

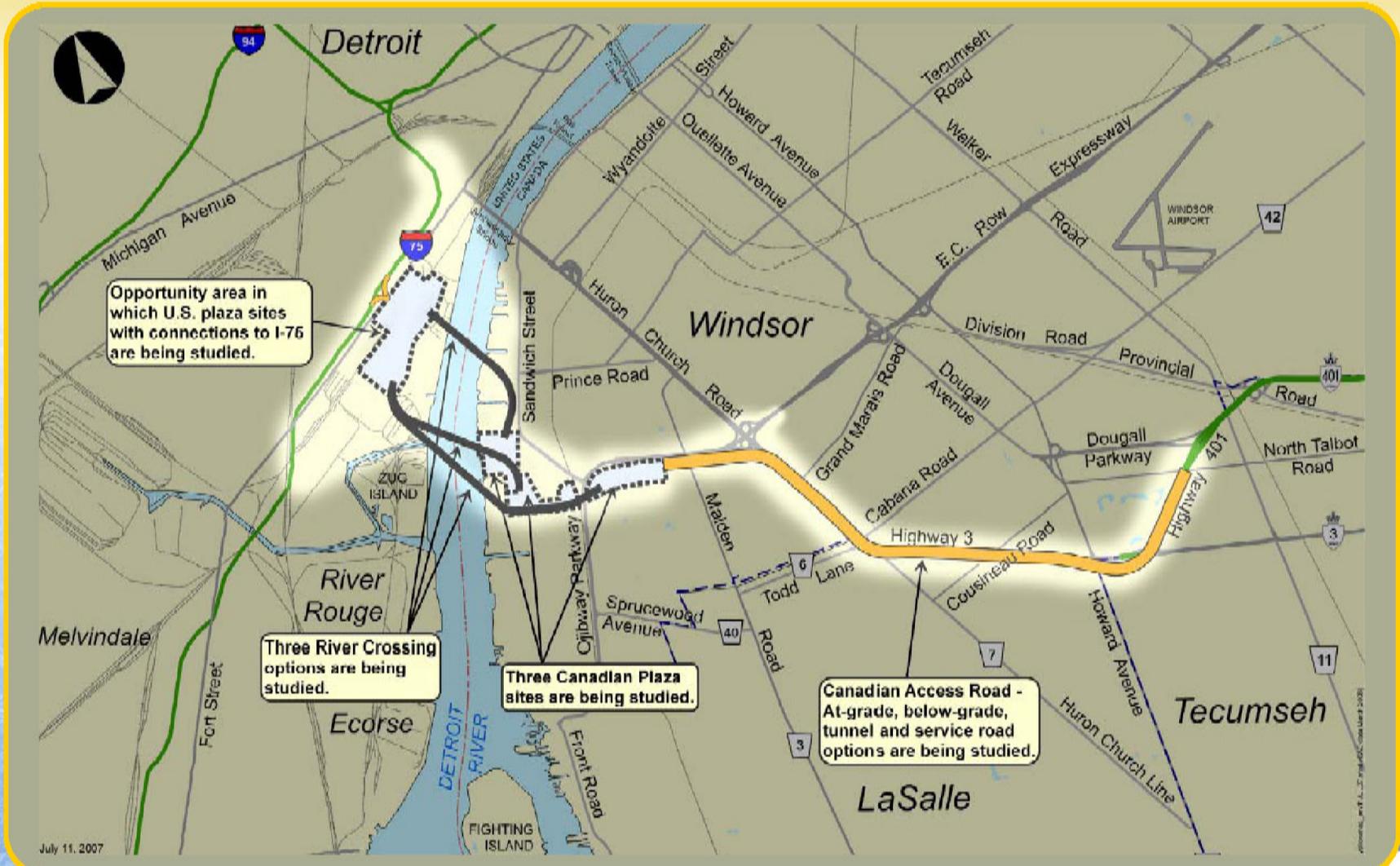
Context Sensitive Solutions Workshop

Detroit River International Crossing Project

August 8, 2007

Agenda

- Workshop Purpose
- Review of Past Bridge CSS Workshops
 - Review of past public input
- Review of Bridge CSS Process
- Review of Technical Study & Recommendations
- New Concepts and **Your Input**



Schedule	December '07	April '08	August '08	November '08
	DEIS	Preferred Alt.	FEIS	ROD

Meeting Objective

Work toward consensus on the aesthetic vision of the Detroit River Bridge to reflect the community and context.

Context Sensitive Solutions

DRIC

- A blending of community values and sound engineering

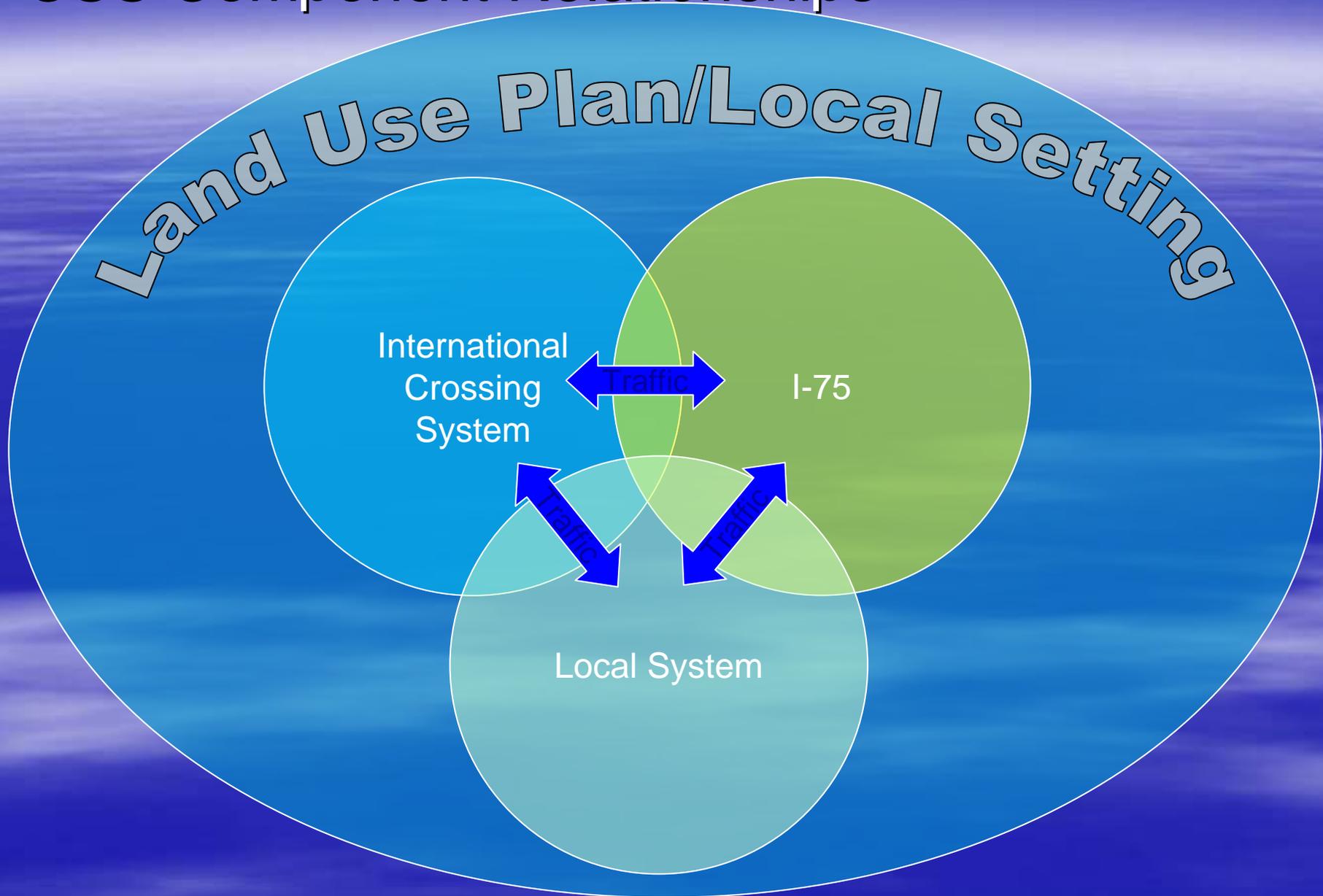
“Incorporate context sensitive design (solutions) into transportation projects”

Governor Jennifer M. Granholm

“A collaborative, interdisciplinary approach involving stakeholders for the development of a transportation facility that fits its physical setting and preserves scenic, aesthetic, historic, cultural, and environmental resources, while maintaining safety and mobility.”

Michigan Department of Transportation

CSS Component Relationships



Detroit River International Crossing Study

Previous Bridge Related Workshops

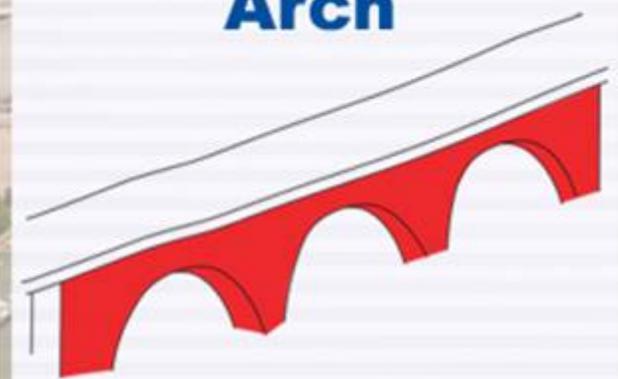
- # 9 April 19, 2006: • Community Planning, CSS, and Bridge Terminology
- #12 June 22, 2006: • Community Planning Process, Illustrative Community Plans and Bridge Bus Tour
- #13 August 24, 2006: • Vision for the aesthetic treatment of the crossing system
 - Result:
 - Suspension Bridge: History
 - Cable-Stay Bridge: Friendship
- #14 Nov. 2 & 15, 2006: • Application and treatments of the visions for the main bridge

The Detroit River International Crossing Study

Bridge Terminology



Arch



Cable Stay



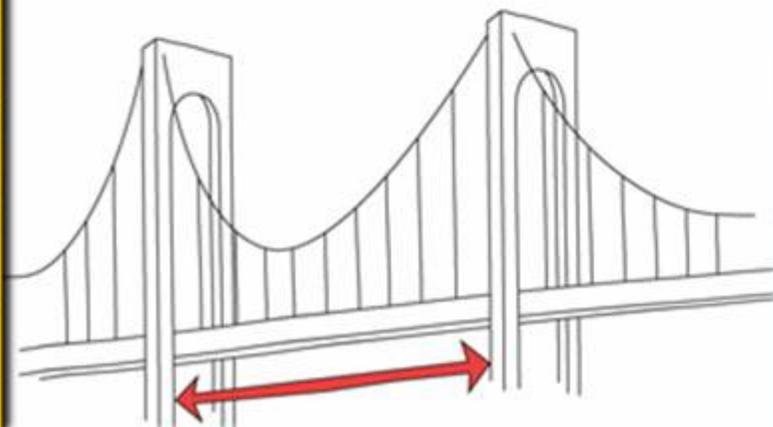
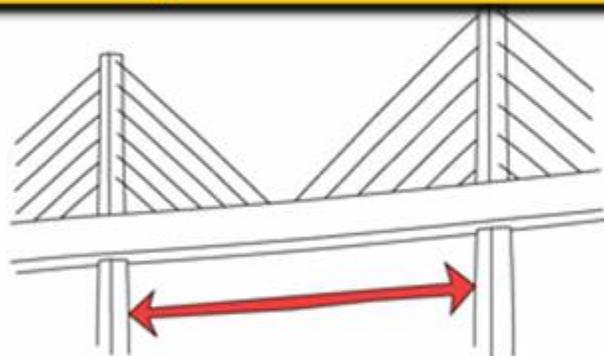
Suspension



The Detroit River International Crossing Study

Span:

The distance between two supports of a bridge.



The Detroit River International Crossing Study

Tower:

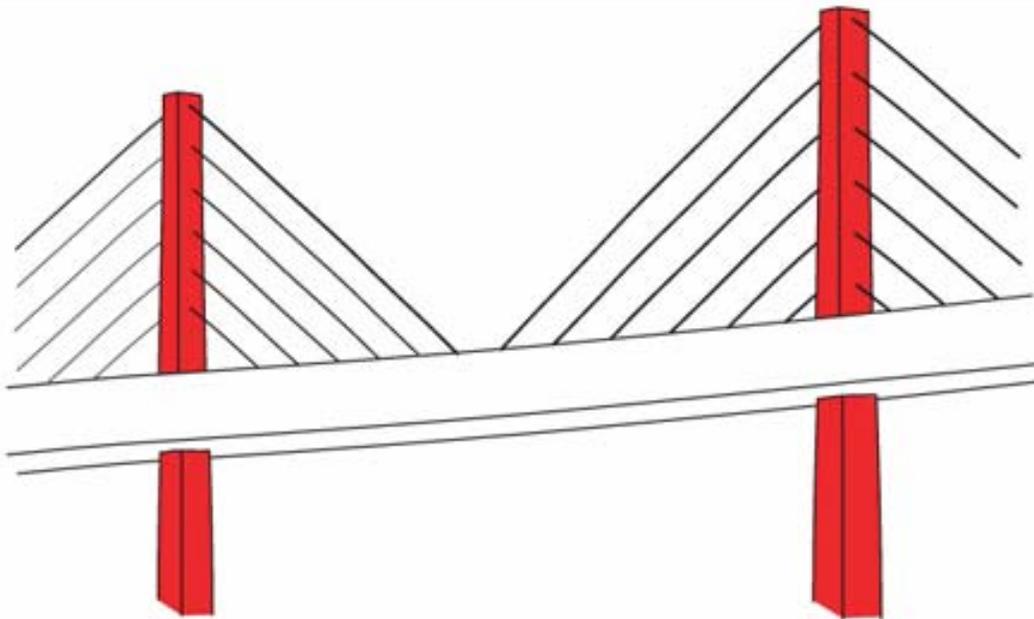
The vertical element in suspension bridges from which cables are hung.



The Detroit River International Crossing Study

Pylon:

The vertical structural element from which cables radiate in a cable-stayed bridge.



WS#12 – June 2006 – Bridge Bus Tour



WS#13 – August 2006 – Bridge Visioning

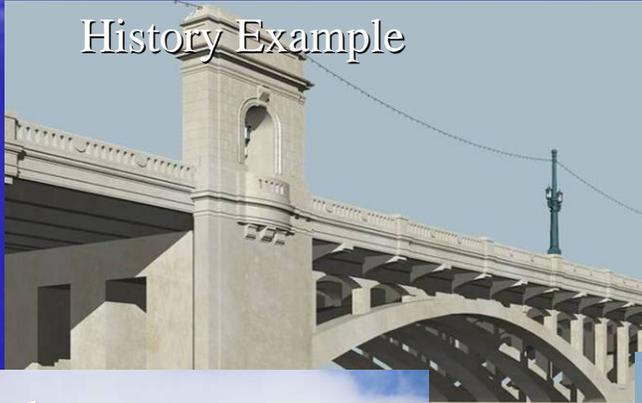
At X-10

- Friendship
- Industry
- History

At X-11

- Friendship
- Gateway
- History

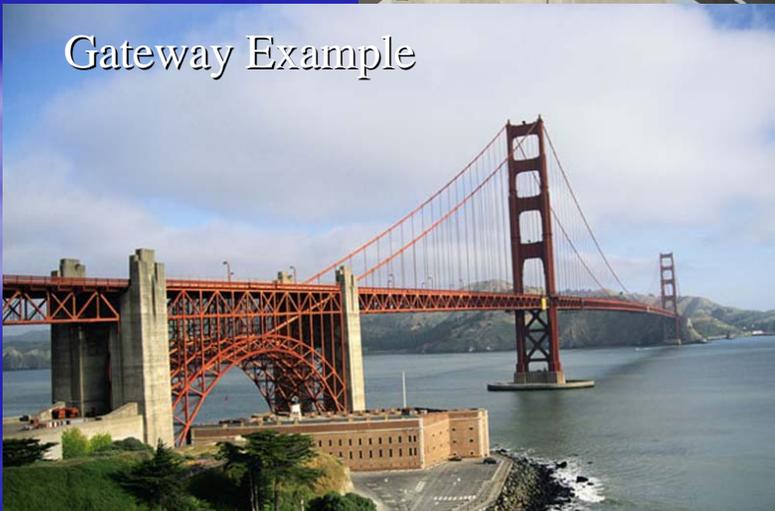
History Example



Friendship Example



Gateway Example



Industry Example

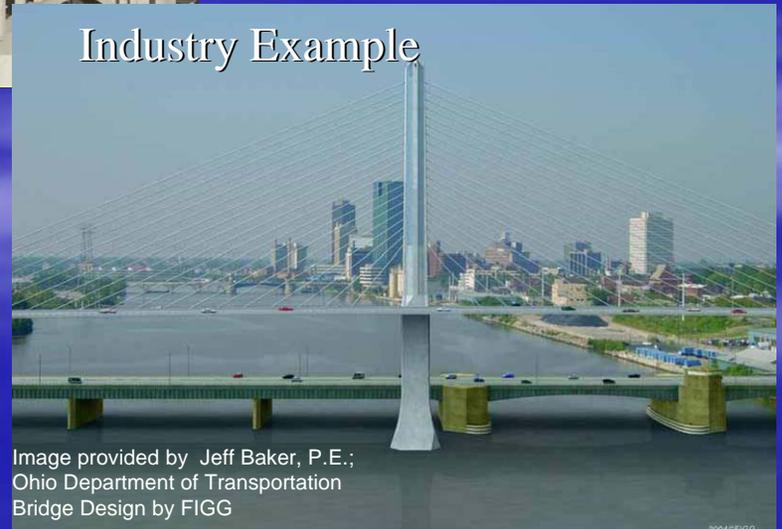


Image provided by Jeff Baker, P.E.;
Ohio Department of Transportation
Bridge Design by FIGG

WS#14 – November 2006 – Community Preferences

Suspension Bridge Preferences – History Vision



Option #7



Option #8



Option #5

Detroit River International Crossing

August 8, 2007



Option #6

Community Planning Priorities (November 2006 WS – Community Preferences)

Cable-Stay Bridge Preferences – Friendship/Gateway Vision



Option #14



Option #13



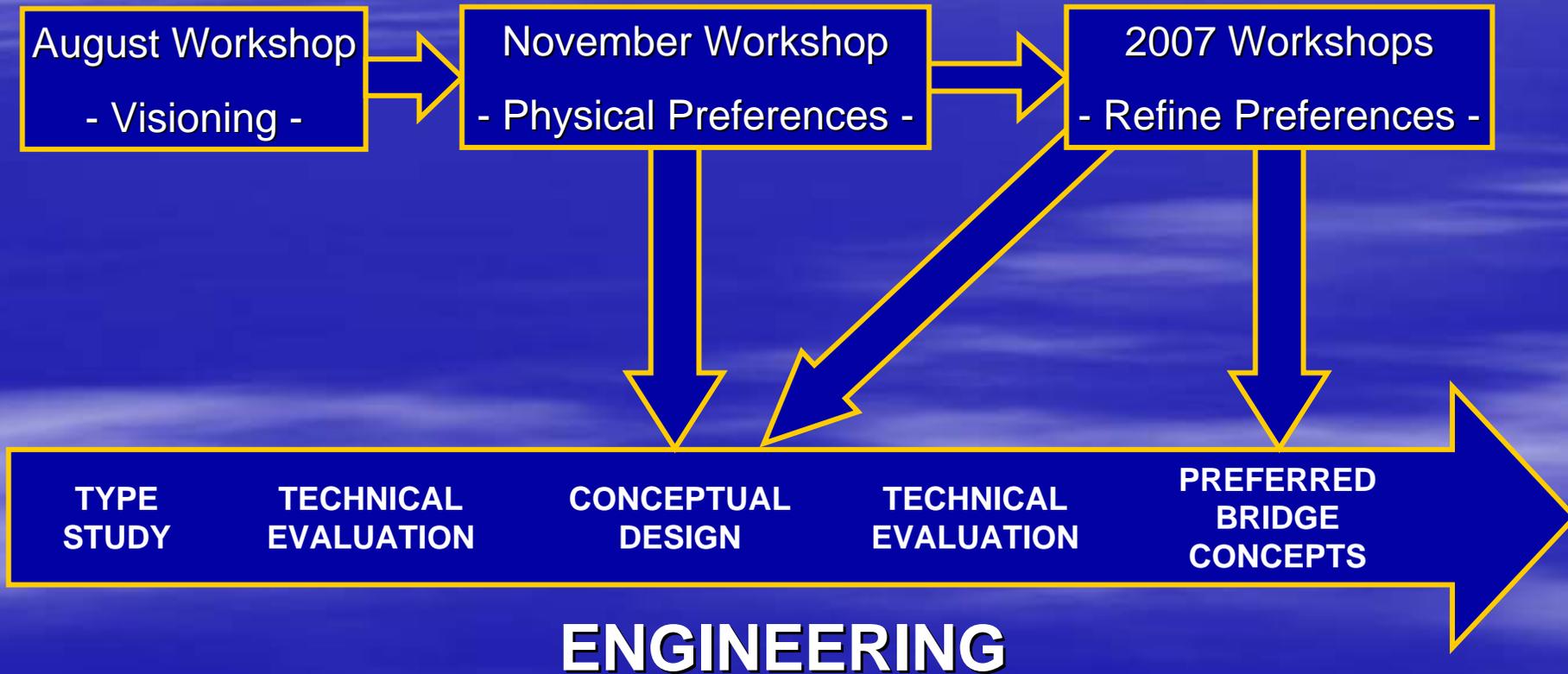
Option #15



Option #10

Achieving Context Sensitive Solutions

COMMUNITY INPUT



Bridge Technical Study

Technical Bridge Studies – Type Study Report

- The purpose of the Type Study was to examine bridge types from an engineering perspective to determine which were feasible and prudent to pursue
- Examined 2 different bridge types in 15 configurations
 - Suspension
 - Cable-Stayed

Evaluation Criteria

- 14 Total Criteria Evaluated
- 6 Criteria Differentiate

Criteria: Type Study Option	Initial Cost		Constructability			Safety and Security						
	Construction Cost (\$000,000)	Cost Risk (Scale 1-5) ¹	Duration (months)	Schedule Risk (Scale 1-5)	Technical Challenges (Scale 1-5)	Risk to Bridge (# Industries) ³			Vulnerability (Scale 1 - 5)			
						# U.S.	# Canada	Risk (Scale 1-5)	Man- Made	Natural	Ship Impact	
Crossing X10(A)												
Option 1	770	920	2	62	2	3	2	1	3	3	4	5
Option 2	680	810	4	56	2	3	2	1	3	3	4	3
Option 3	620	740	1	55	2	2	2	1	3	3	4	3
Crossing X10(B)												
Option 4	430	510	2	51	4	2	1	1	3	3	4	5
Option 5	370	440	3	43	3	3	1	1	3	3	4	3
Option 6	480	550	5	52	4	3	1	1	3	3	4	5
Option 7	470	540	5	49	4	3	1	1	3	3	4	5
Option 8	420	490	4	43	3	3	1	1	3	3	4	3
Crossing X11(C)												
Option 9	450	530	3	47	5	3	1	1	2	2	4	5
Option 10	500	580	5	42	4	3	1	1	2	2	4	5
Option 11	520	600	5	51	4	3	1	1	2	2	4	5

Crossing Locations

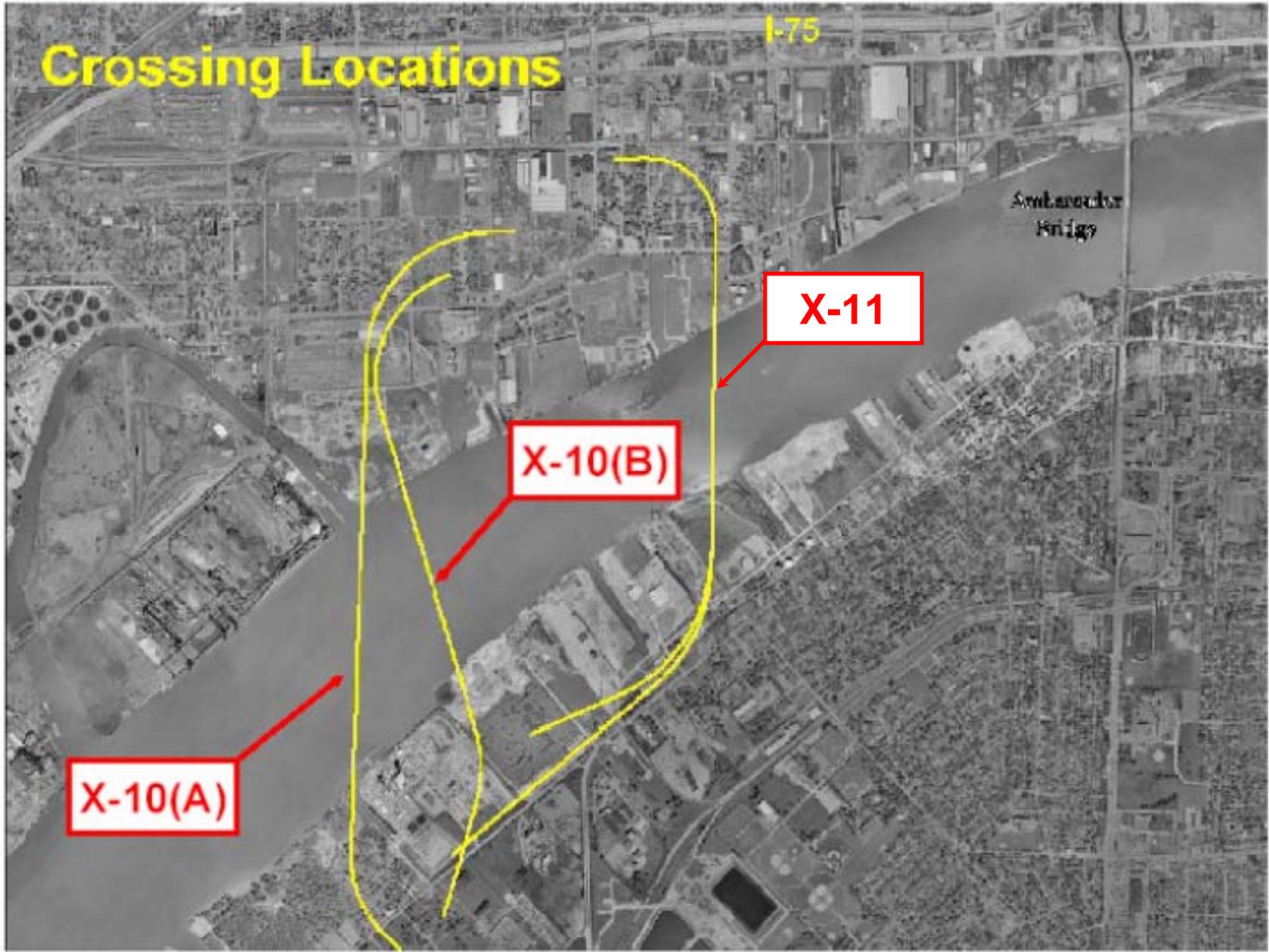
I-75

Antares
Kings

X-11

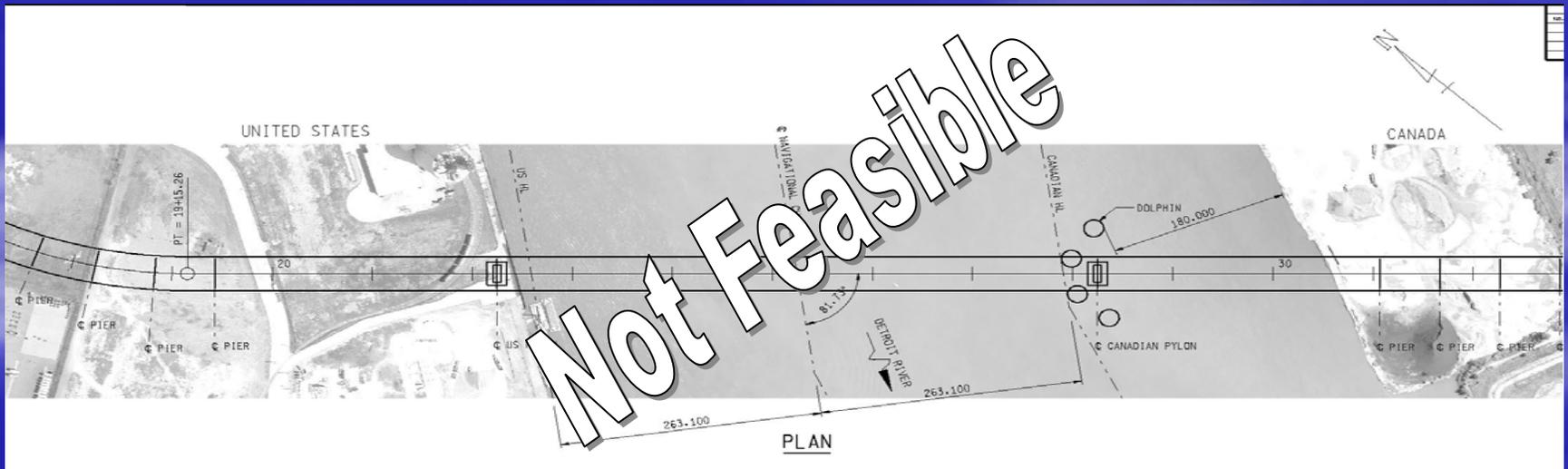
X-10(B)

X-10(A)

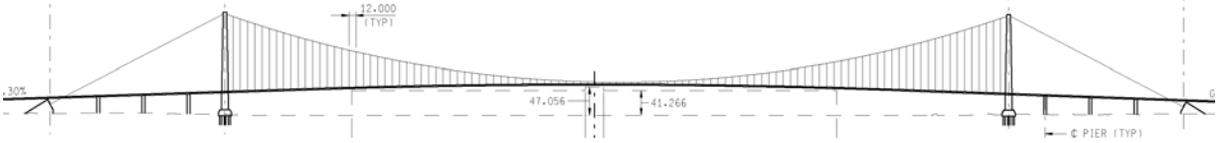
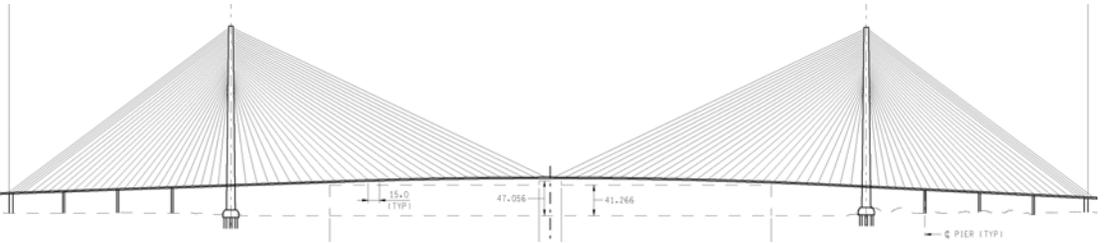
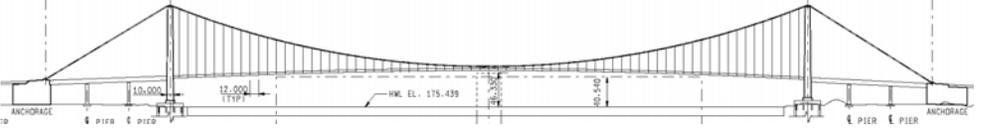
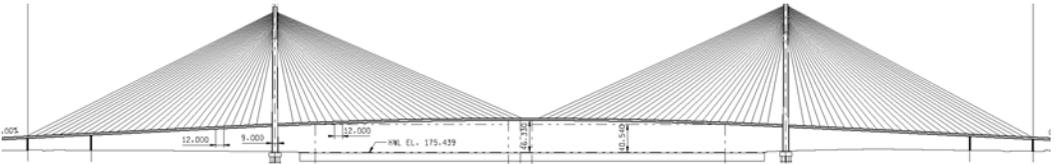
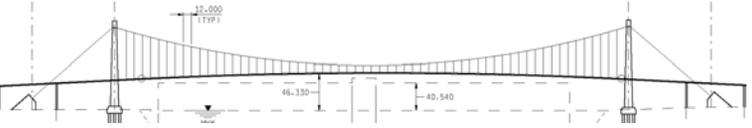


Proposed River Piers

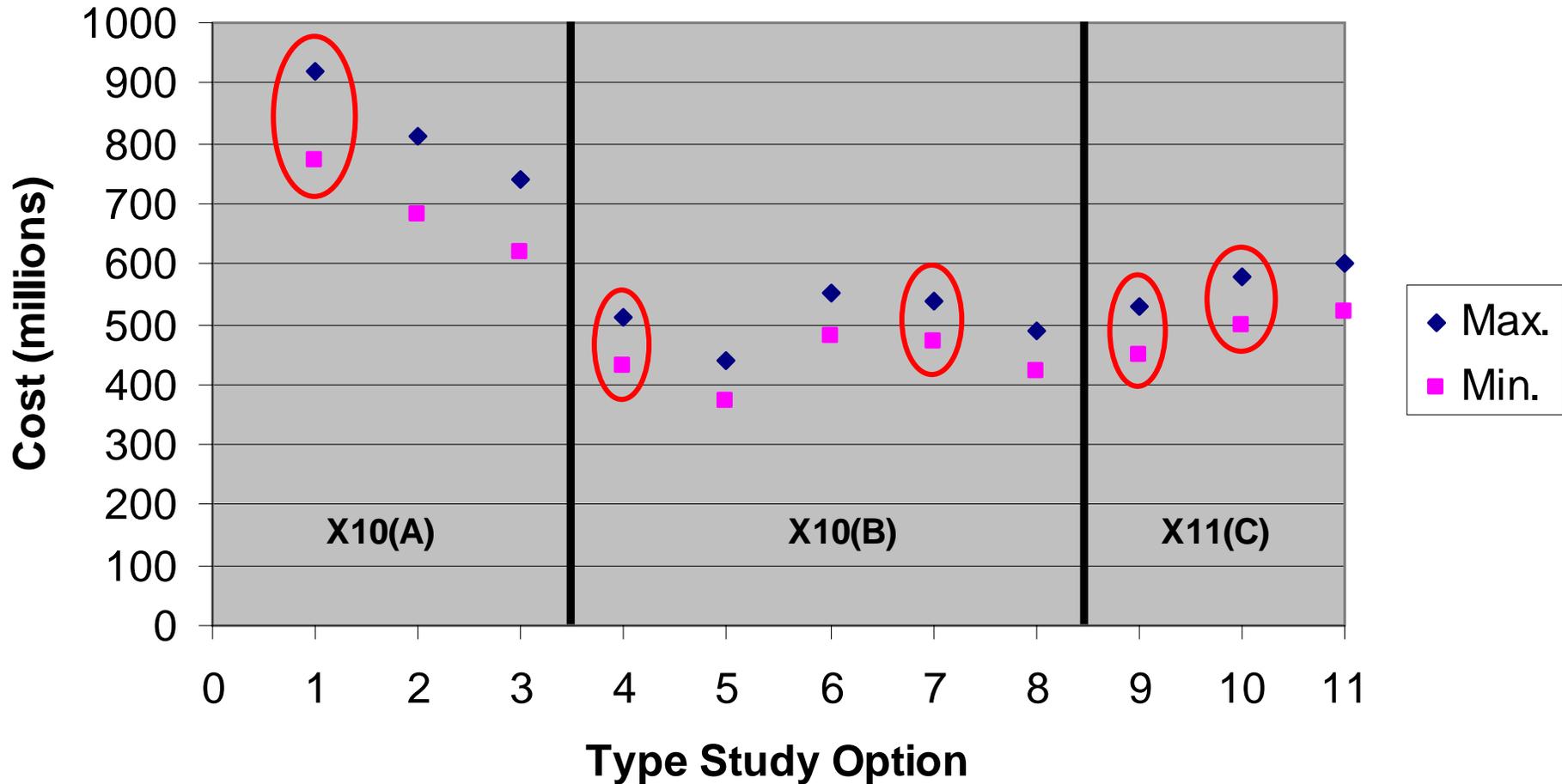
- Examined the feasibility of piers in the river in the US and Canada
- Consulted with US & Canadian Agencies and the shipping community
- Found:
 - Significant interference to navigation and turning movements in the river



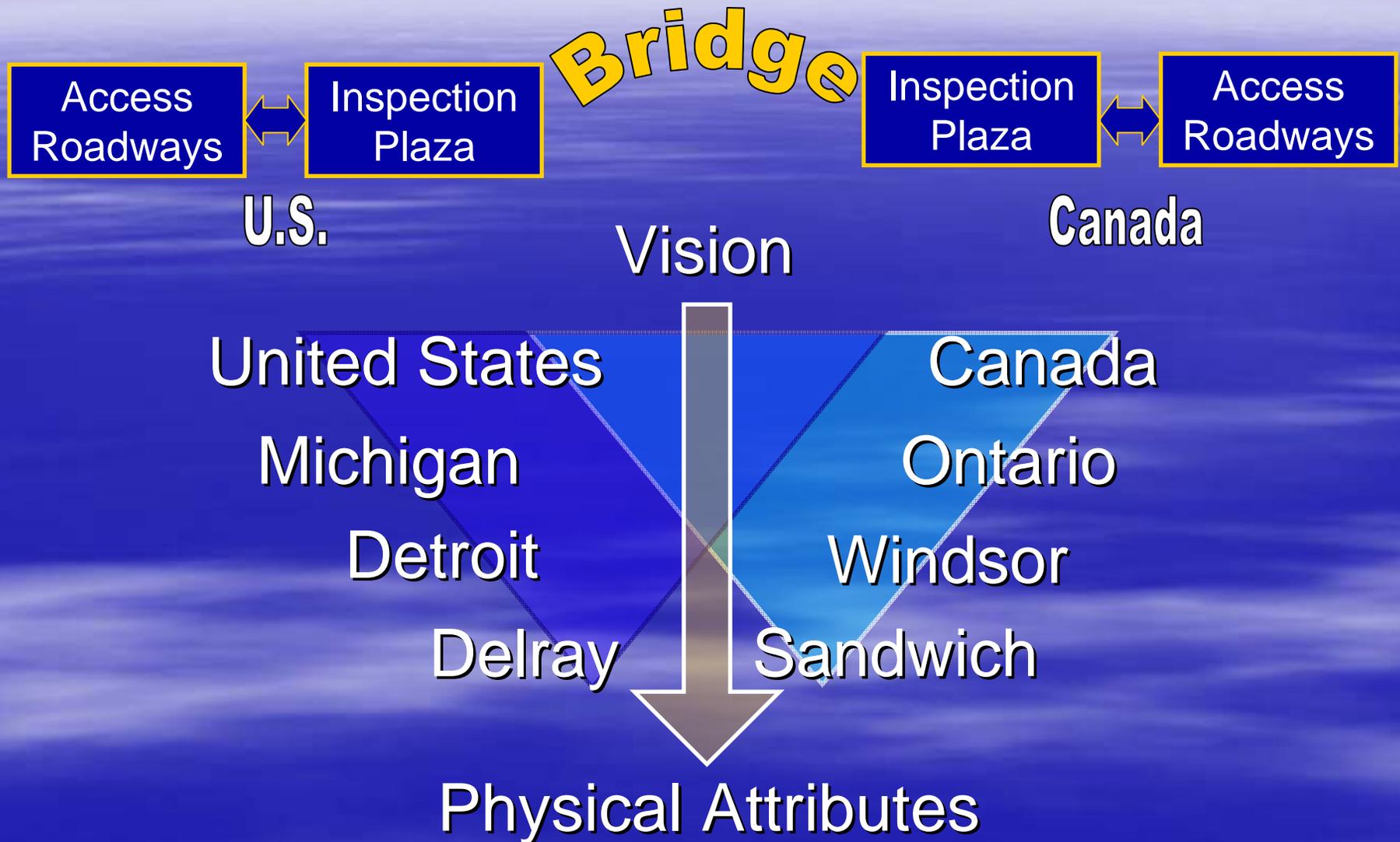
Recommended Options (Land Piers)

Type Study Option Elevation	Type Study Option
X10(A)	
	Option 1
X10(B)	
	Option 4
	Option 7
X11(C)	
	Option 9
	Option 10

Type Study Options Construction Cost Estimate Ranges

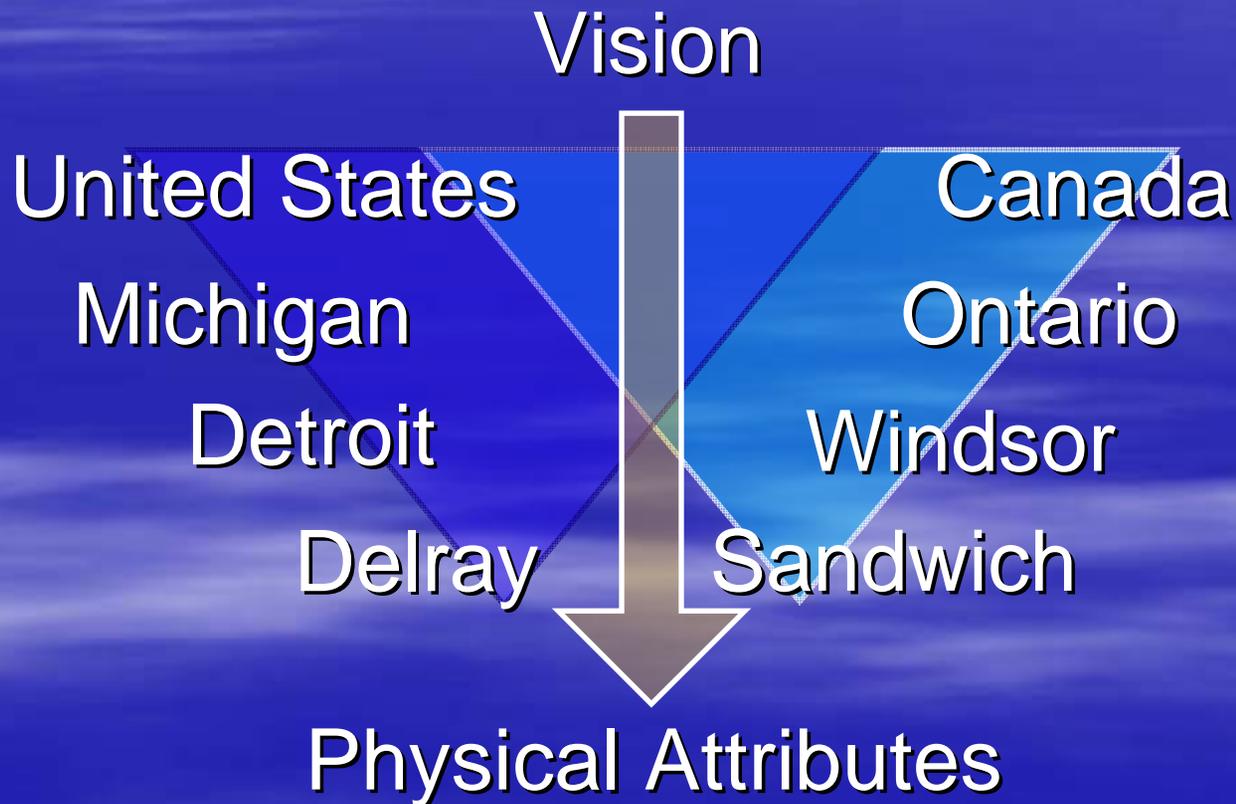


DRIC Bridge Vision Process



DRIC Bridge Vision Process

We will take a 2 step approach to defining the visual signature of the project.



DRIC Bridge Vision Process

Nov/Dec → Step 1: Determine Appropriate Vision

Step 1: Completed

Vision:

Suspension: Historic

Cable-Stayed: Friendship/Gateway

DRIC Bridge Vision Process

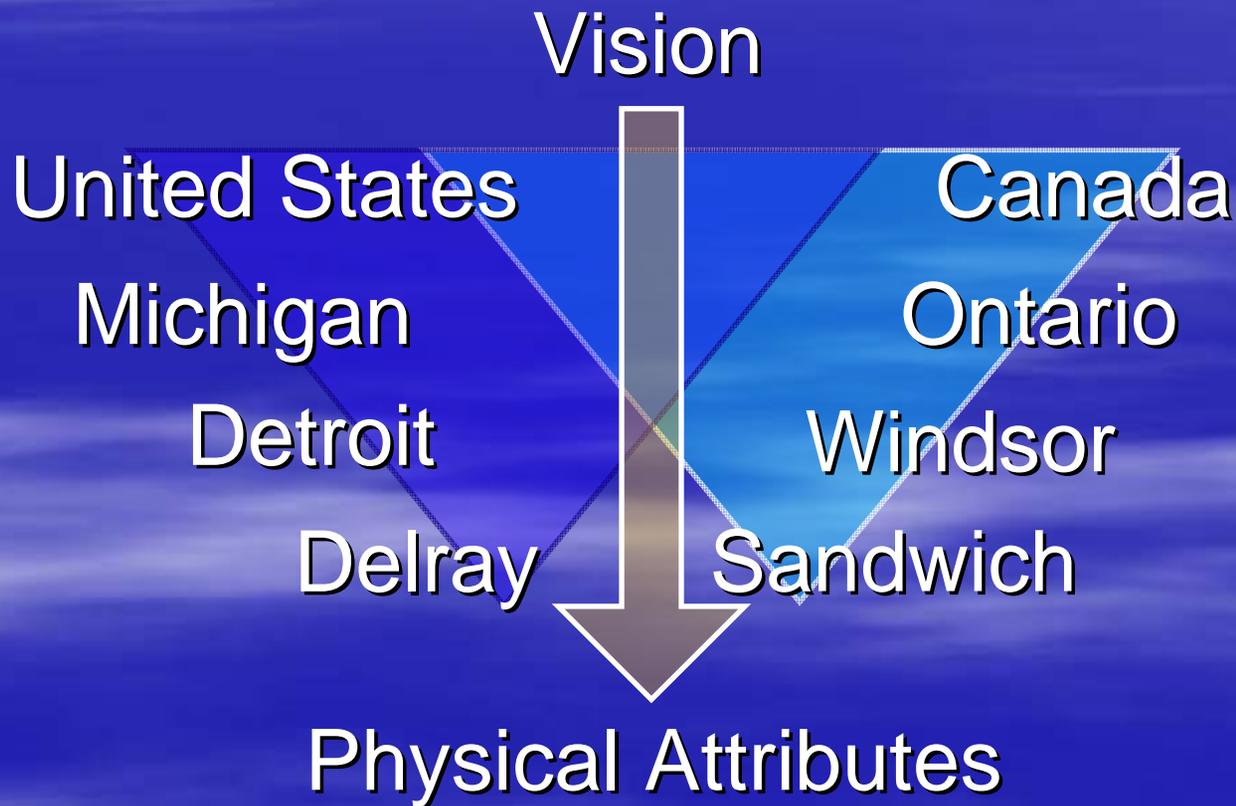
Dec. '06 → Step 2 Started

- Preferences for Thematic Elements:
 - Suspension: Ornate
 - Cable-Stayed: Modern

Today → Step 2 Continued Today:
Physical Preferences

DRIC Bridge Vision Process

Goal → Design Principles for Future Final Design

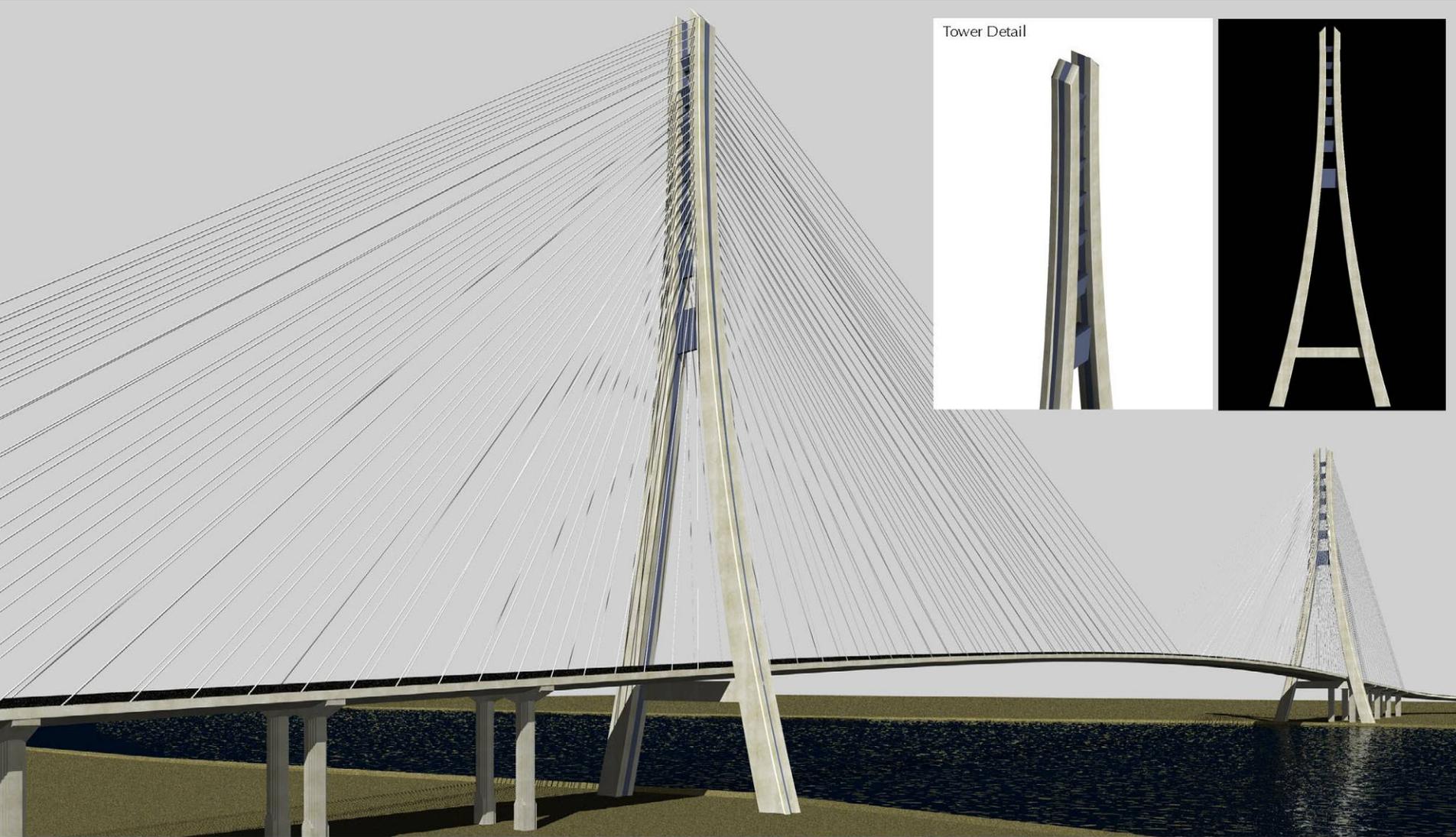


Meeting Objective

Work toward consensus on the aesthetic vision of the Detroit River Bridge to reflect the community and context.

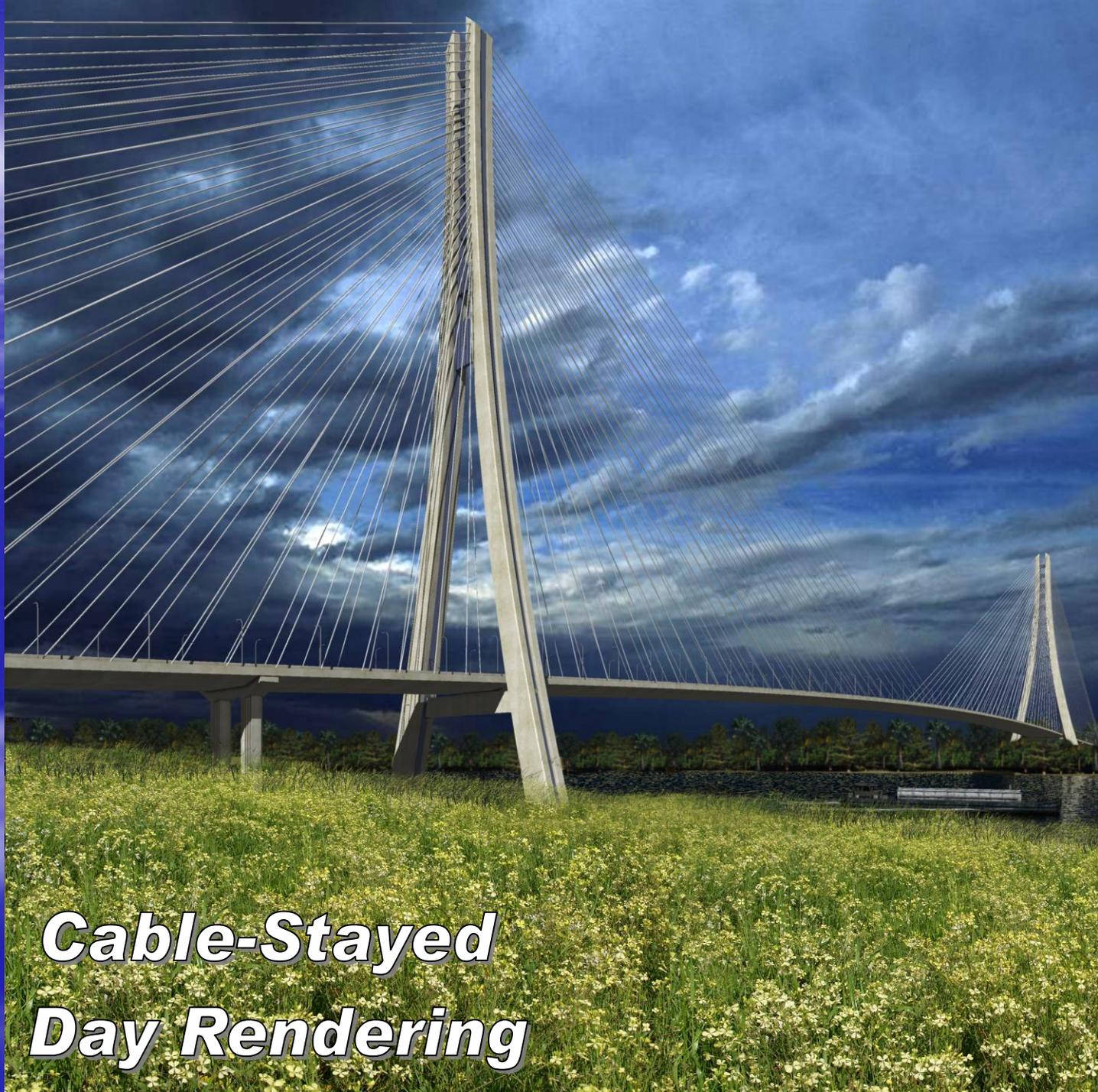
Aesthetic Elements

Cable-Stayed Bridge Pylon Option 1

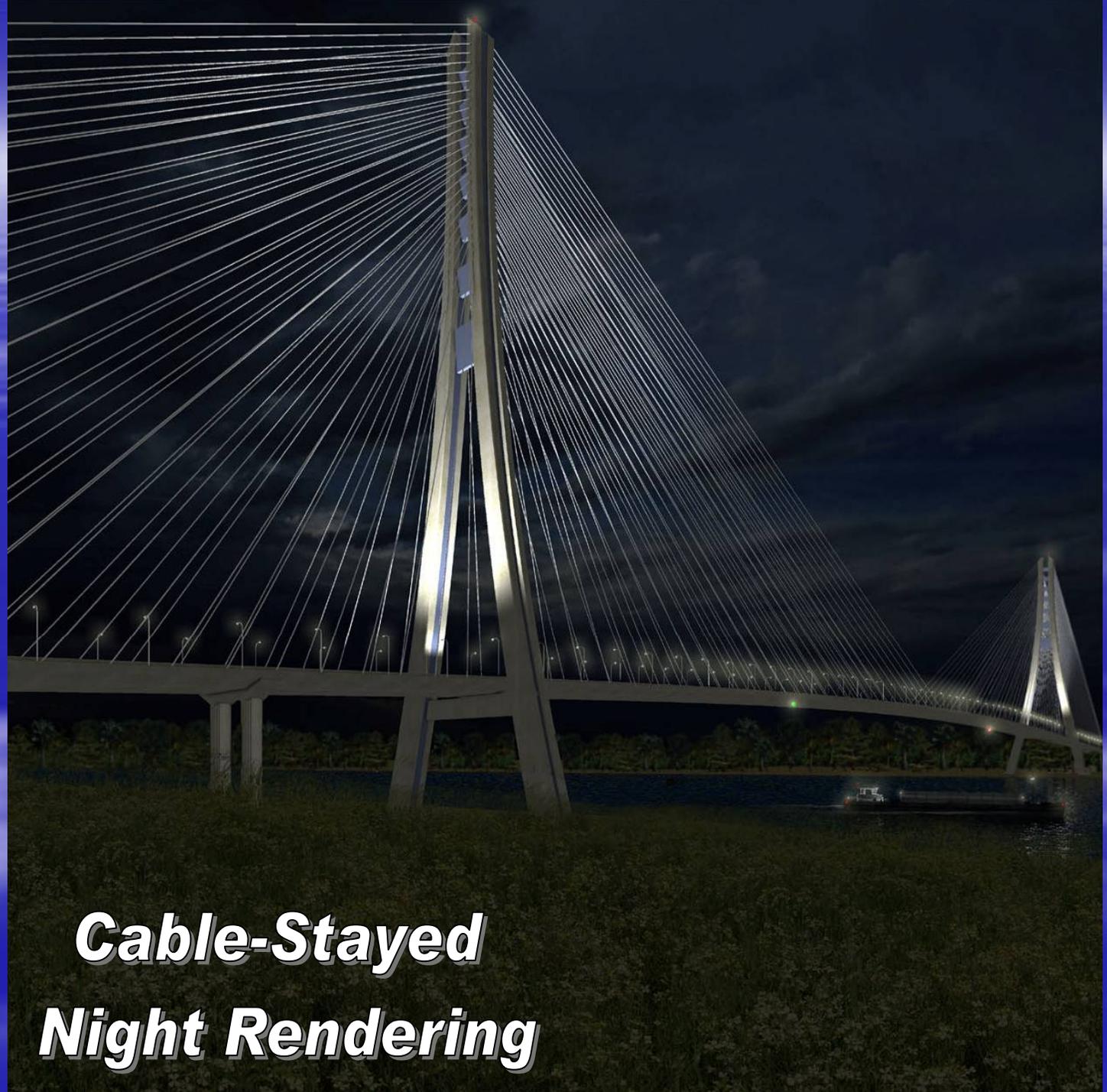


Tower Detail



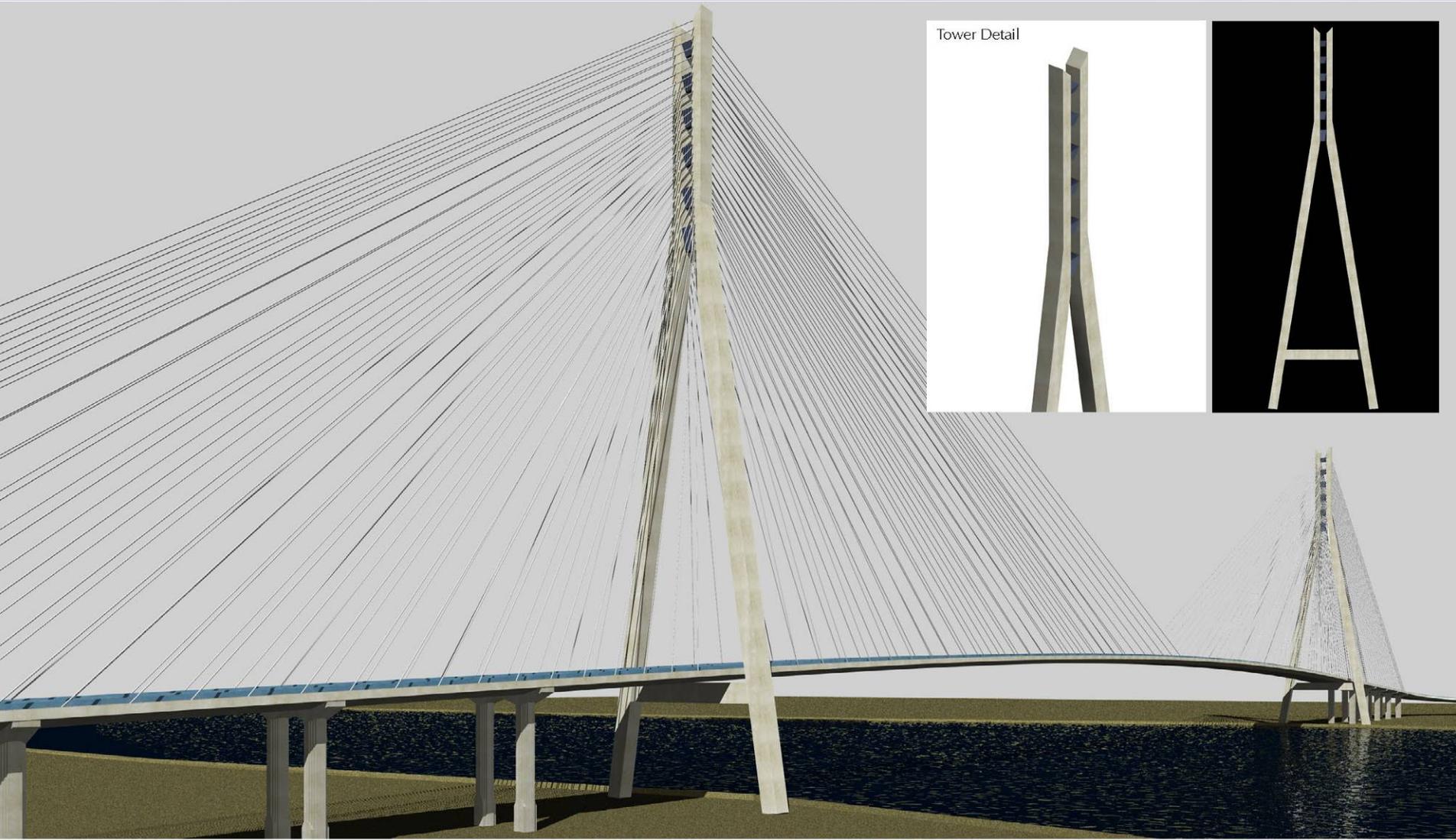


***Cable-Stayed
Day Rendering***

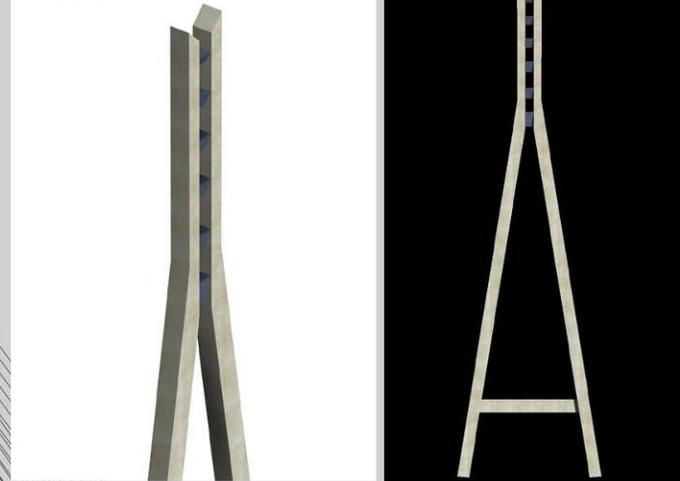


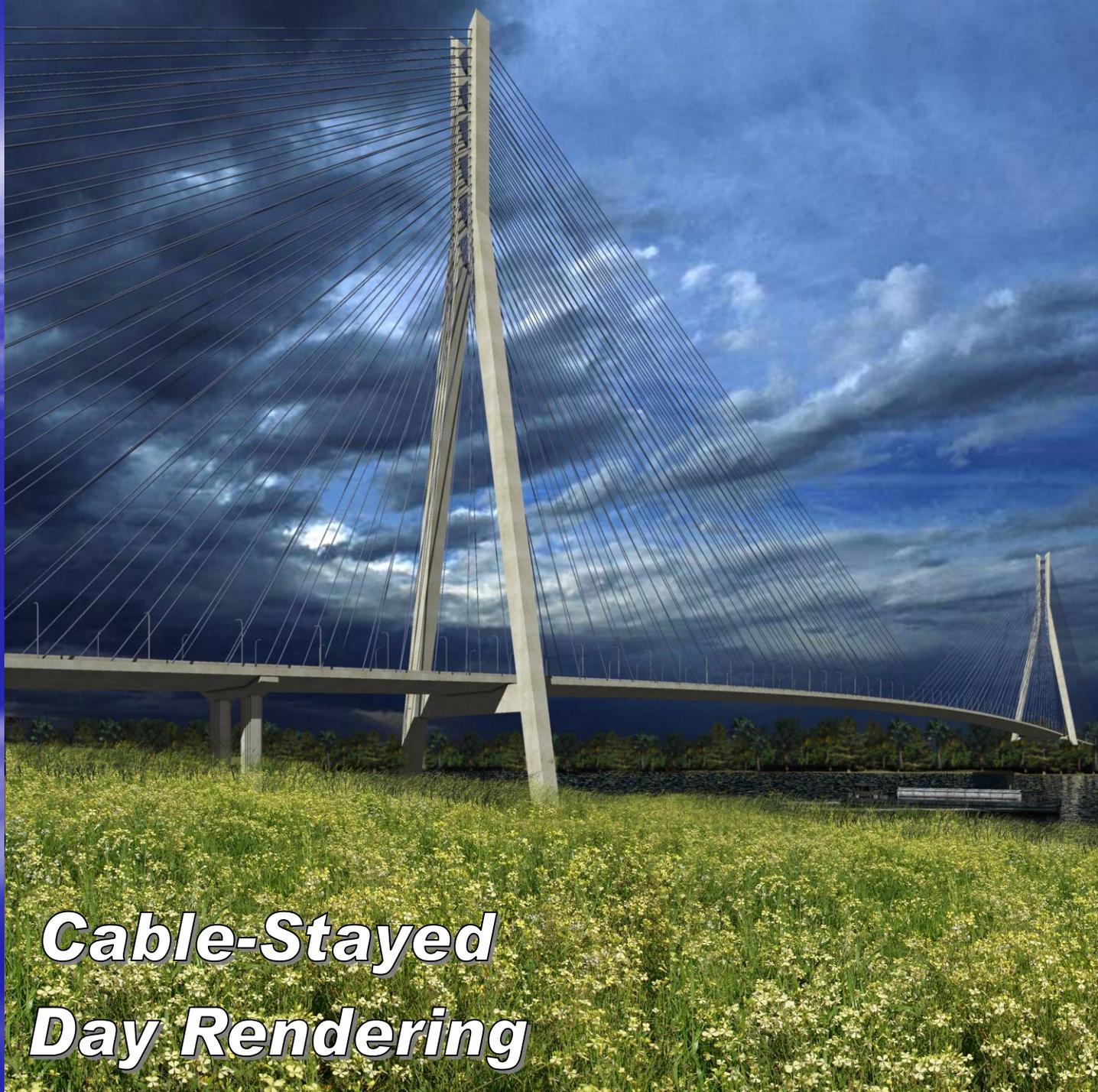
***Cable-Stayed
Night Rendering***

Cable-Stayed Bridge Pylon Option 2



Tower Detail



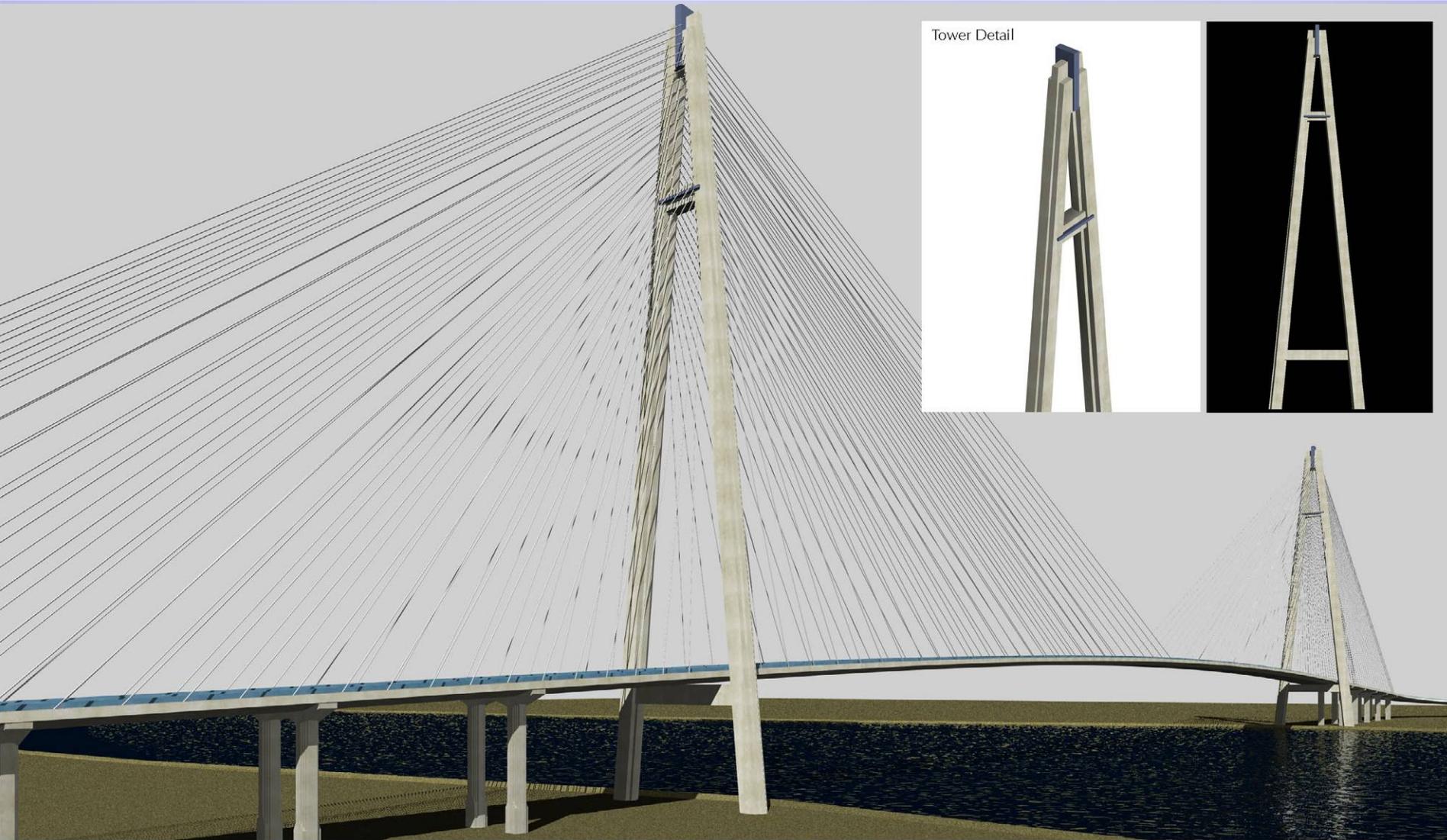


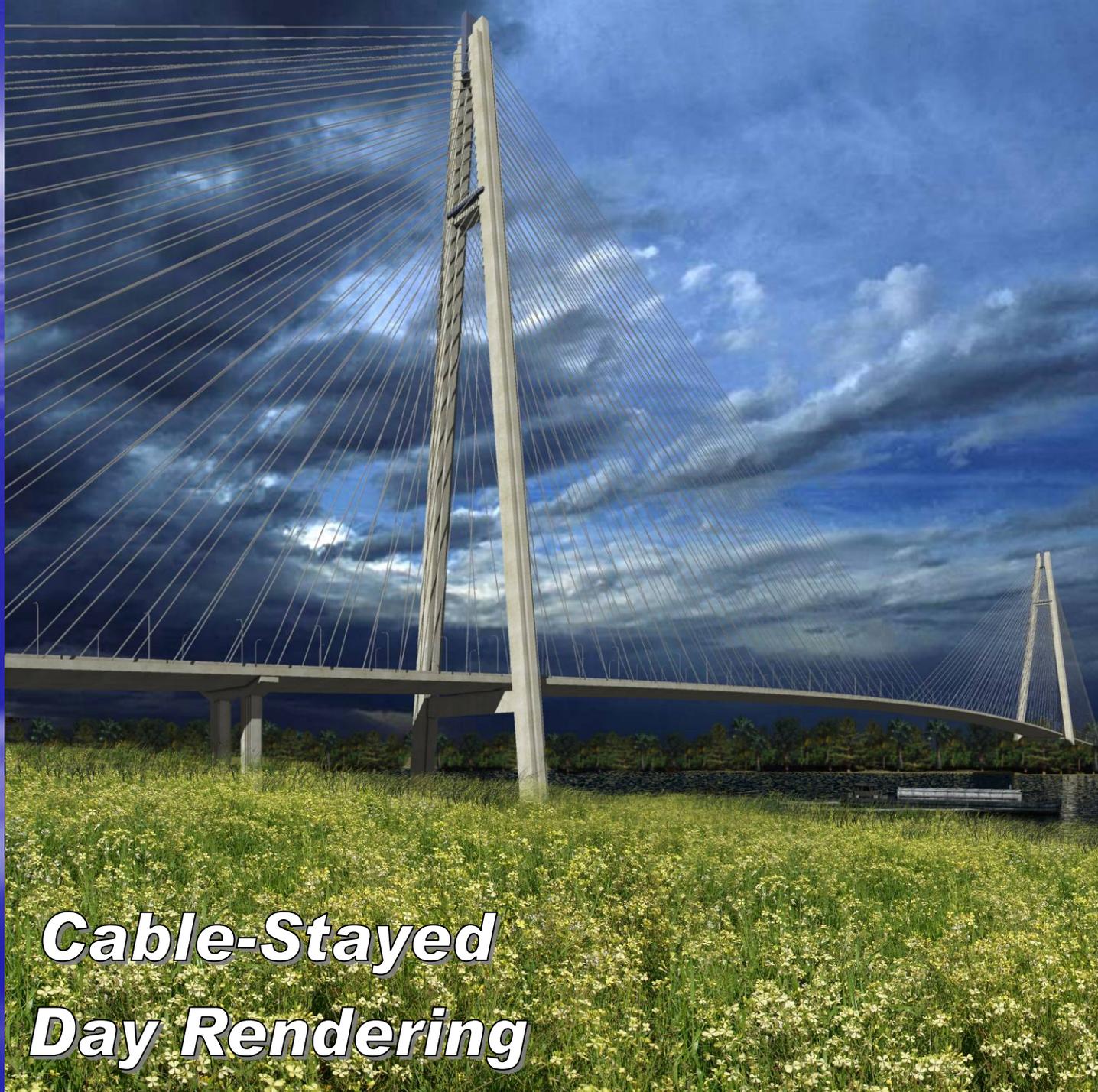
***Cable-Stayed
Day Rendering***



***Cable-Stayed
Night Rendering***

Cable-Stayed Bridge Pylon Option 3





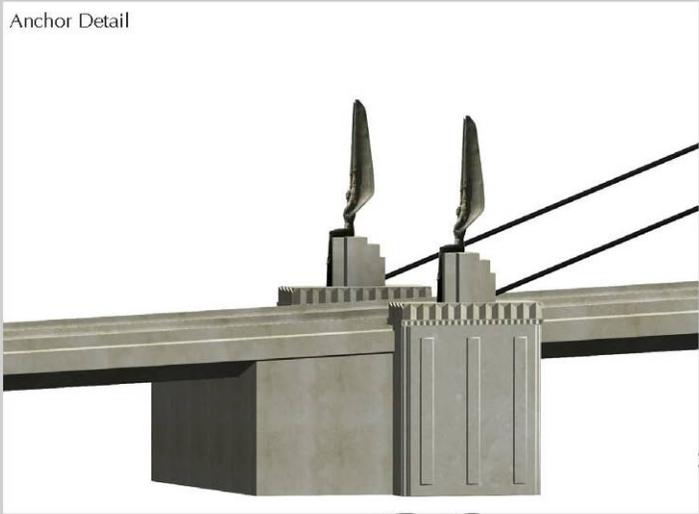
***Cable-Stayed
Day Rendering***



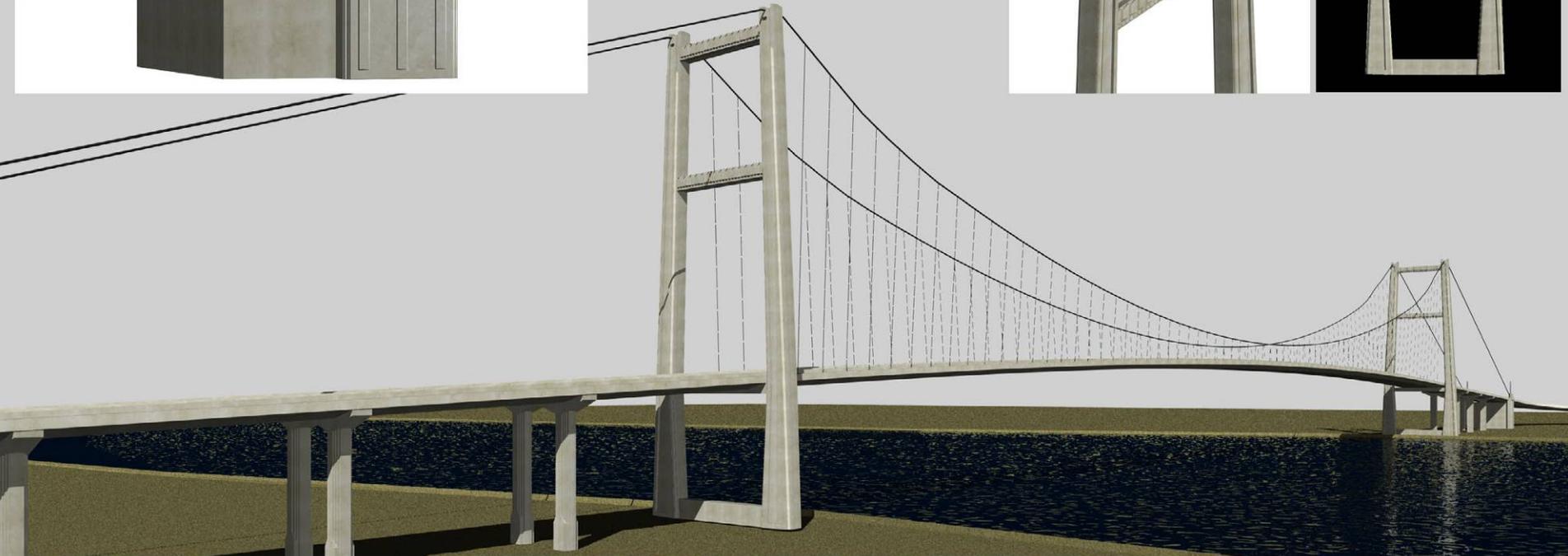
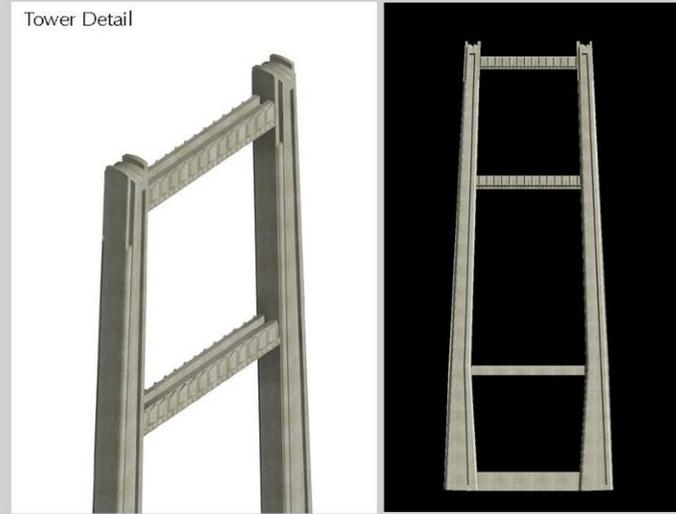
***Cable-Stayed
Night Rendering***

Suspension Bridge Tower/Anchorage Option 1

Anchor Detail



Tower Detail





***Suspension
Day Rendering***



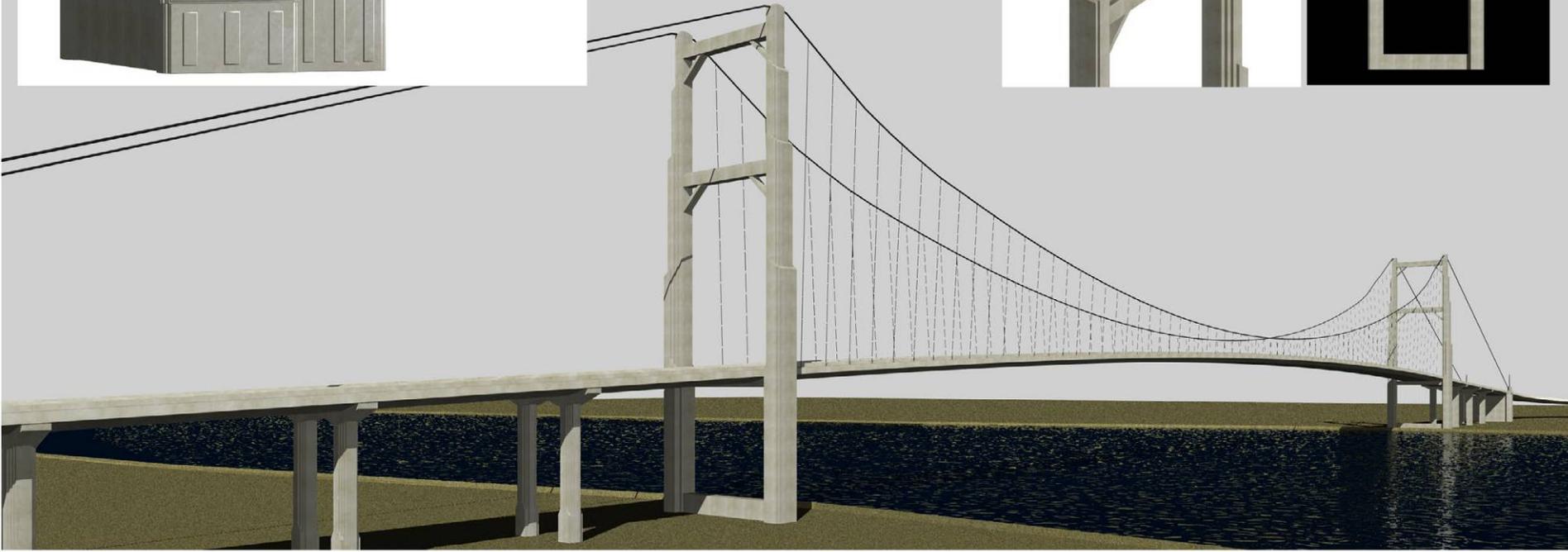
***Suspension
Night Rendering***

Suspension Bridge Tower/Anchorage Option 2

Anchor Detail



Tower Detail





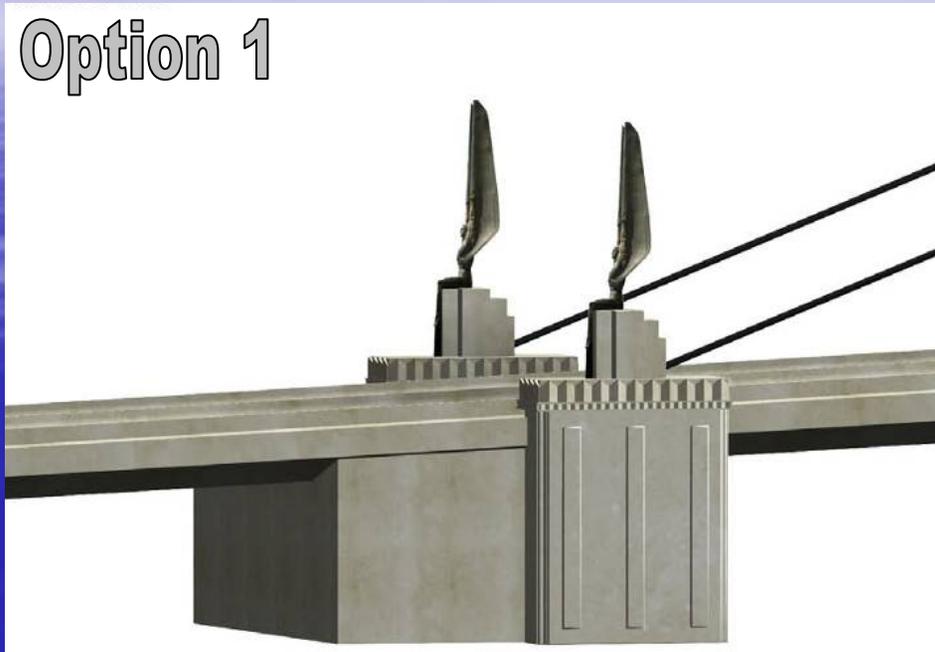
***Suspension
Day Rendering***



***Suspension
Night Rendering***

Suspension Bridge Anchorage Options

Option 1

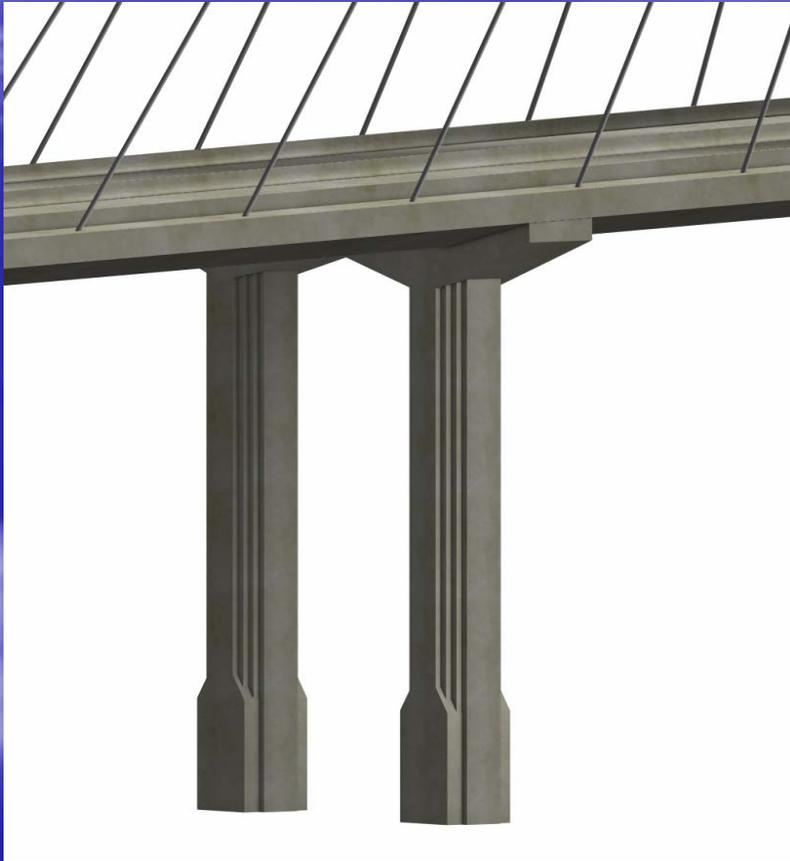


Option 2

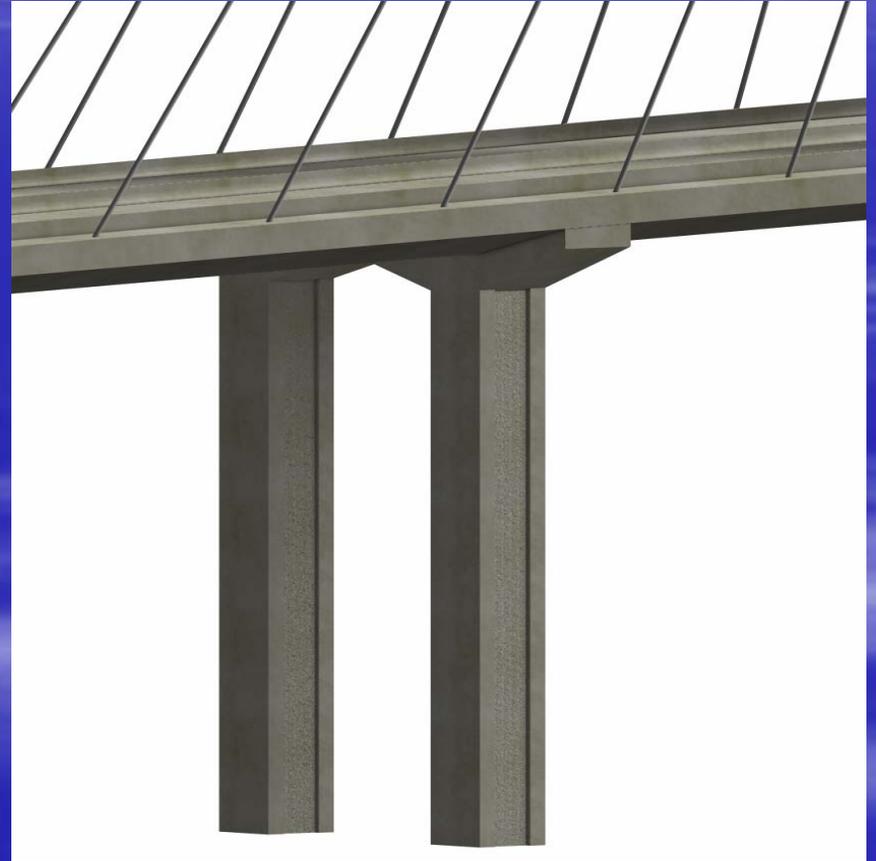


Approach Pier Options

Option 1



Option 2



Crossing X11(C)

North of Fort Wayne



X11(C)

Fort Wayne
Soccer Field



Cable Stay Bridge at X11 (C)

Option 1



Scaled Rendering

Cable Stay Bridge at X11 (C)

Option 2



Cable Stay Bridge at X11(C)

Option 3



Suspension Bridge at X11(C)

Option 1



Suspension Bridge at X11(C)

Option 2





Canadian Shore



Cable Stay Bridge at X11(C)



Suspension Bridge at X11(C)



Crossing X10(B)

South of Fort Wayne near
Zug Island



X10(B)

Fort Wayne
Soccer Field



Cable Stay Bridge at X10(B)

Option 1



Cable Stay Bridge at X10(B)

Option 2



Cable Stay Bridge at X10(B)

Option 3



Suspension Bridge at X10(B)

Option 1



Suspension Bridge at X10(B)

Option 2





Canadian View



Cable Stay Bridge at X10(B)



Detroit River International Crossing

August 8, 2007

Suspension Bridge at X10(B)



Detroit River International Crossing

August 8, 2007

DRIC Bridge Vision Process

Today → Your input

Step 2 Continued: Thematic Elements

Elements:

- a. Towers
- b. Piers
- c. Anchor

Public Input

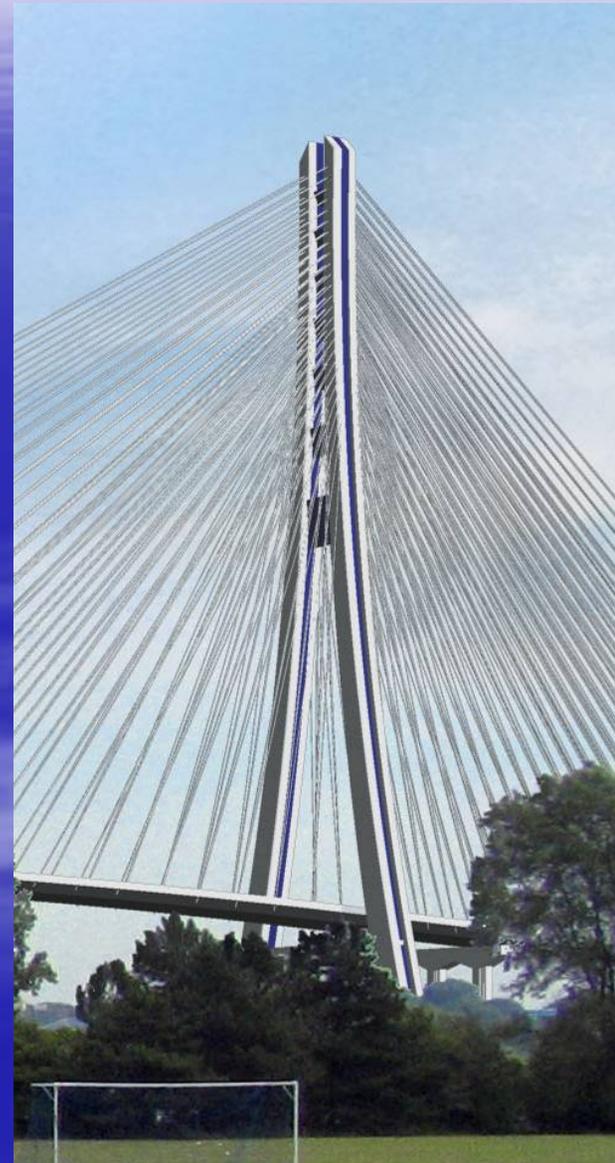
Voting Test Run

- Use your hand-held device.
- After the countdown begins:
- Press 1, 2, 3, 4, or 5

Voting Scale

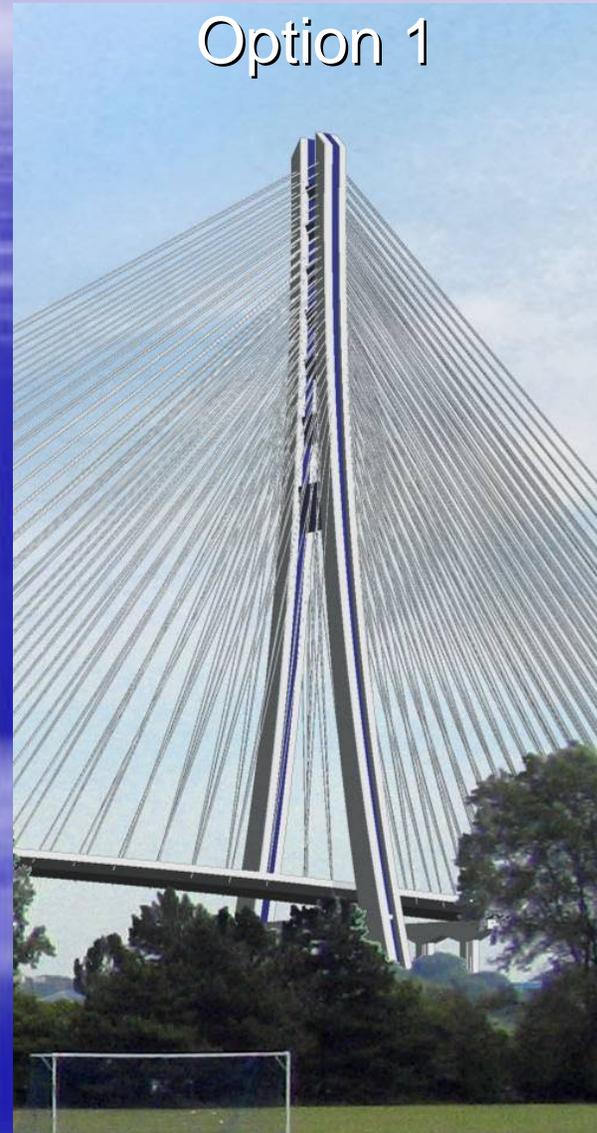
- 5 = you love it
- 3 = your OK with it
- 1 = you hate it

Try it now.



Thematic Elements on Bridges

Option 1

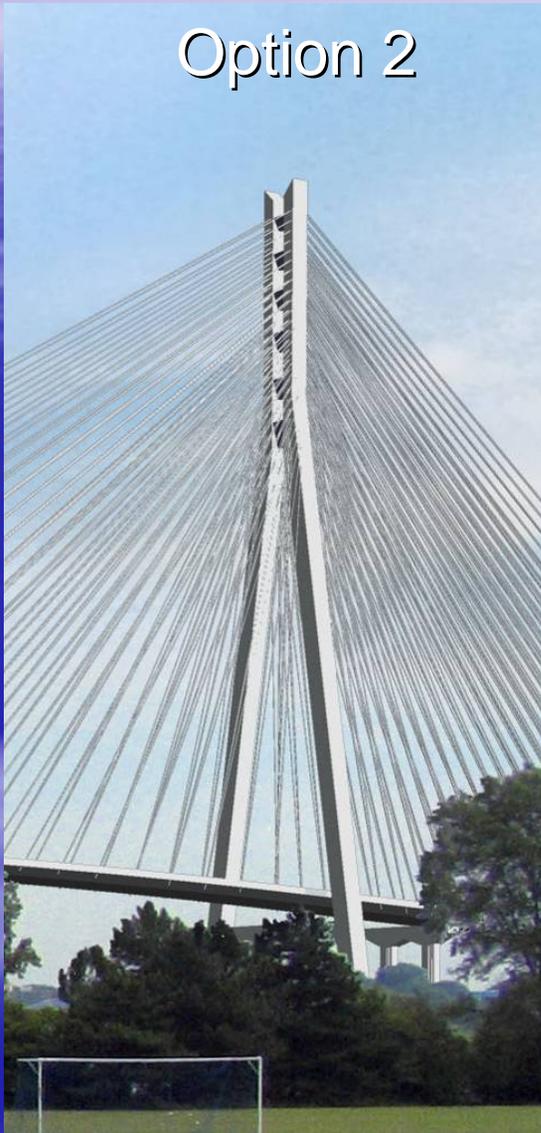


Tower Detail



Thematic Elements on Bridges

Option 2

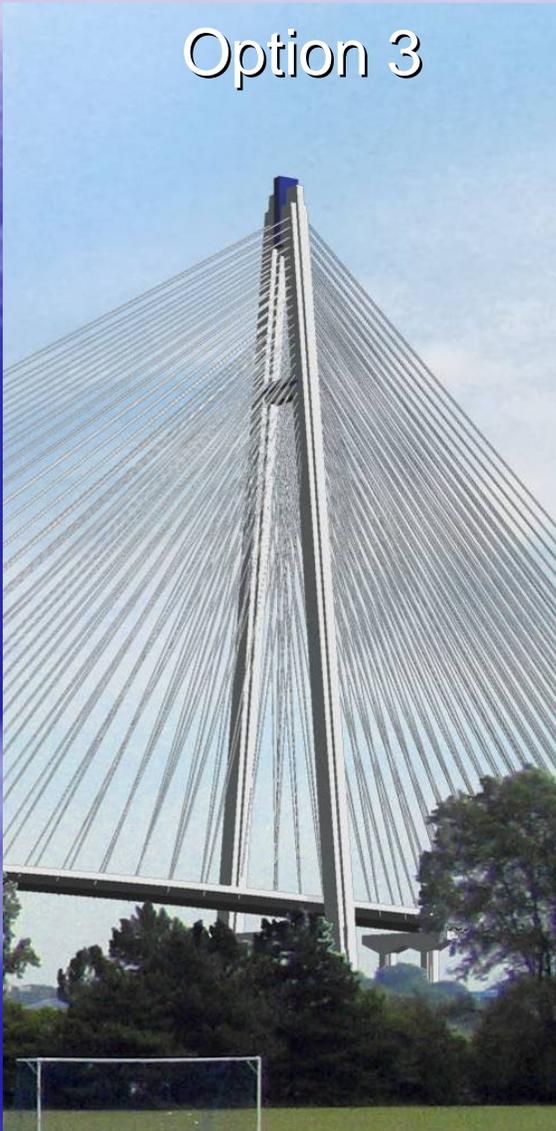


Tower Detail



Thematic Elements on Bridges

Option 3



Tower Detail

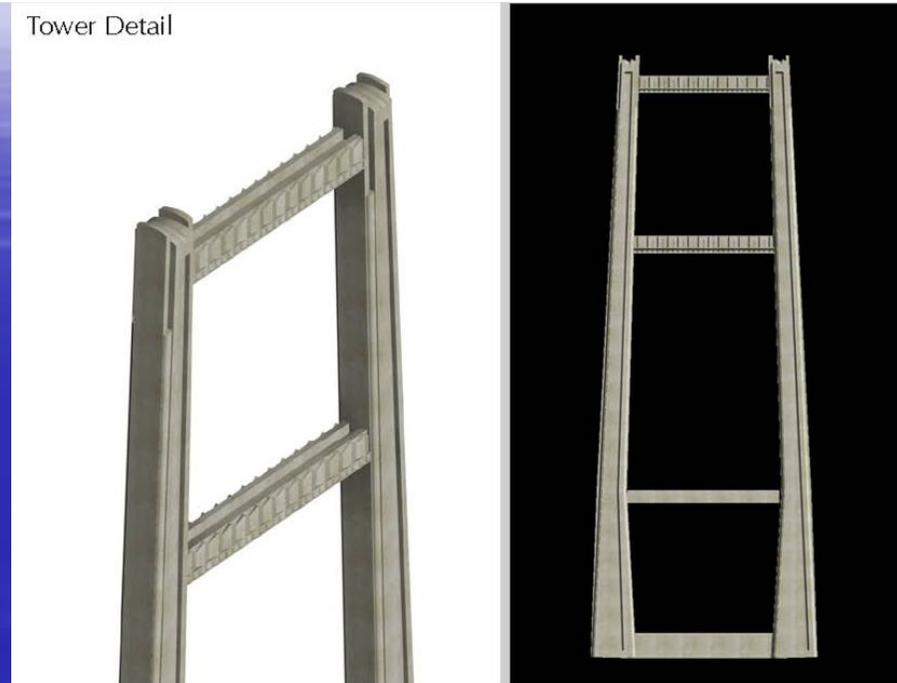


Thematic Elements on Bridges

Option 1

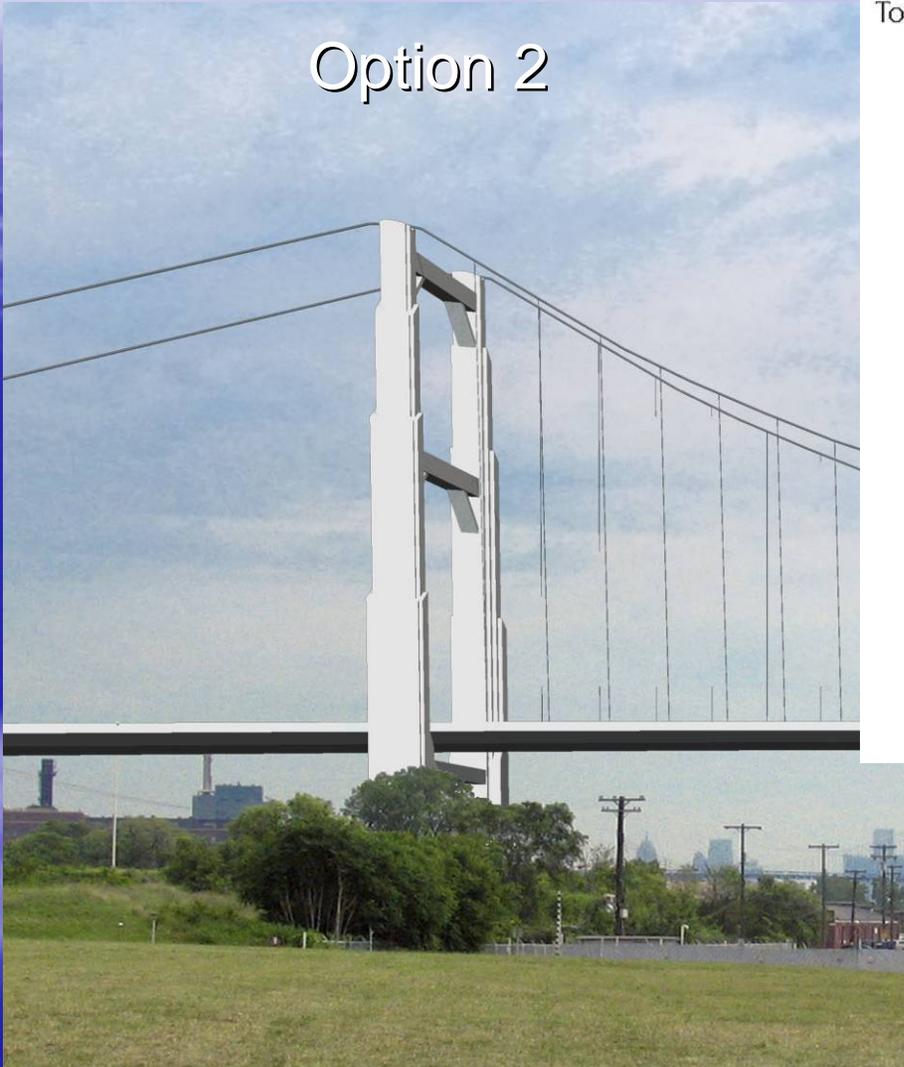


Tower Detail

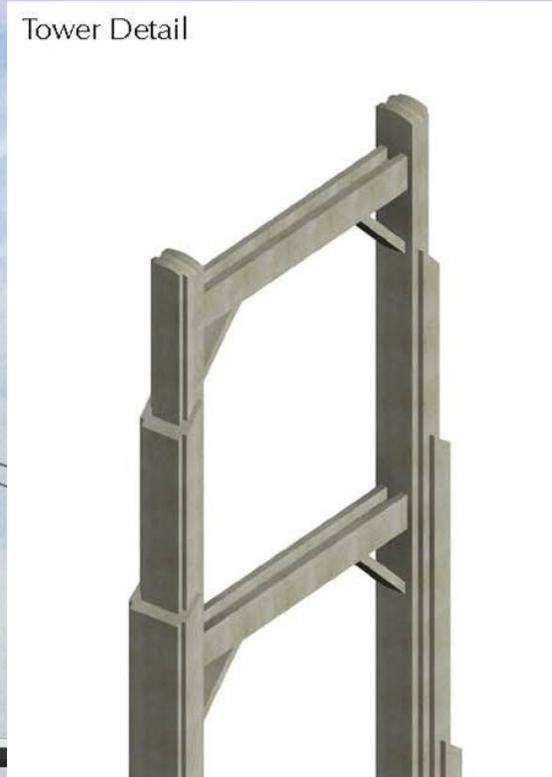


Thematic Elements on Bridges

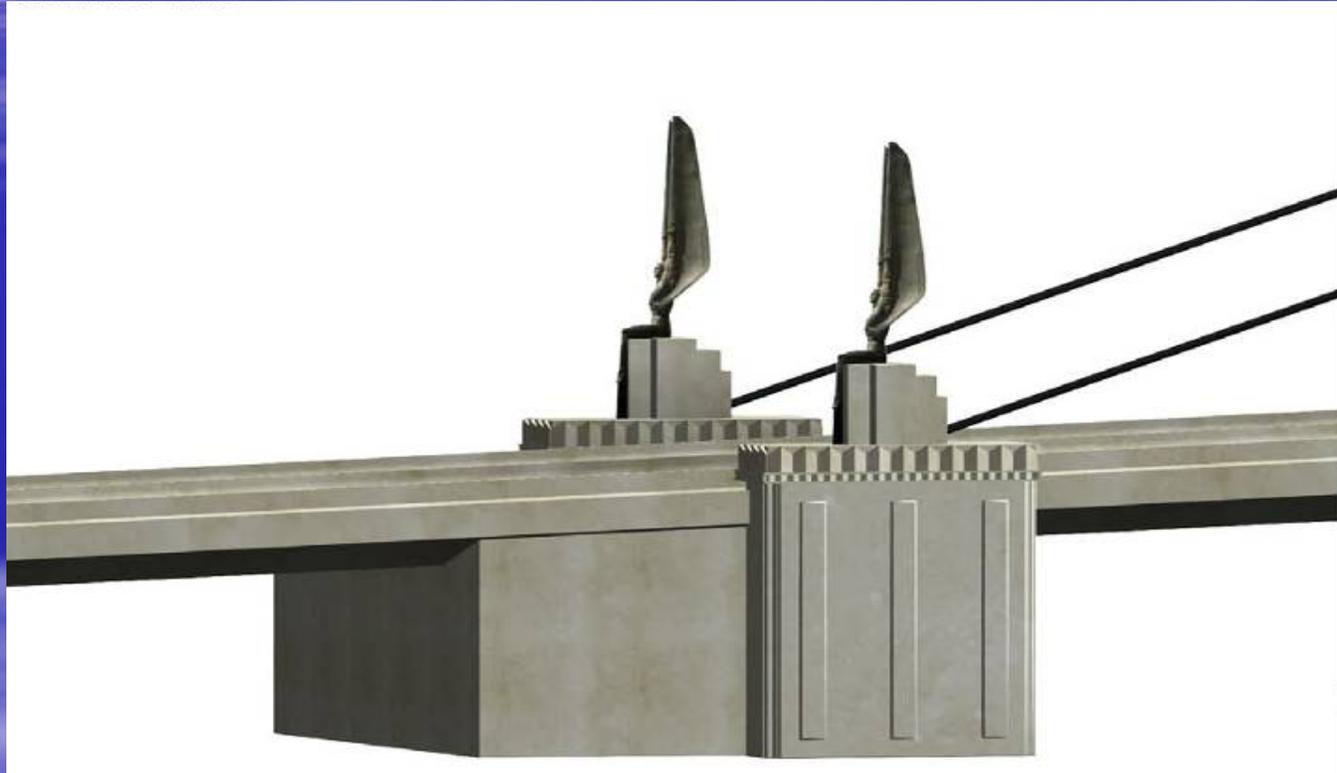
Option 2



Tower Detail



Suspension Bridge Anchorage Option 1

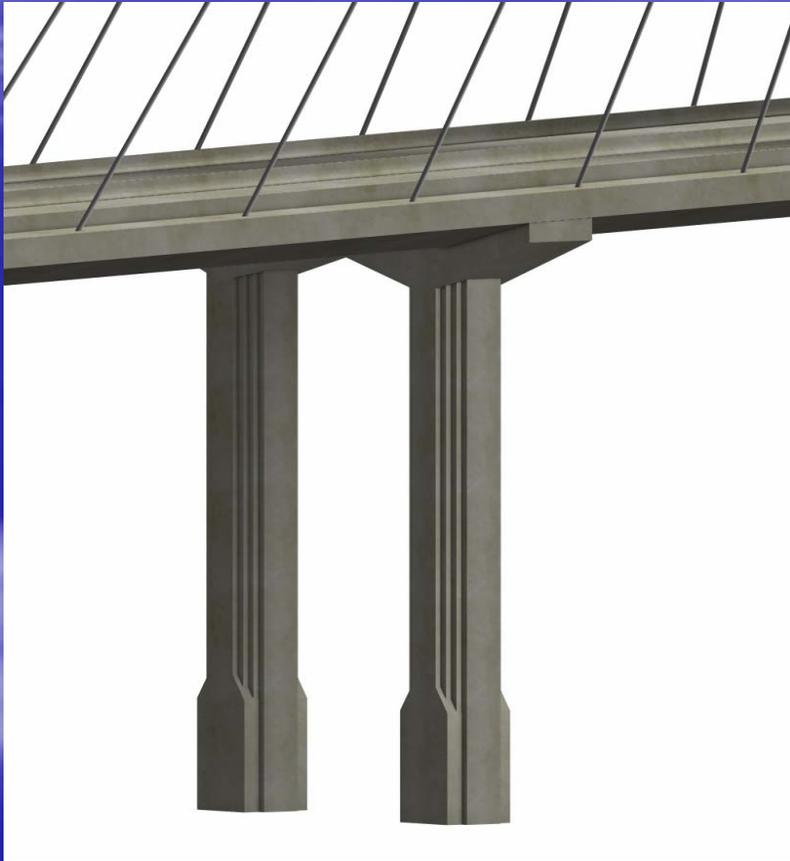


Suspension Bridge Anchorage Option 2

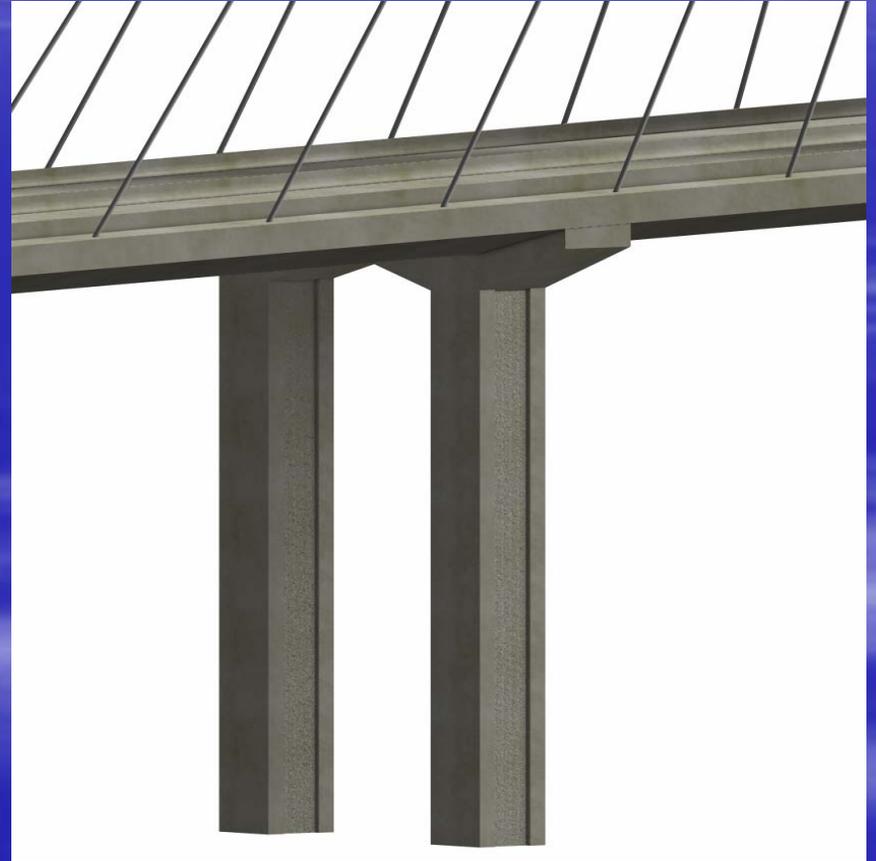


Approach Pier Options

Option 1



Option 2



Next Steps

- August 2007 – Canadian Public Information Open Houses & Workshops (will include bridge information)
- December 2007 – US Public Information Meeting

Questions?

Thank You for Participating