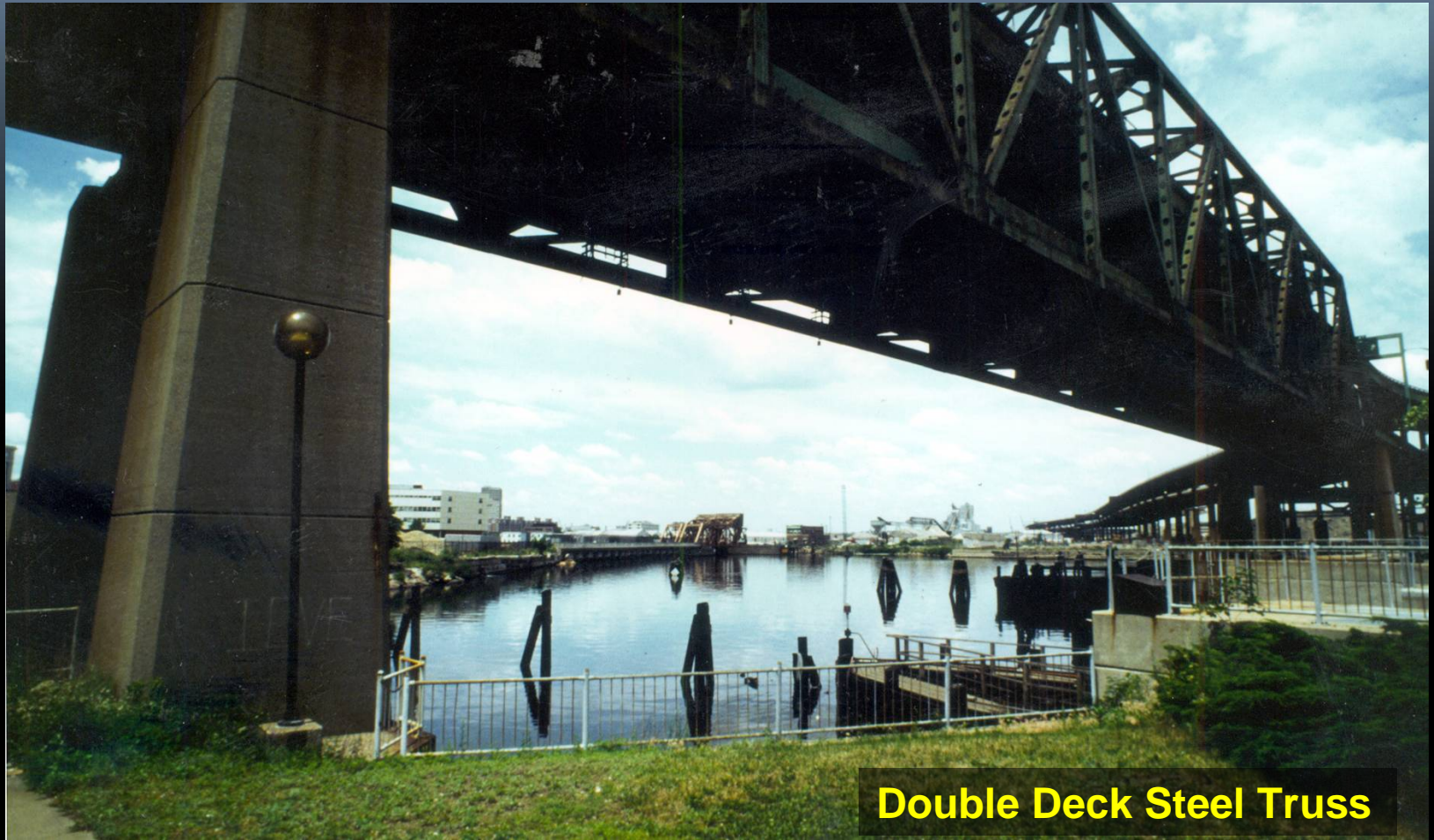
Cable Stayed Case Study

Charles River Zakim Bridge, Boston, MA



Cable Stayed Case Study

Charles River Zakim Bridge, Boston, MA



Double Deck Steel Truss

Cable Stayed Case Study

Charles River Zakim Bridge, Boston, MA



Cable Stayed Case Study

Charles River Zakim Bridge, Boston, MA



Cable Stayed Case Study

Charles River Zakim Bridge, Boston, MA



Cable Stayed Case Study

Charles River Zakim Bridge, Boston, MA



Arch Case Study

I-74 Mississippi Crossing, Quad Cities, IA & IL



Arch Case Study

I-74 Mississippi Crossing, Quad Cities, IA & IL



Arch Case Study

I-74 Mississippi Crossing, Quad Cities, IA & IL



Arch Case Study

I-74 Mississippi Crossing, Quad Cities, IA & IL



Arch Case Study

I-74 Mississippi Crossing, Quad Cities, IA & IL



Arch Case Study

I-74 Mississippi Crossing, Quad Cities, IA & IL



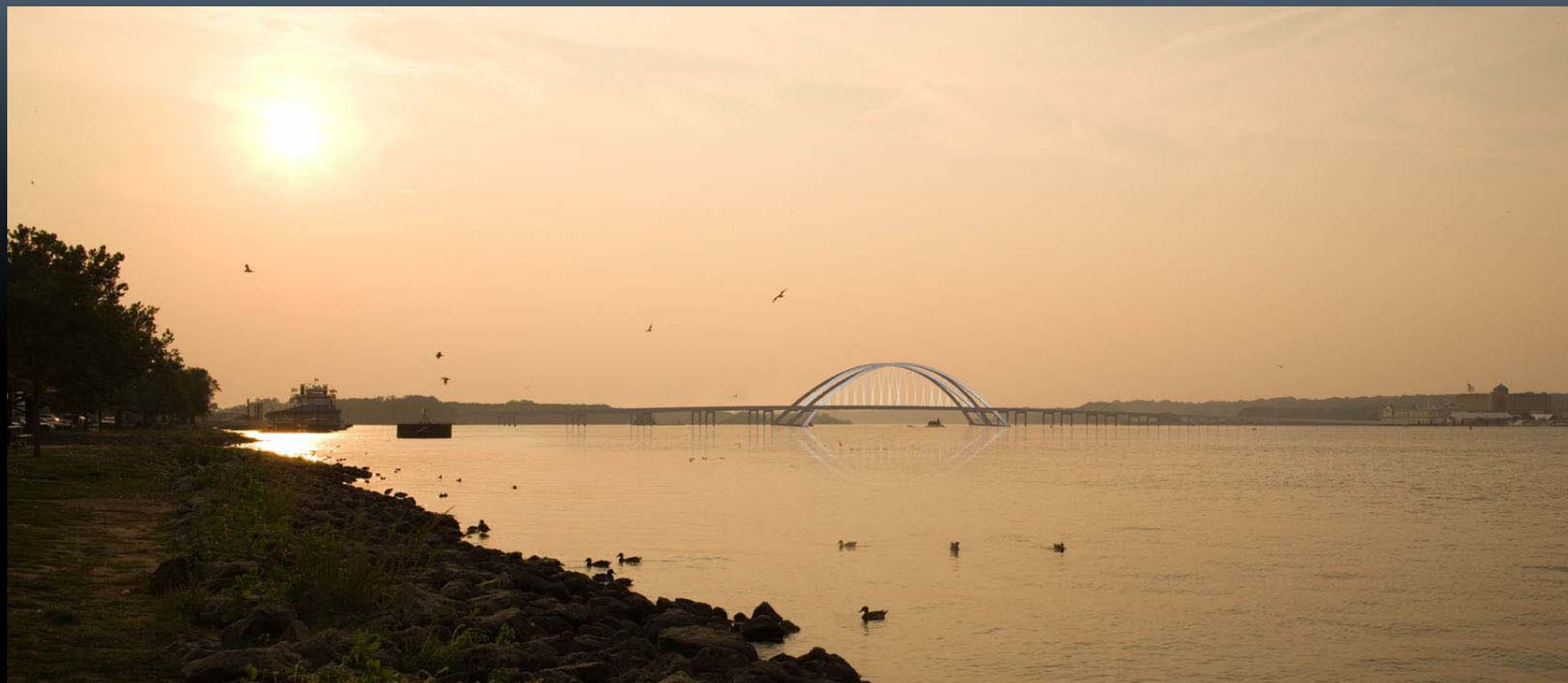
Arch Case Study

I-74 Mississippi Crossing, Quad Cities, IA & IL



Arch Case Study

I-74 Mississippi Crossing, Quad Cities, IA & IL



Evaluation Criteria River Zone



- Overall Width and Foot Print
- Shadow Coverage and Impact on the River Environment
- Visual Impact on Downtown Skyline and Viewshed
- Visual Complexity of Bridge – Overall Height, Scale and Massing
- Compatibility with Existing Bridge



Development of Key Design Criteria for Project



Major Bridge Types



Major Bridge Types



Next Steps



Sept. 2009

STEP 1
DEVELOP 18 PRELIMINARY
BRIDGE CONCEPTS

Develop Concepts

- Identify Key Visual and Aesthetic Criteria
- Develop Preliminary Bridge Concepts

PAC Meeting
to Identify Key
Criteria

Develop
Preliminary
Concepts

Meeting with
ODOT &
KYTC

18 Preliminary
Bridge
Concepts

Jan./Feb. 2010

STEP 2
DEVELOP 6 BRIDGE
TYPE ALTERNATIVES

Develop Bridge Type Alternatives

- Perform Conceptual Engineering Analysis
- Prepare Renderings and Computer Visualizations

PAC Meeting
for Input on
Bridge Type
Alternatives

Perform
Preliminary
Analysis on
Bridge Type
Alternatives

Meeting with
ODOT &
KYTC

6 Bridge Type
Alternatives

April 2010

STEP 3
DEVELOP FINAL 3
BRIDGE ALTERNATIVES

Refine Final Bridge Alternatives

- Perform Preliminary Design
- Prepare Final Renderings and Computer Visualizations

PAC Meeting
for Input on
Final
Alternatives

Refine Final
Alternatives

Meeting with
ODOT &
KYTC

Nov. 2010

PAC and
Public
Meetings

Final 3 Bridge
Alternatives

Brent Spence Bridge

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