

The Detroit River International Crossing Study

An aerial photograph of the Detroit River, showing the city skyline on the left and right banks. A dark blue rectangular box with a thin green border is centered over the river, containing the word "Bridge" in white text.

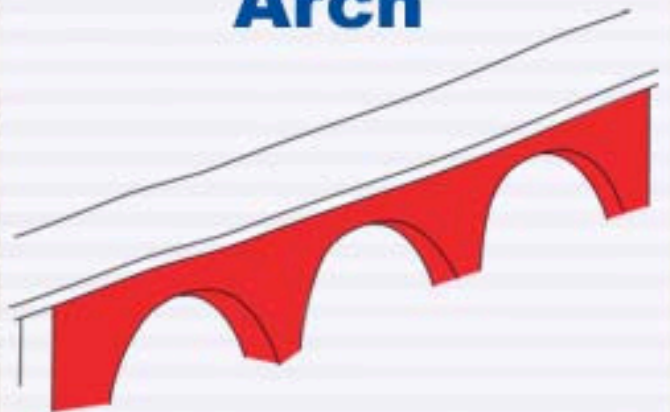
Bridge

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Bridge Terminology



Arch



Cable Stay



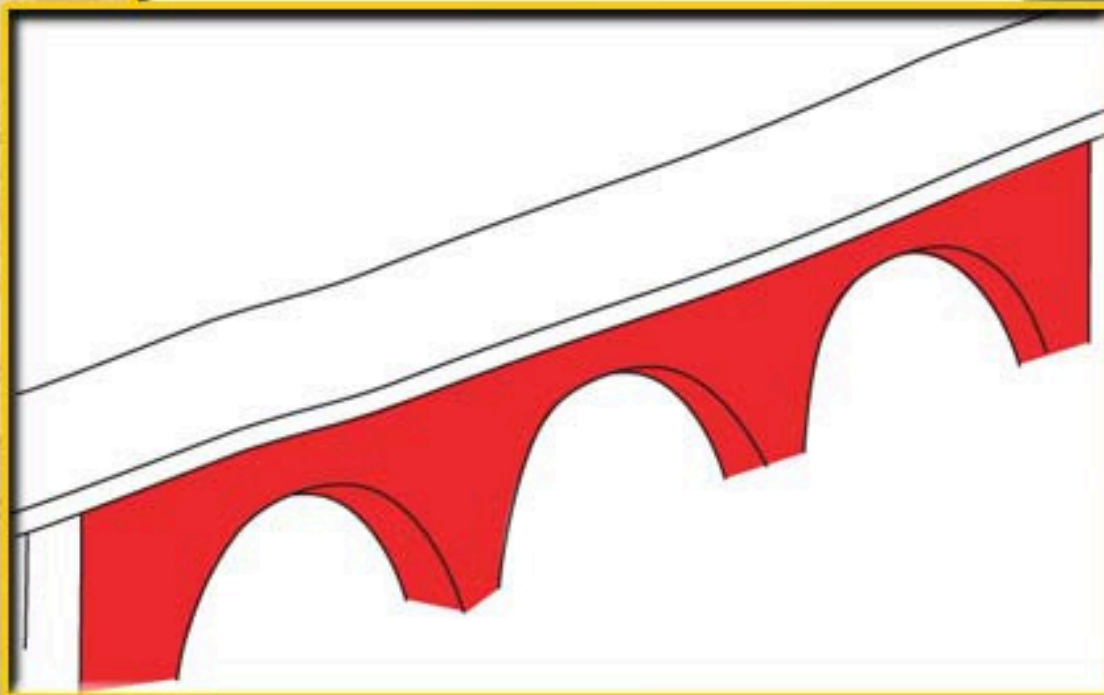
Suspension



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Arch:

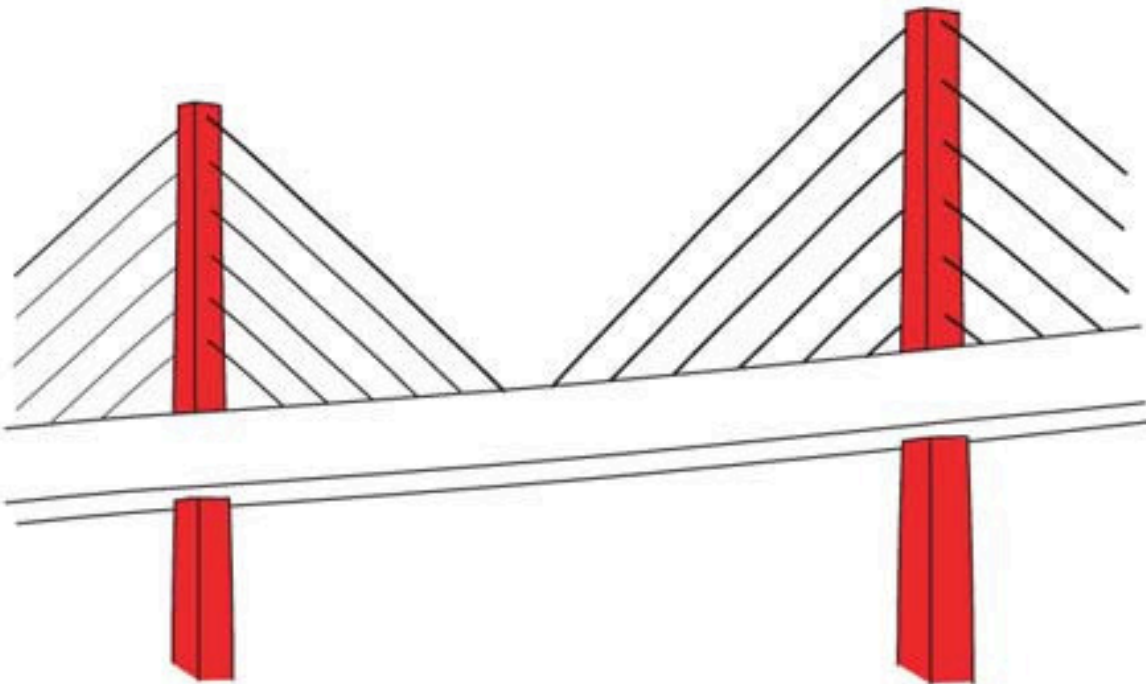
A semicircular structure that directs the weight of the bridge along a curve.



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Cable-Stayed Bridge

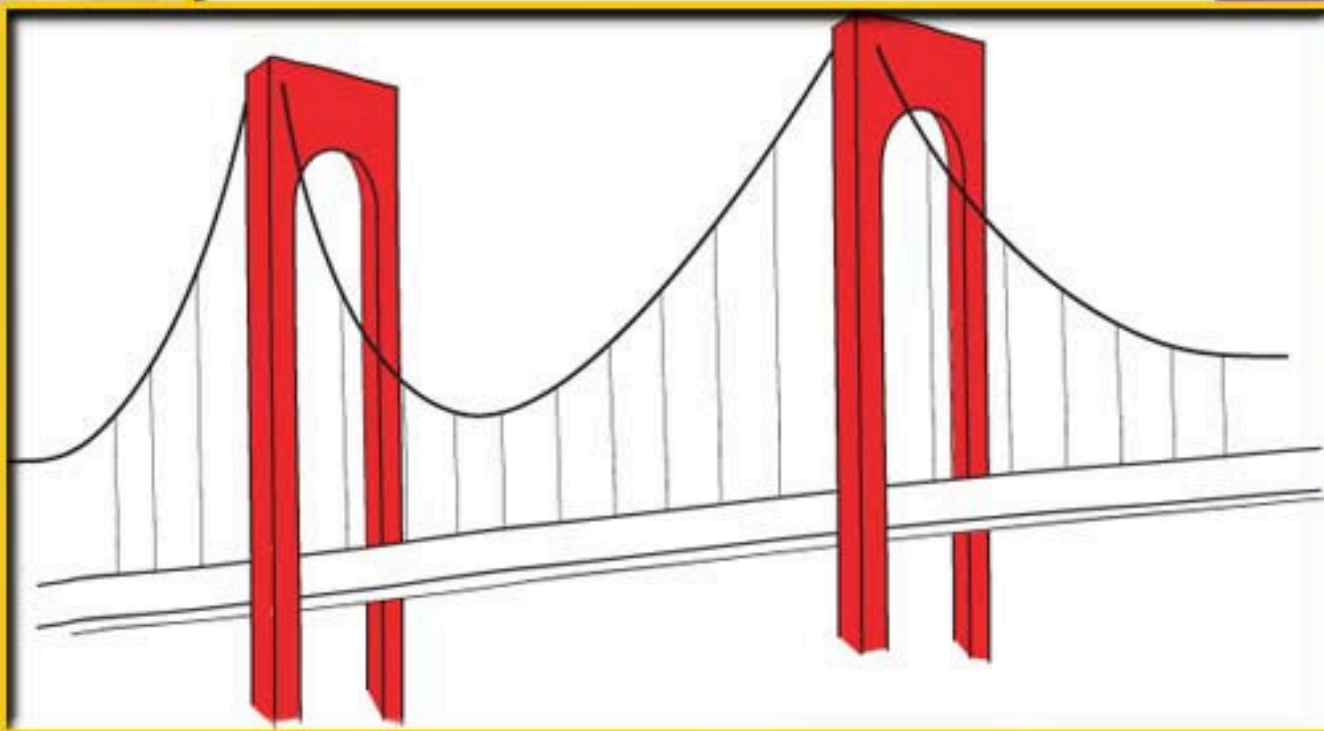
A bridge in which a portion of the roadway is supported by diagonal cables attached to a pylon.



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Suspension Bridge:

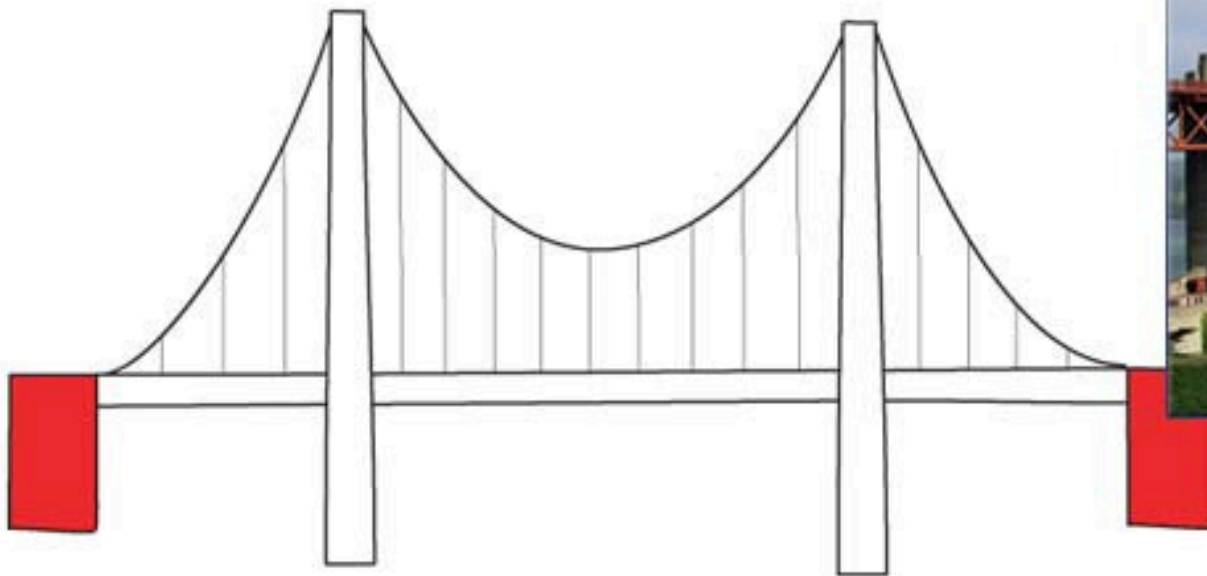
A bridge in which the roadway is hung from strung cables that pass over two towers.



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Anchorage:

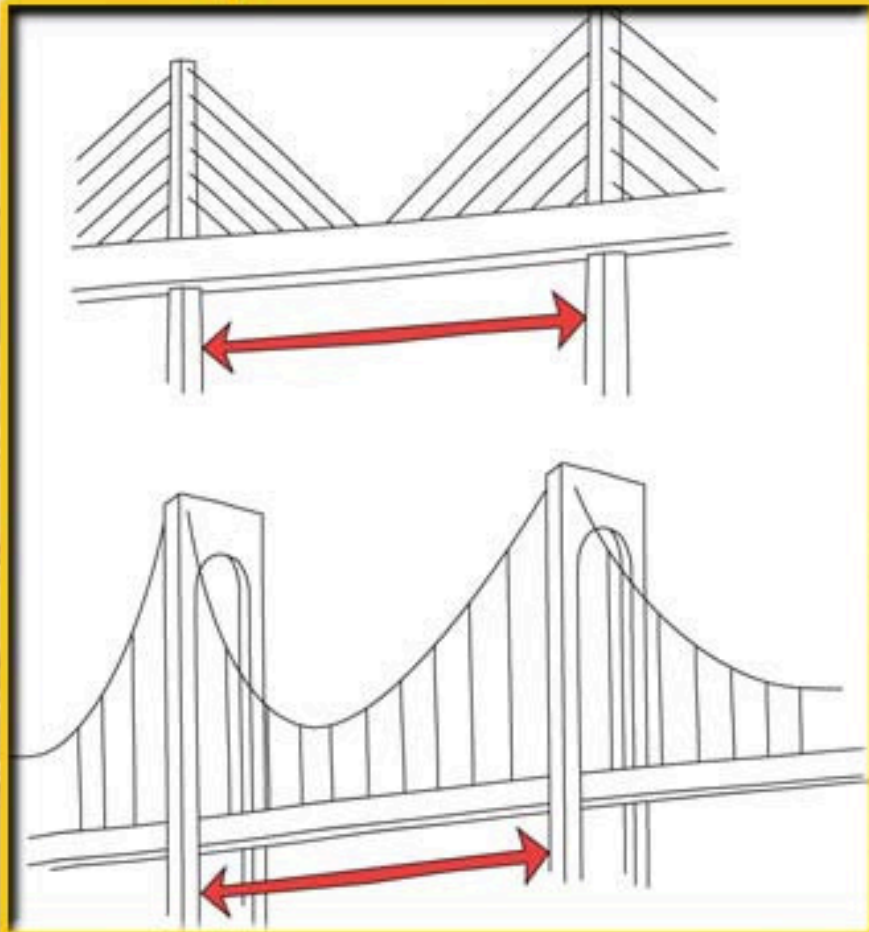
A foundation structure that secures suspension bridge cables on land and allows them to bear the weight of the bridge.



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Span:

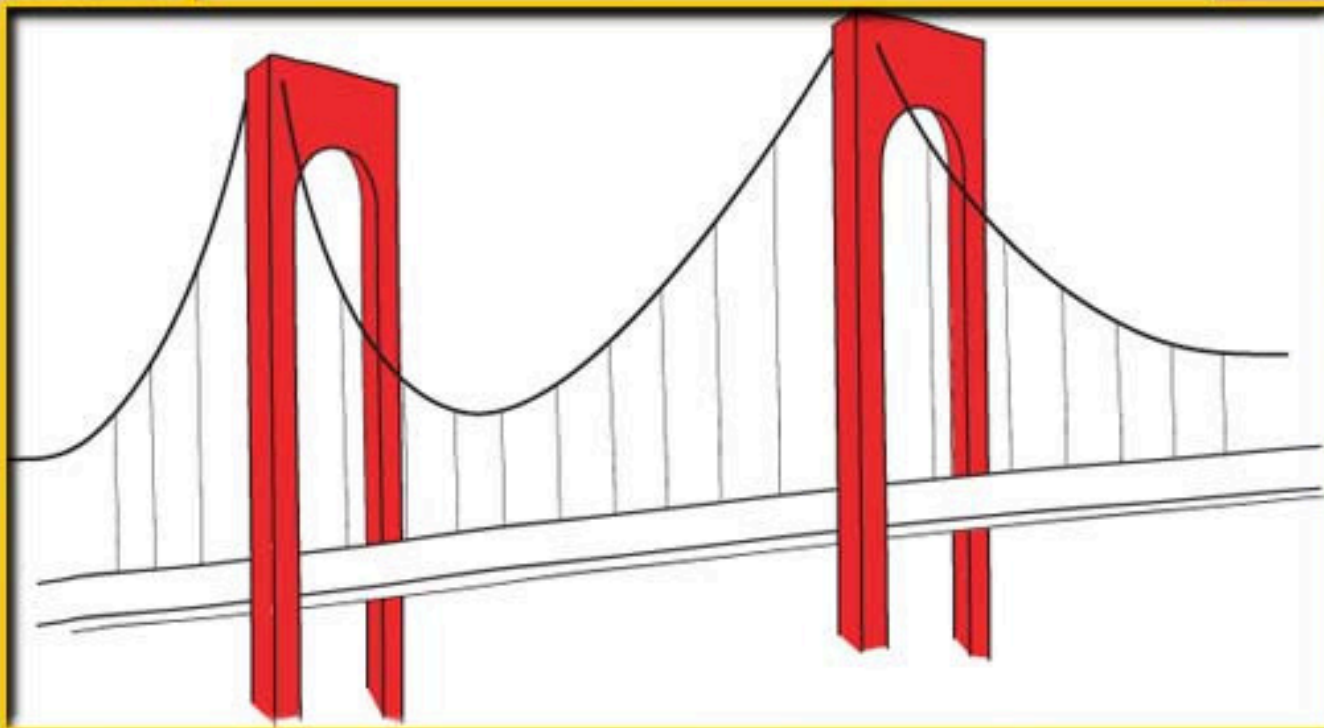
The distance between two supports of a bridge.



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Tower:

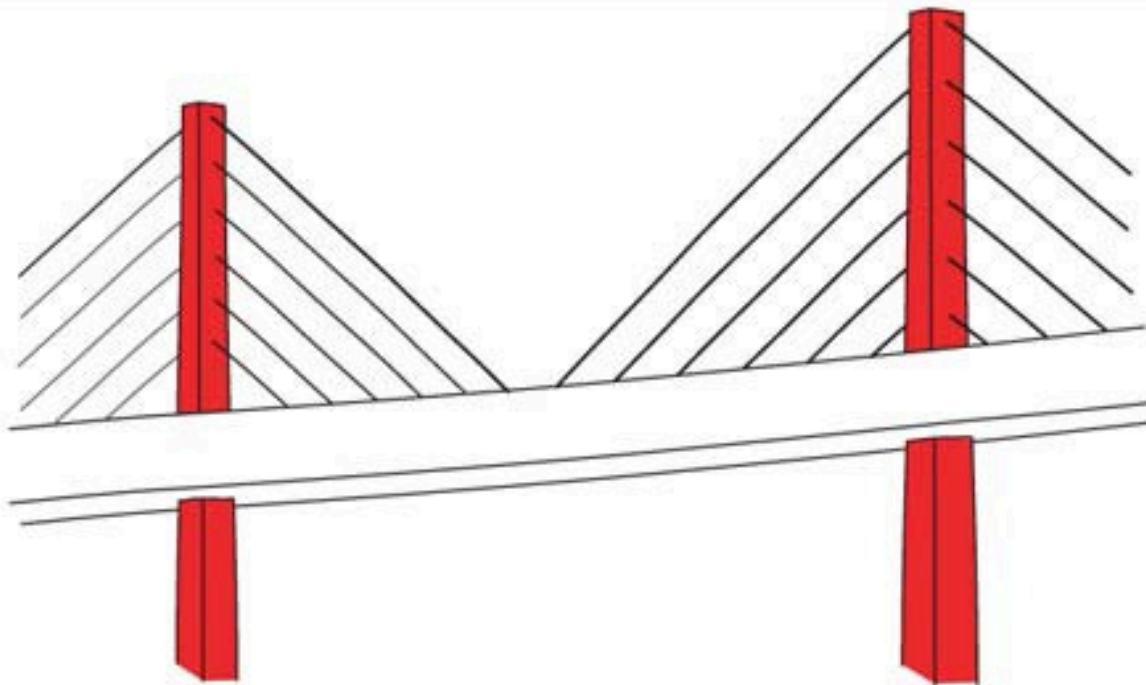
The vertical element in suspension bridges from which cables are hung.



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Pylon:

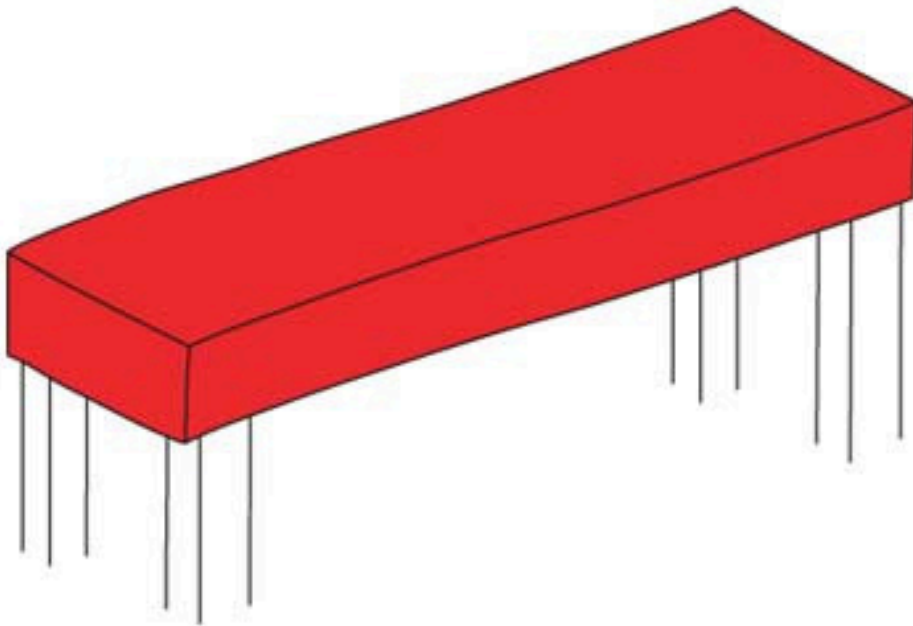
The vertical structural element from which cables radiate in a cable-stayed bridge.



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Beam:

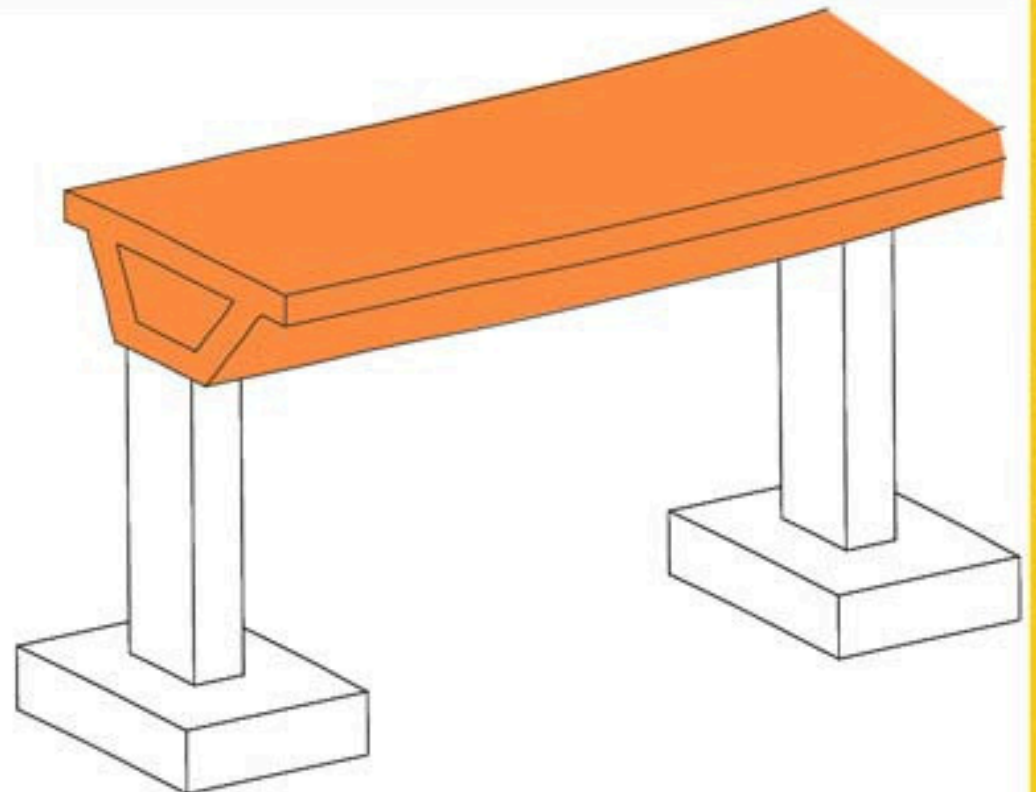
A rigid, usually horizontal structural element.



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Superstructure:

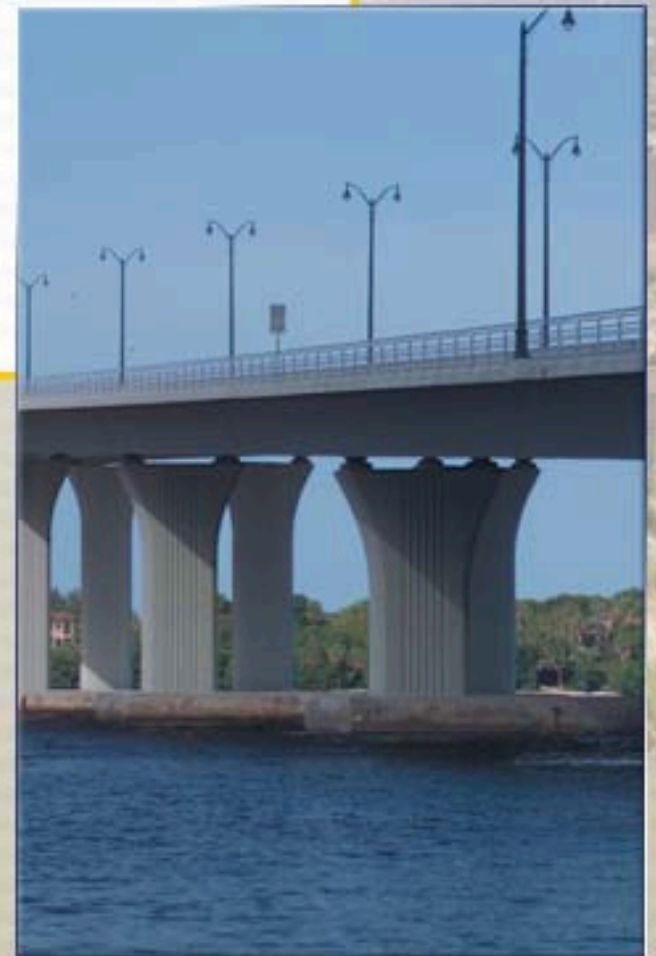
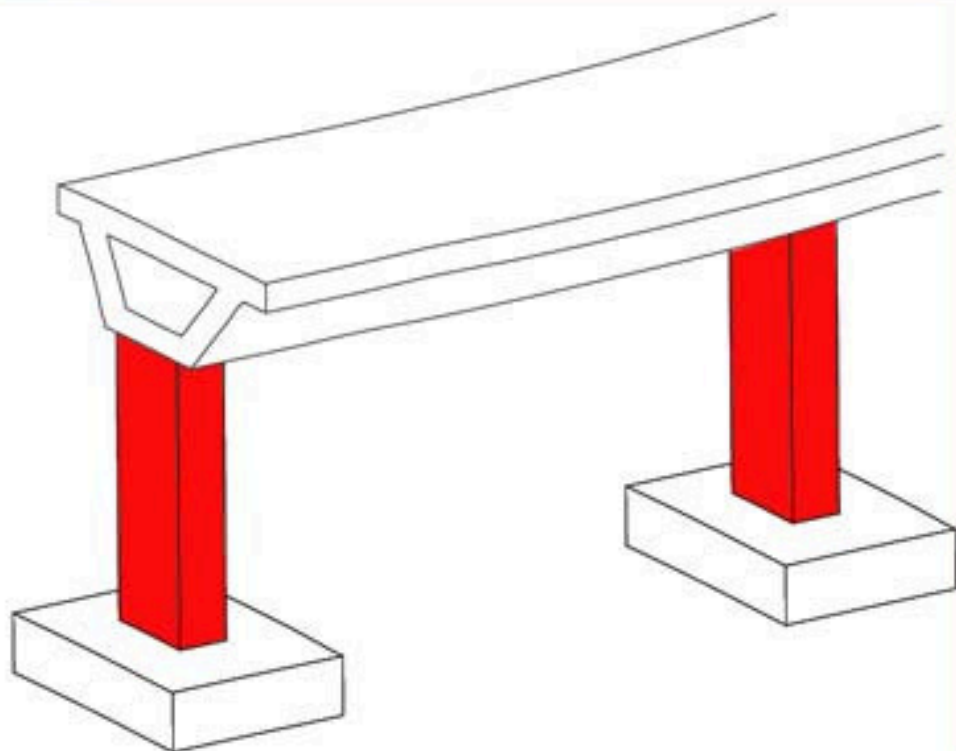
The horizontal portion of the bridge that directly supports the roadway.



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Pier:

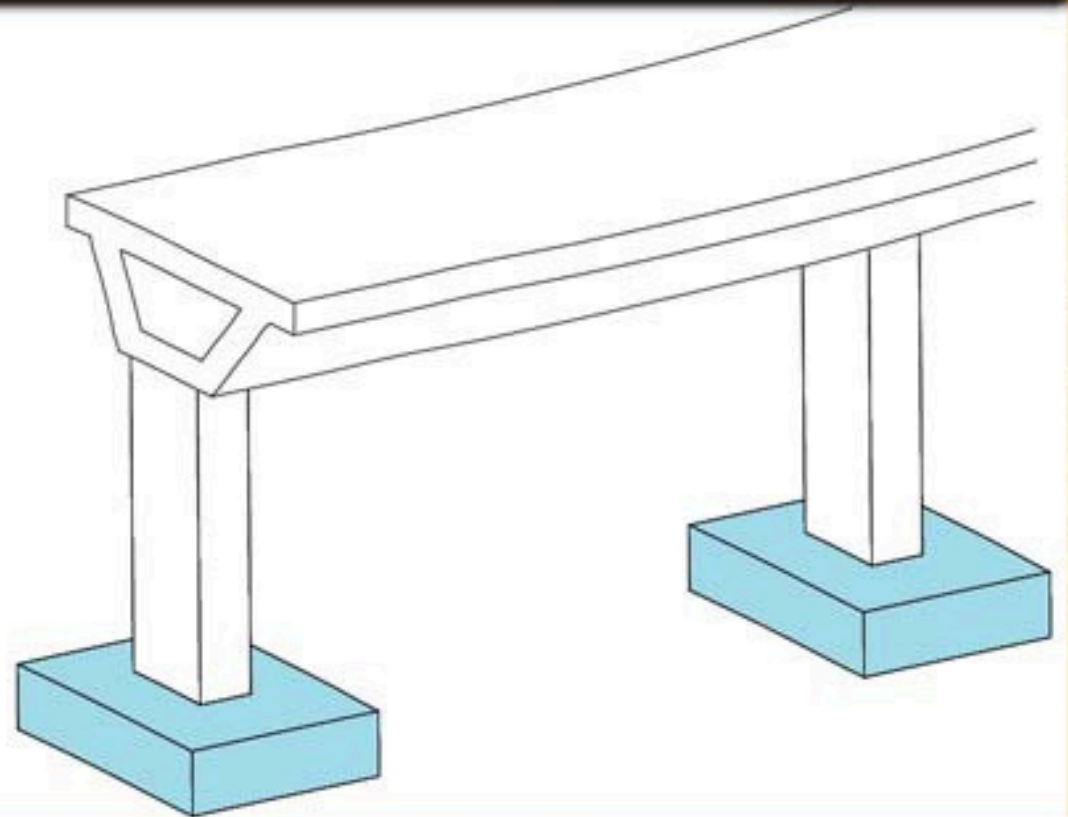
A vertical column or columns holding up a bridge or other structure.



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Foundation:

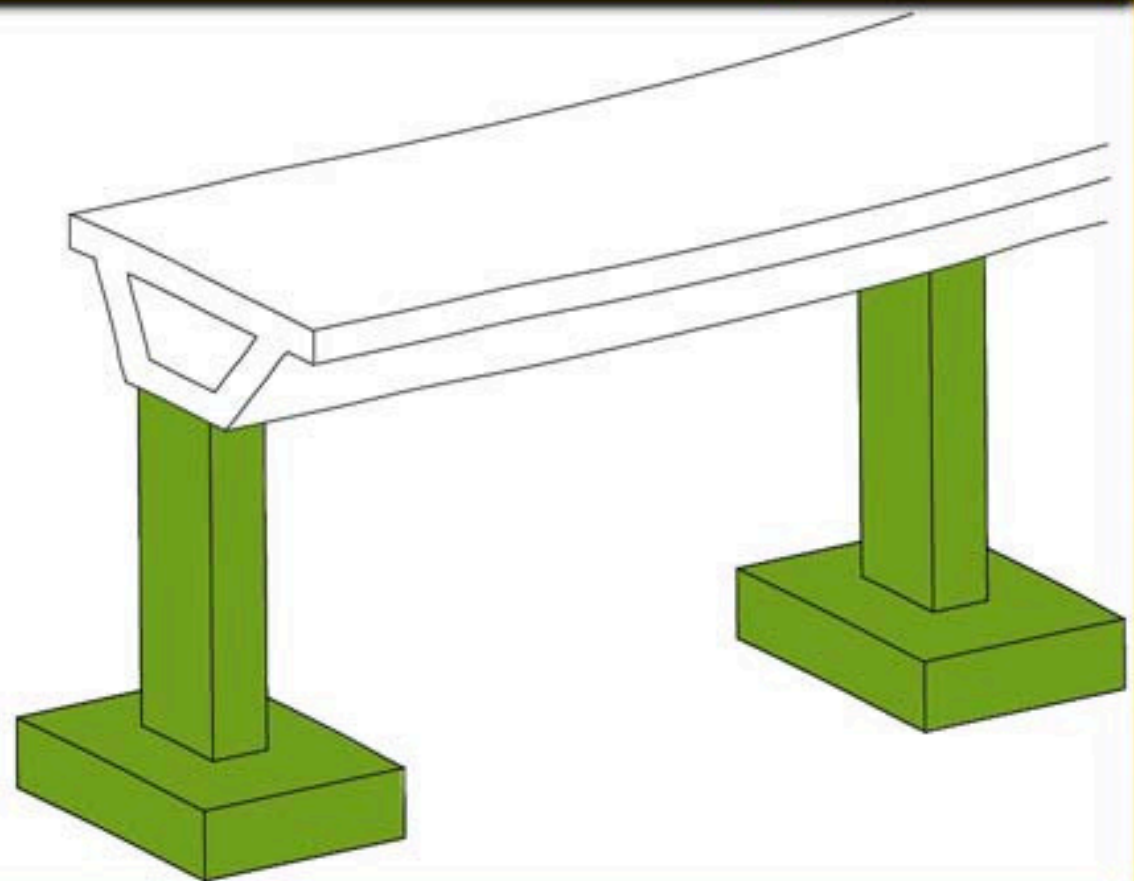
The element of the bridge that connects the pier or abutment to the ground.



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Sub-structure:

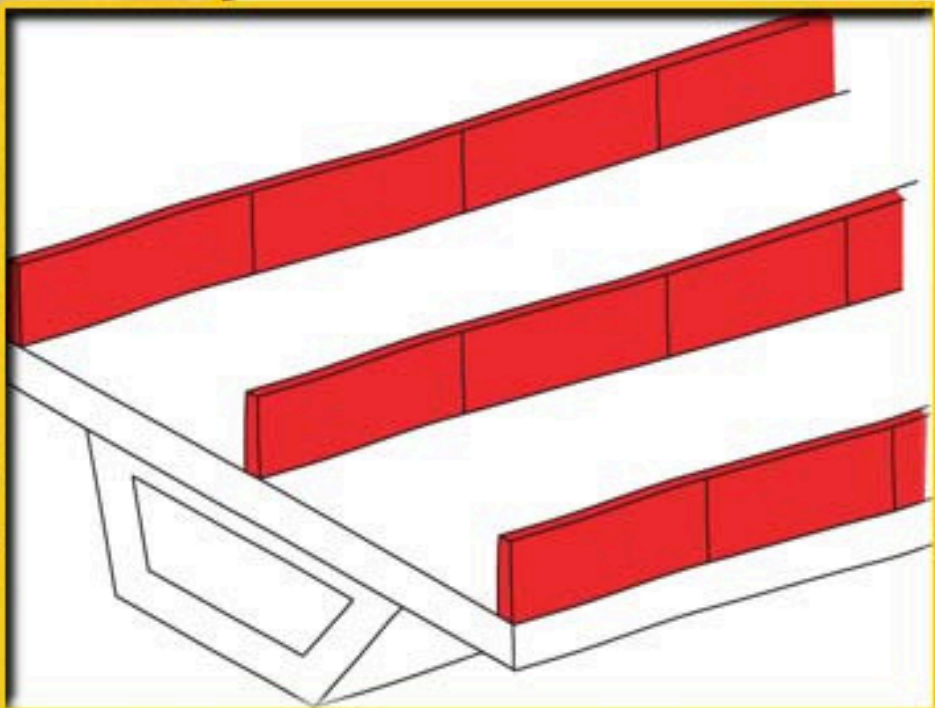
The vertical components of the bridge; usually comprised of the abutments, piers and the foundations.



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Traffic Barrier:

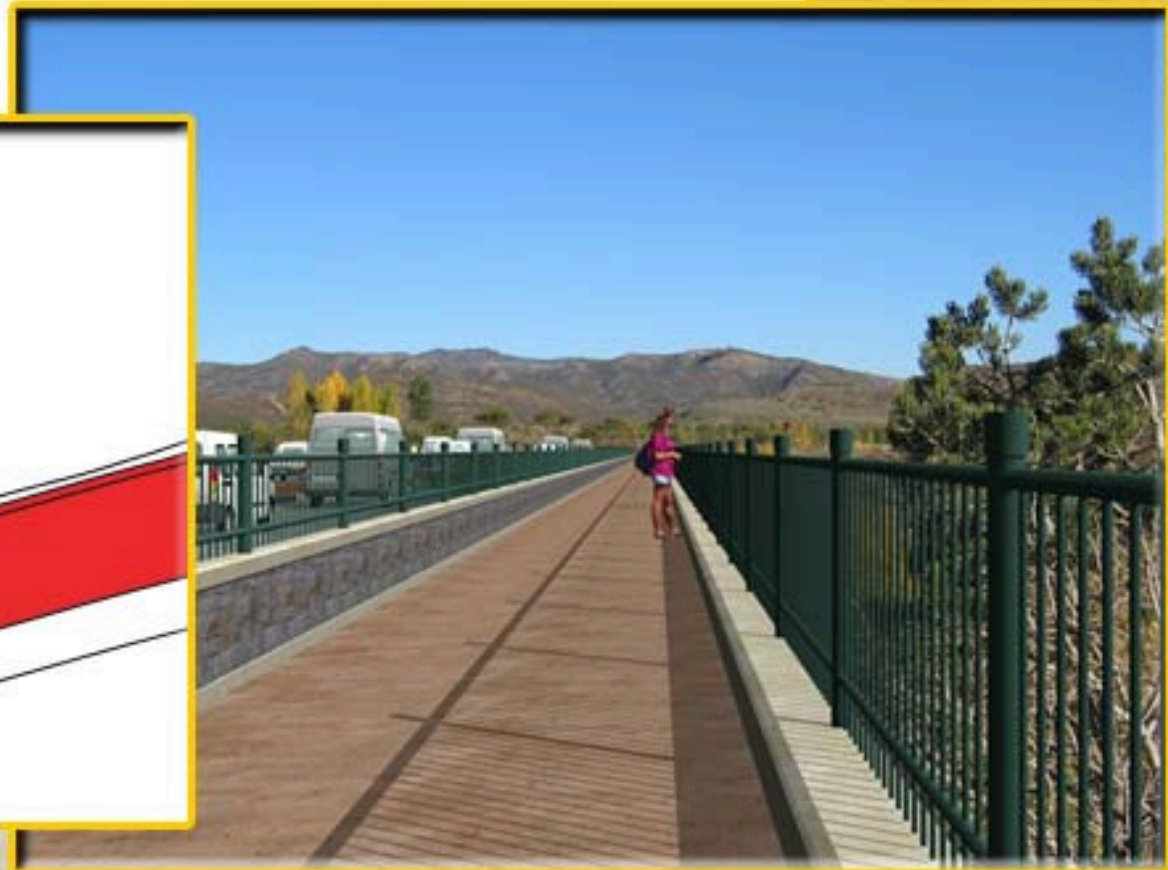
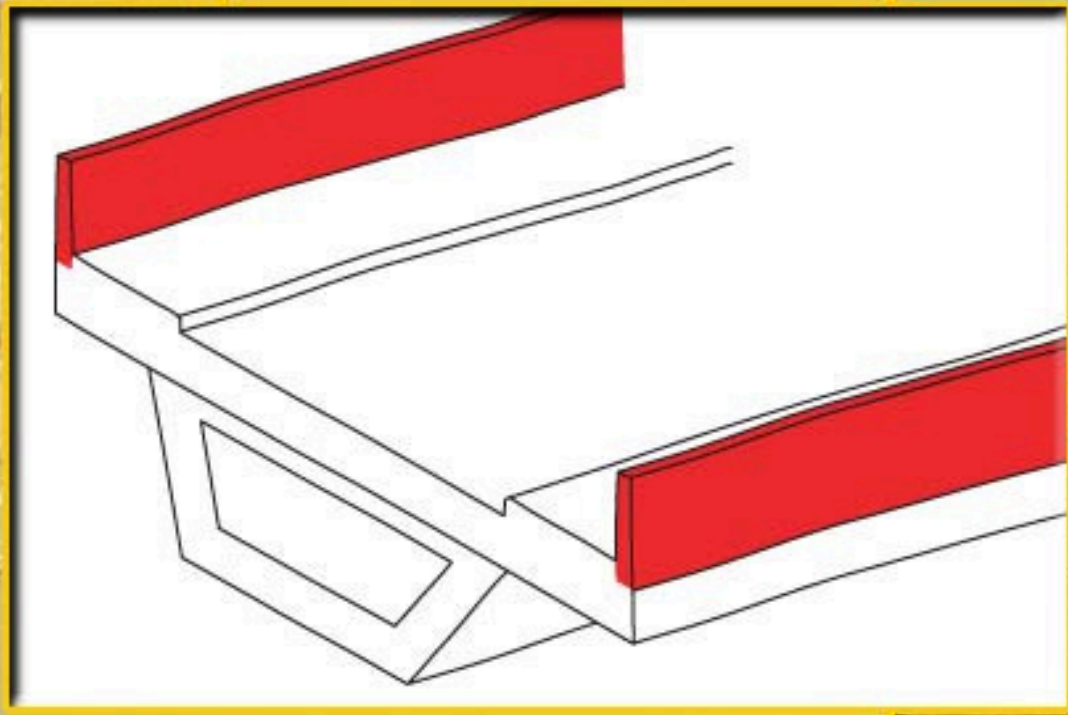
Vertical element on deck of bridge that separates traffic lanes and defines the edge of the traffic area.



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Pedestrian Barrier:

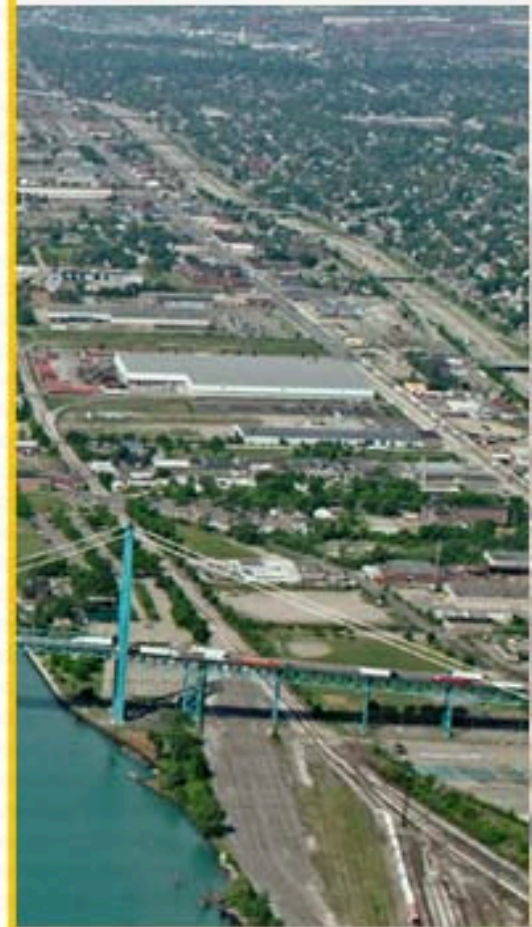
Vertical element on deck of bridge that provides fall protection for pedestrians at the edge of the sidewalk.



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Structural Requirements for DRIC Bridge:

- Clear navigation channel – 1,700 ft x 152 ft
- Deck Width (6-Lanes)
 - Possible piers in river
 - Vessel collision
 - Vessel routes
- Geotechnical
 - Place on competent rock
- Wind/Ice Effects on large bridges
- Security
- Engineering Standards (US & Canada)



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**Cable-Stayed or
Suspension Required**



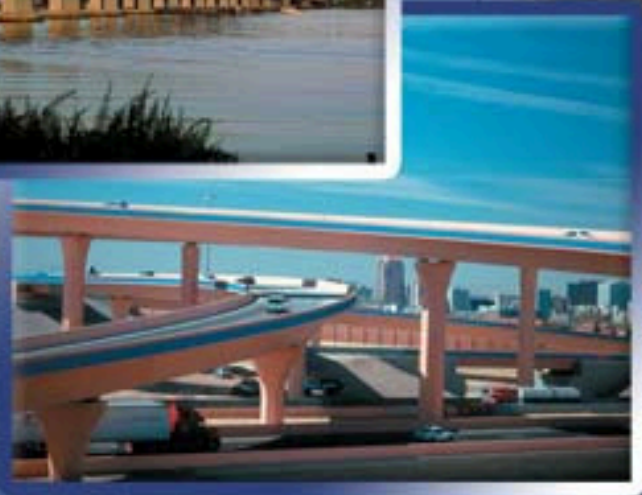
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Significant Bridges:

A Significant Bridge utilizes the most efficient technology to meet both the functional and cultural needs while remaining at harmony with it's environment. A Significant Bridge will leave a lasting impression with the user.



GIRDER BRIDGES



Typical Span of 60'-500'



ARCH BRIDGES





Roman Aqueduct

312 B.C. to 226 A.D.



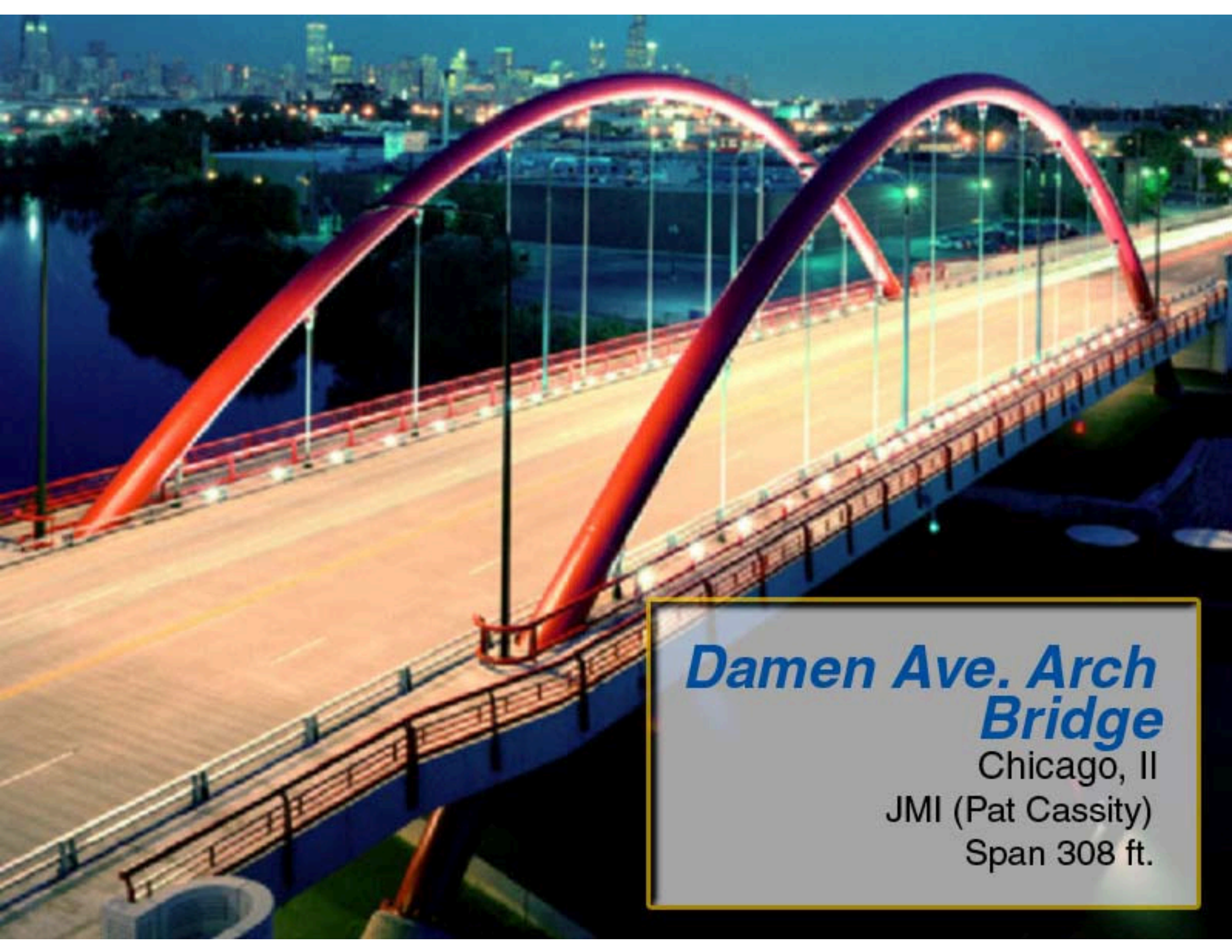
Sydney Harbor Bridge

Sydney, Australia

Dr J.J.C Bradfield 1922

Span 1650 ft.

Length 3770 ft.

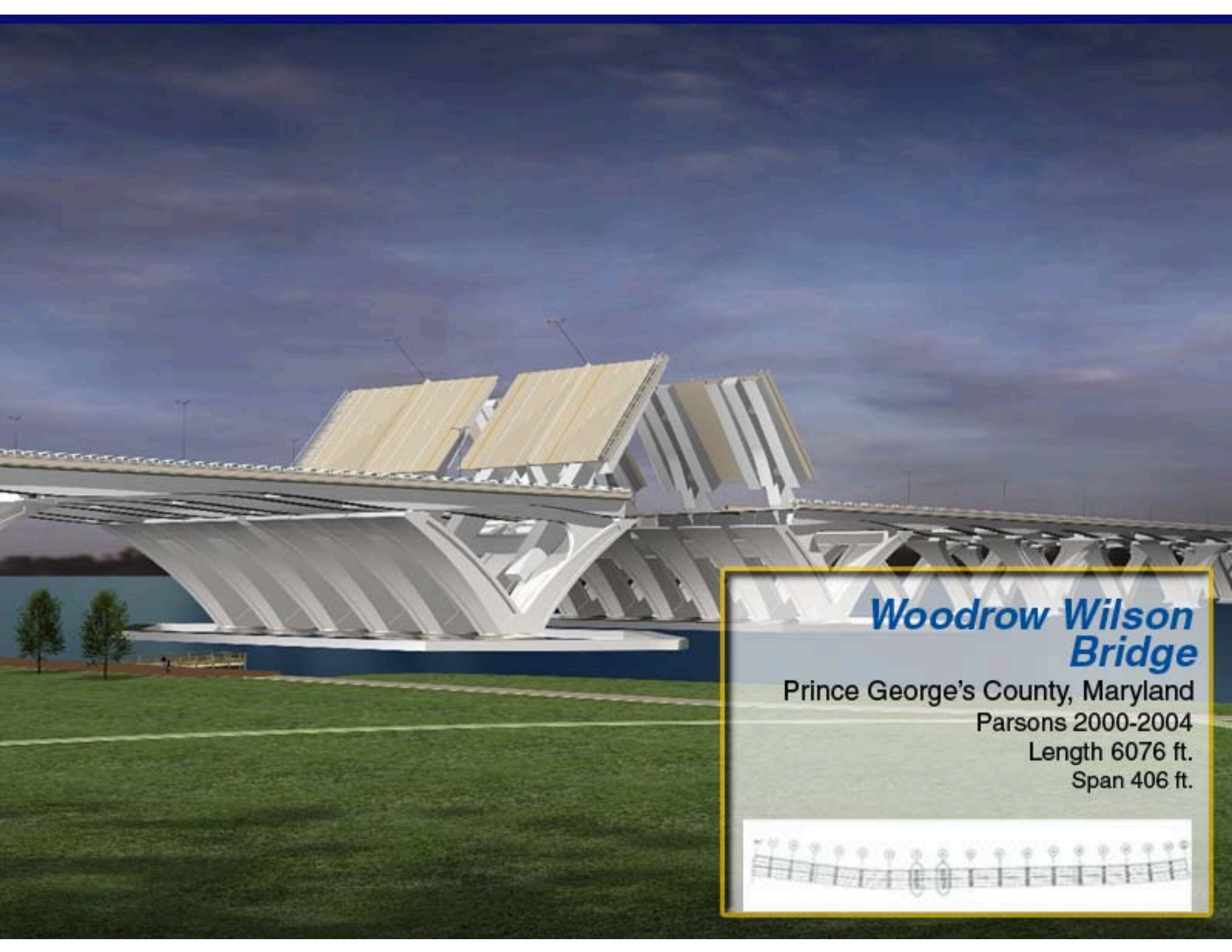


***Damen Ave. Arch
Bridge***

Chicago, IL

JMI (Pat Cassity)

Span 308 ft.



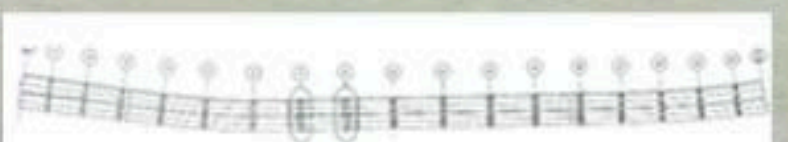
Woodrow Wilson Bridge

Prince George's County, Maryland

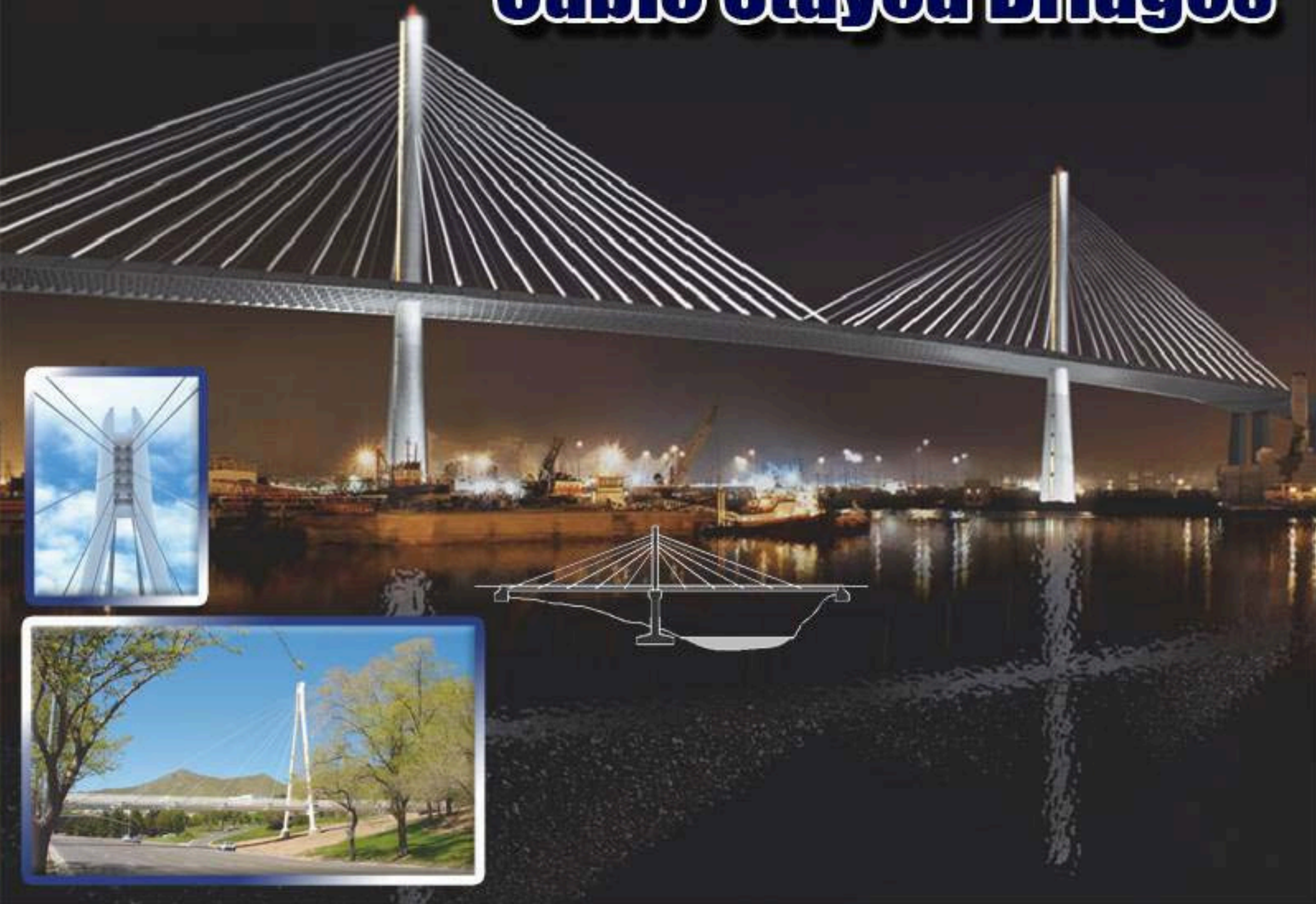
Parsons 2000-2004

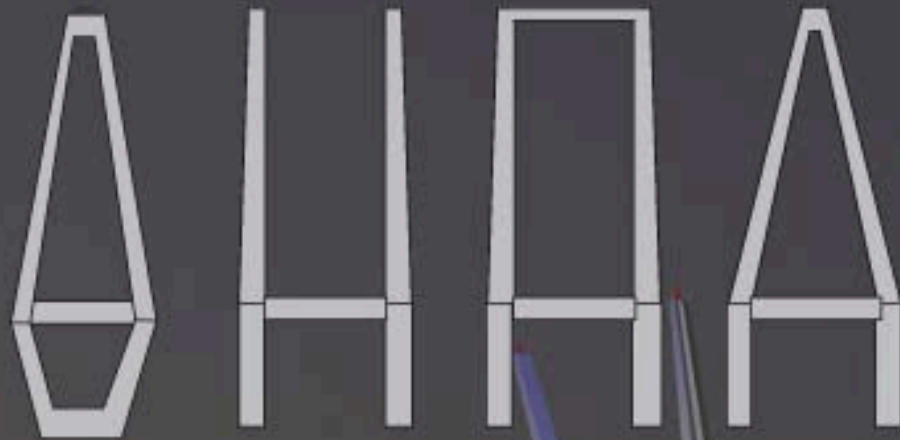
Length 6076 ft.

Span 406 ft.



Cable Stayed Bridges





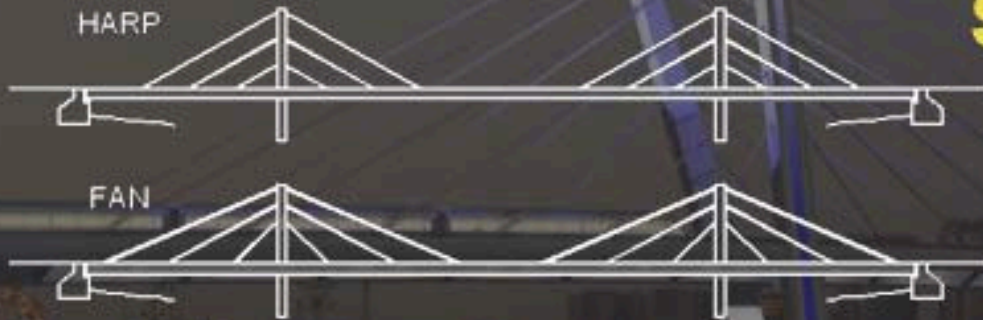
DELTA

DOUBLE

PORTAL

A-SHAPED

Pylon Shapes



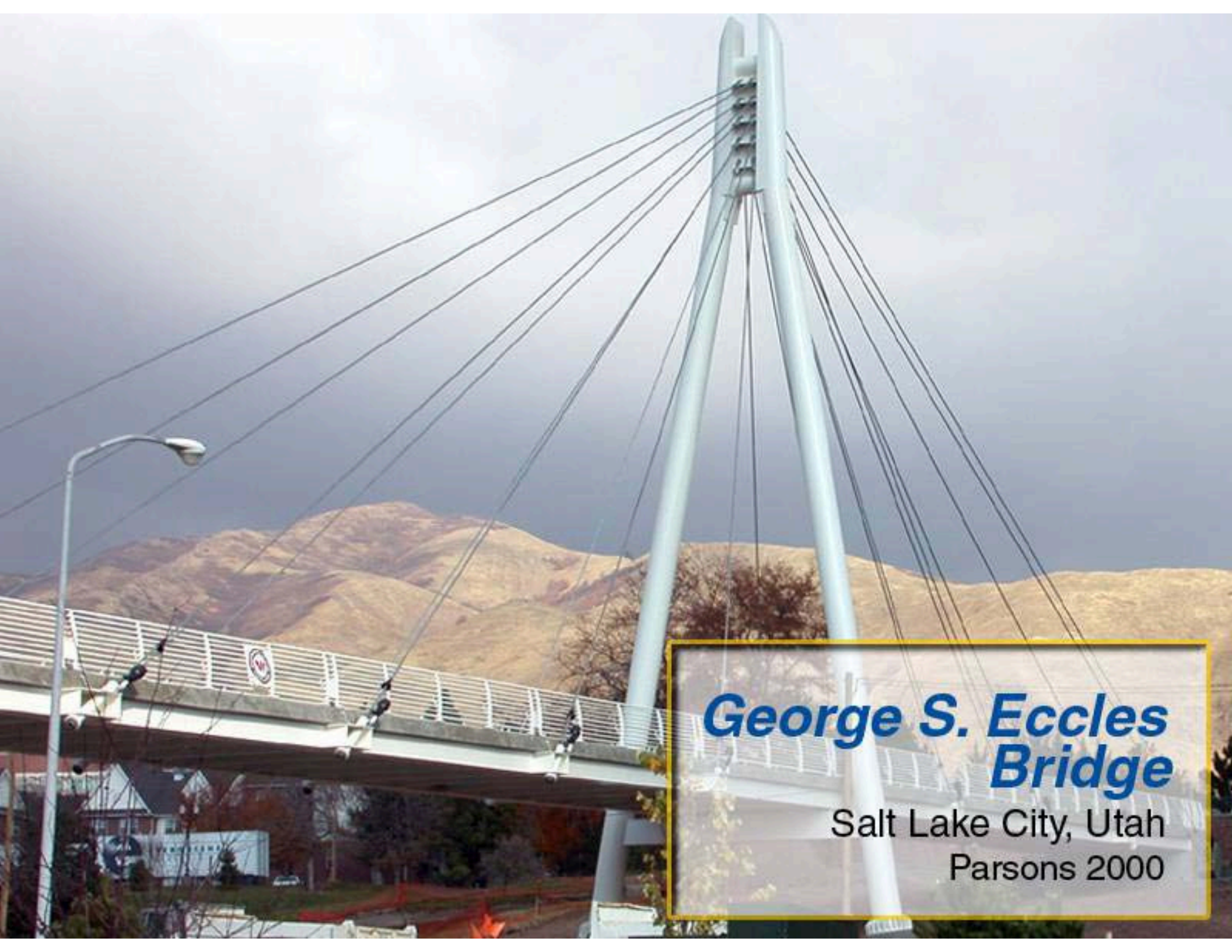
HARP

FAN

Stay Arrangements

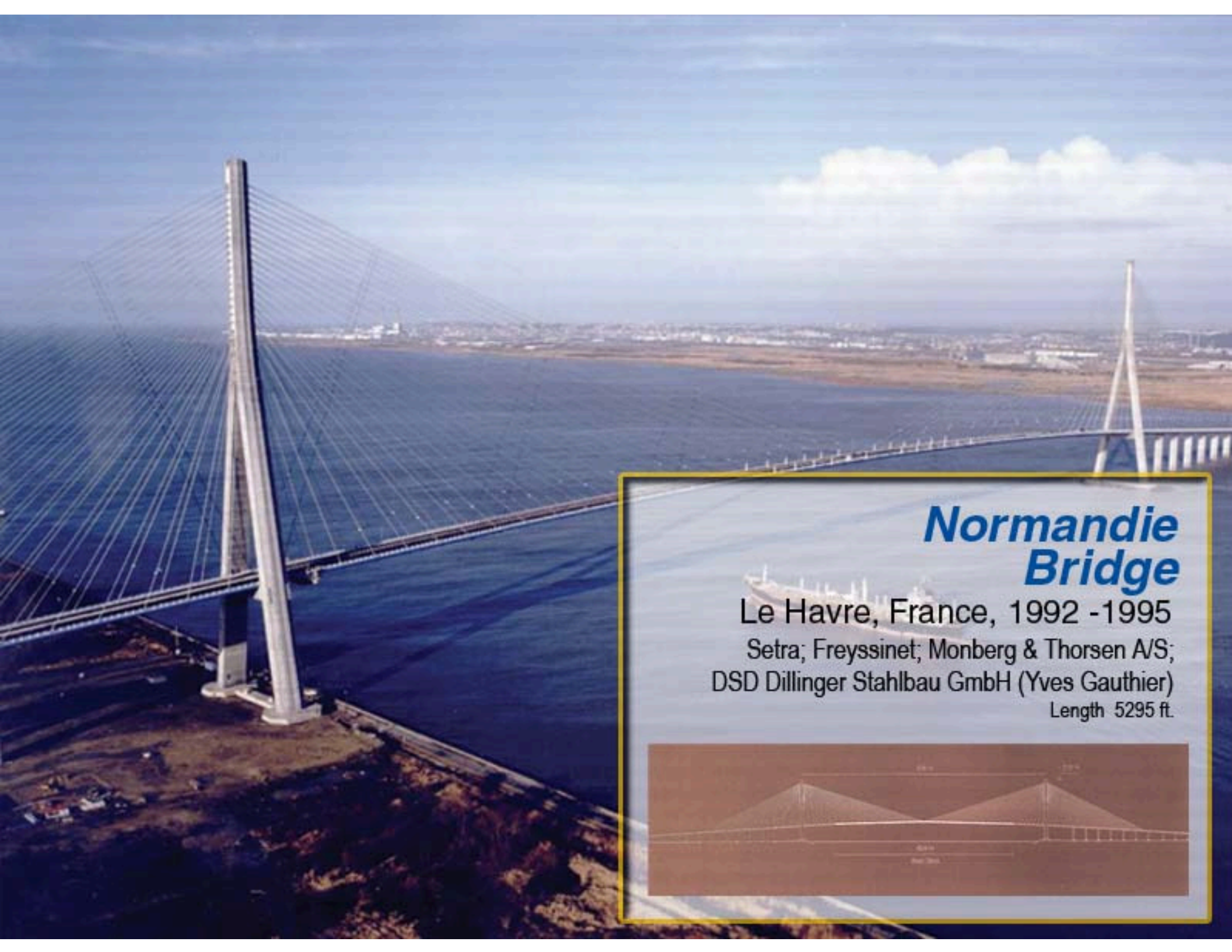


Typical Span of 600'-3000'



George S. Eccles Bridge

Salt Lake City, Utah
Parsons 2000

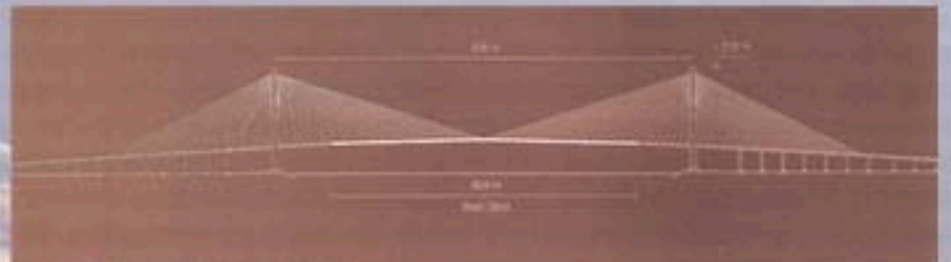


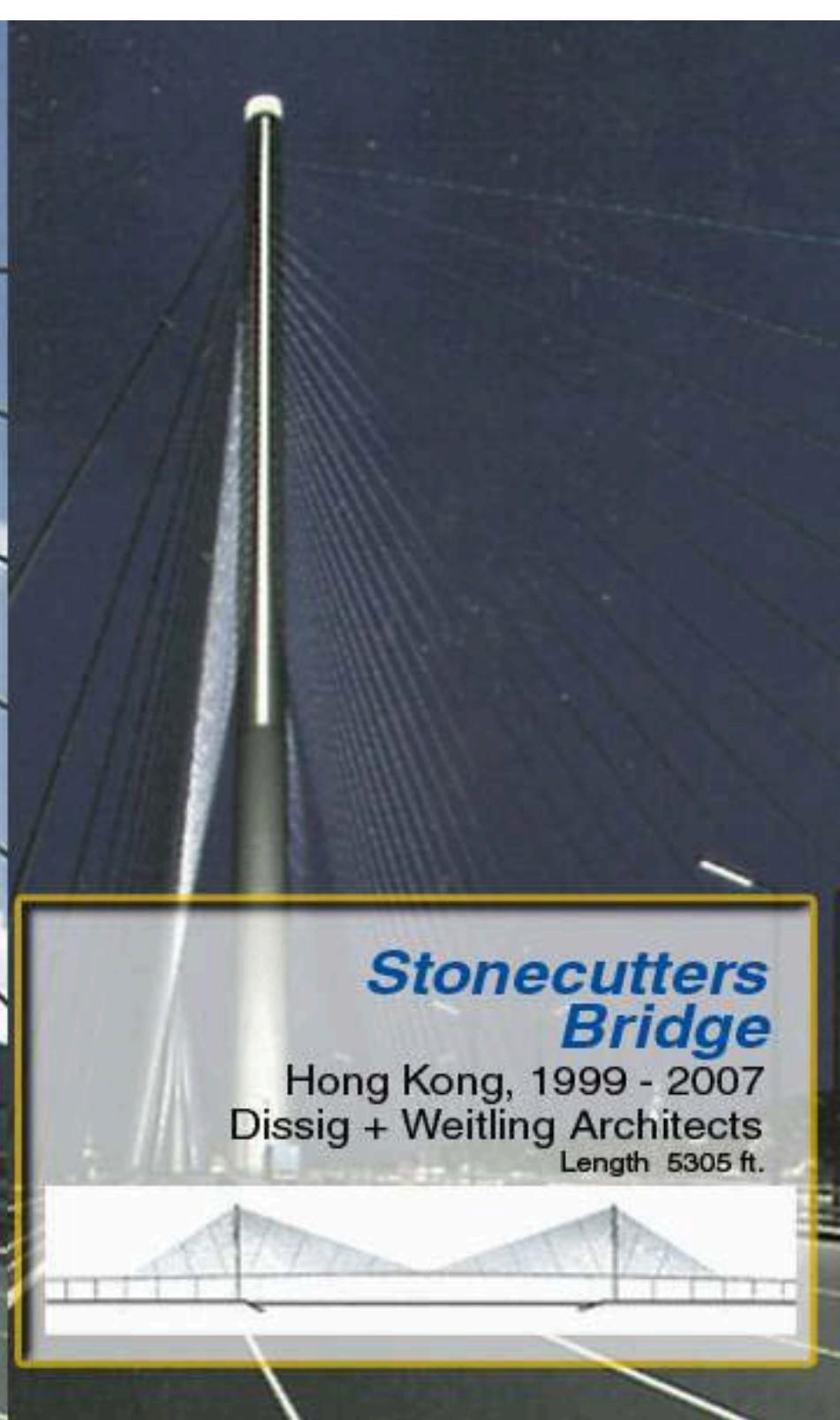
Normandie Bridge

Le Havre, France, 1992 - 1995

Setra; Freyssinet; Monberg & Thorsen A/S;
DSD Dillinger Stahlbau GmbH (Yves Gauthier)

Length 5295 ft.





Stonecutters Bridge

Hong Kong, 1999 - 2007
Dissig + Weitling Architects
Length 5305 ft.



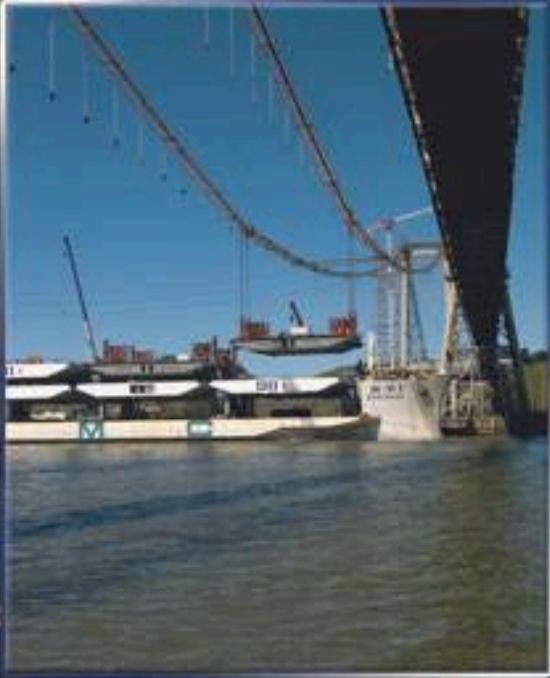


***Peace
Bridge***

Buffalo, NY / Ft. Erie, Canada
Parsons 2000

Suspension Bridges





Typical Span of 2400'-6500'



Manhattan Bridge

New York, NY
Gustav Lindenthal, 1909
Main Span 1,470 ft

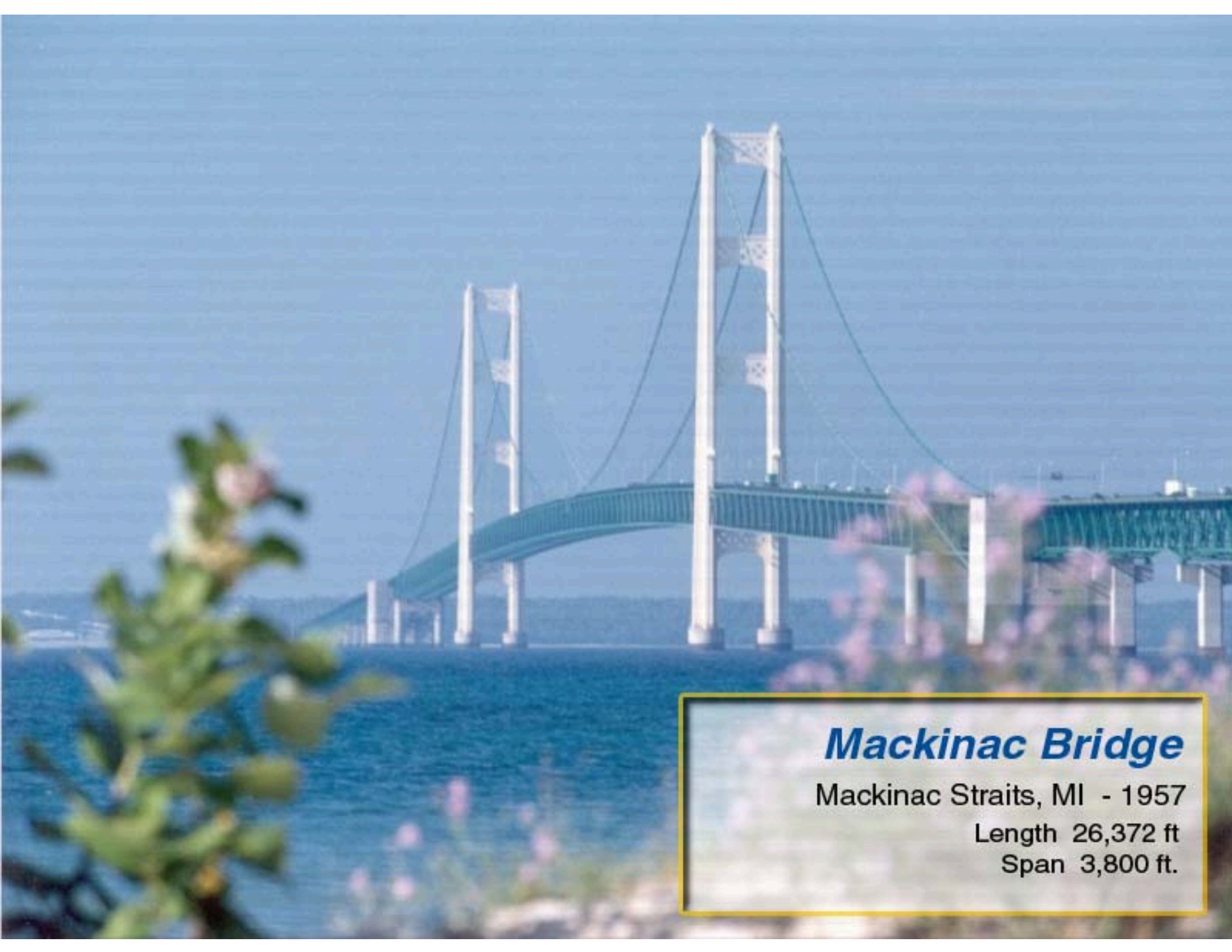


Golden Gate Bridge

San Francisco, CA

Joseph B. Strauss, 1937

Main Span 4,200 ft

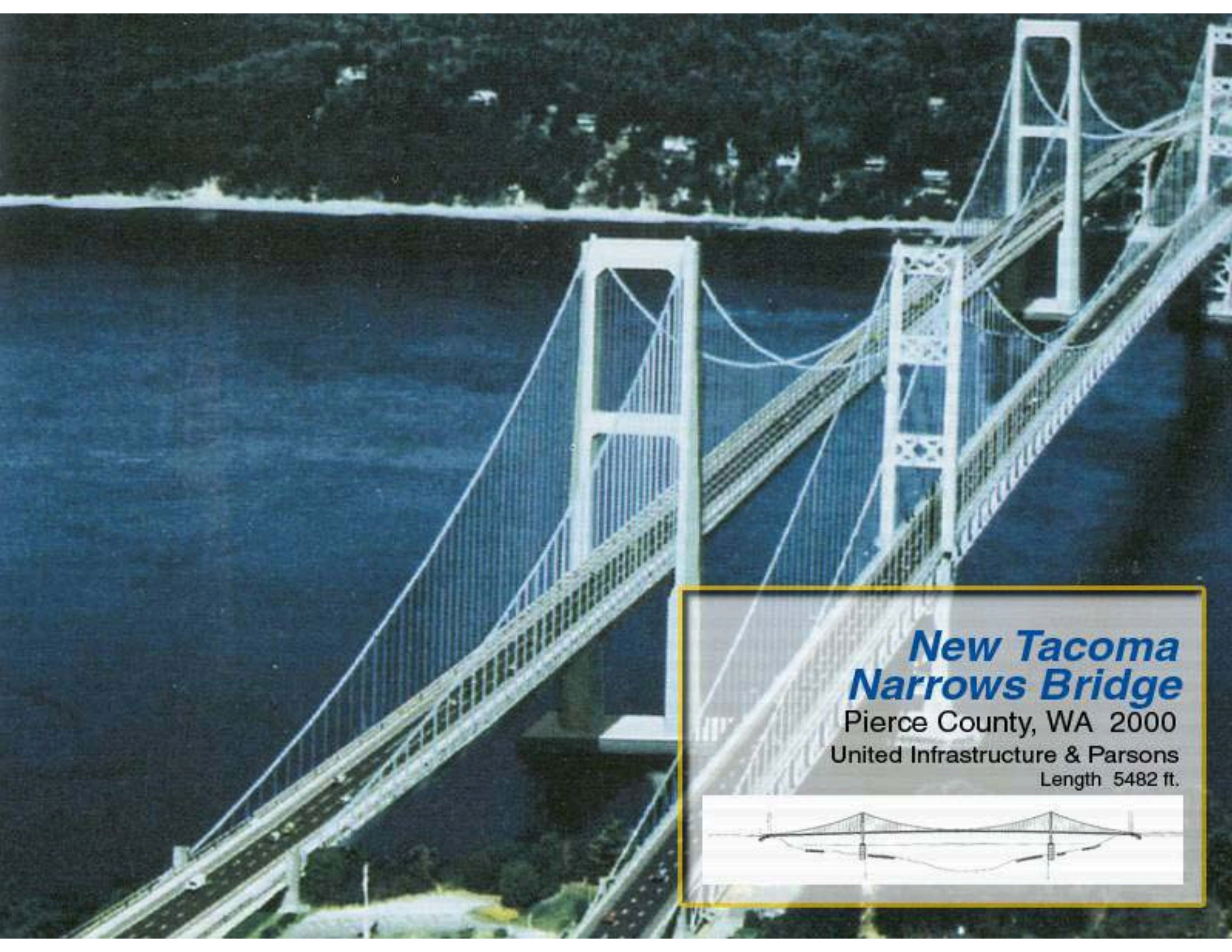


Mackinac Bridge

Mackinac Straits, MI - 1957

Length 26,372 ft

Span 3,800 ft.



New Tacoma Narrows Bridge

Pierce County, WA 2000

United Infrastructure & Parsons

Length 5482 ft.



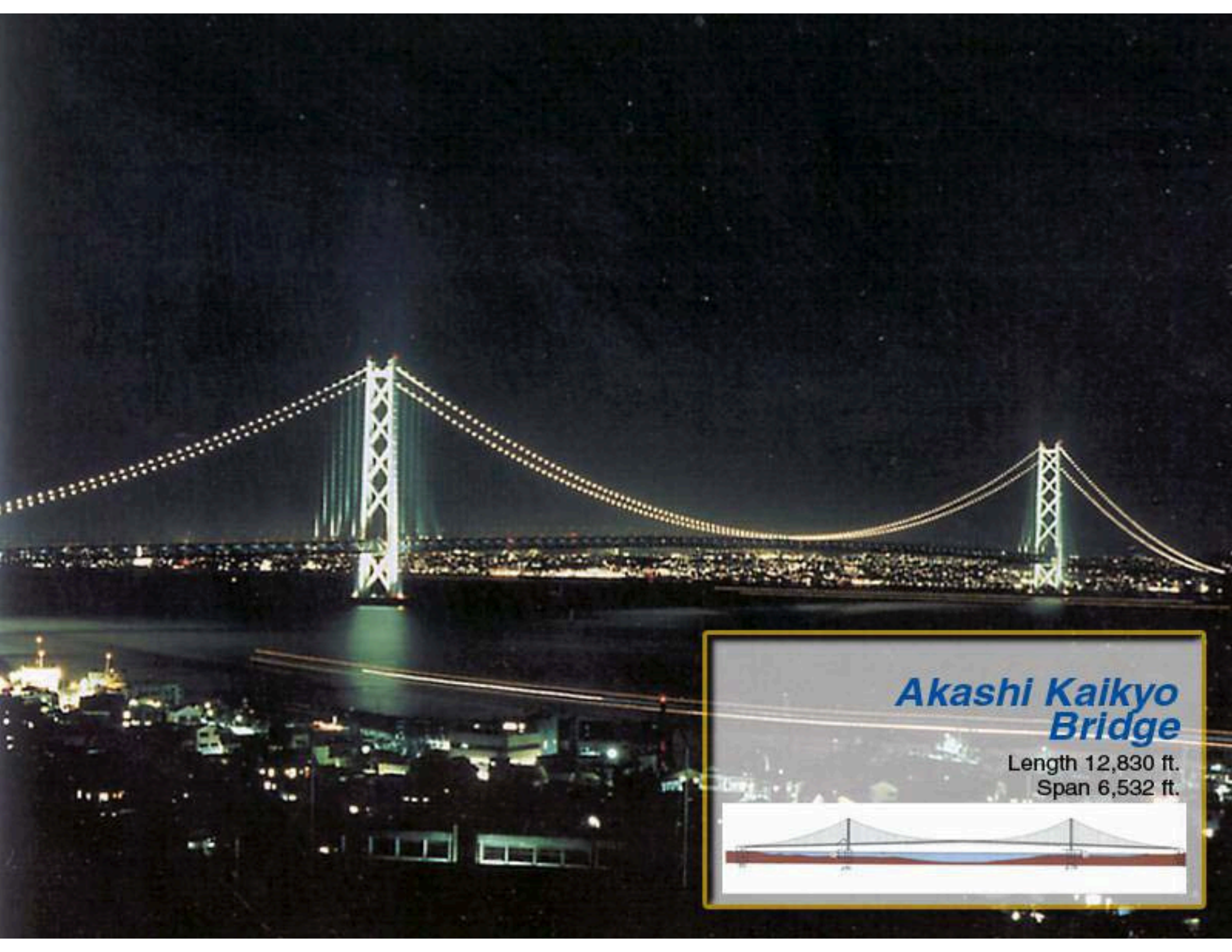


New Carquinez Strait Bridge

San Francisco, CA

Parsons 2003

Main Span 2,388 ft.



Akashi Kaikyo Bridge

Length 12,830 ft.
Span 6,532 ft.

