

History of Accelerated Bridge Construction (ABC)

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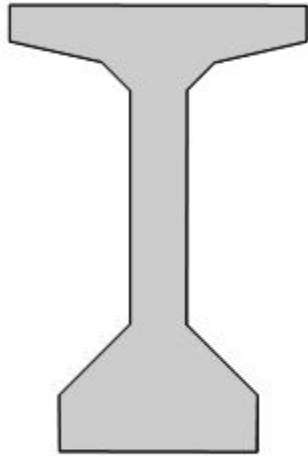


Western Bridge Engineers' Seminar
September 2013

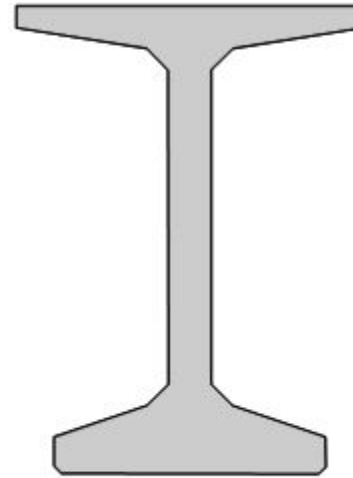
PPC(Precast Prestressed Concrete) & ABC

Precast Prestressed Concrete
Introduced to US in 1951

WSDOT and AASHTO Bridge Girders



AASHTO TYPE V



WSDOT WF66G

Early Deck-Bulb Tee - 1955



Basket Flat, WA - US-97 - 1957

Spliced-Girder, Simple Span, 3 Pieces



Seattle Monorail – 1962 World's Fair



Seattle Monorail – 1962 World's Fair Erecting Guideway Piers

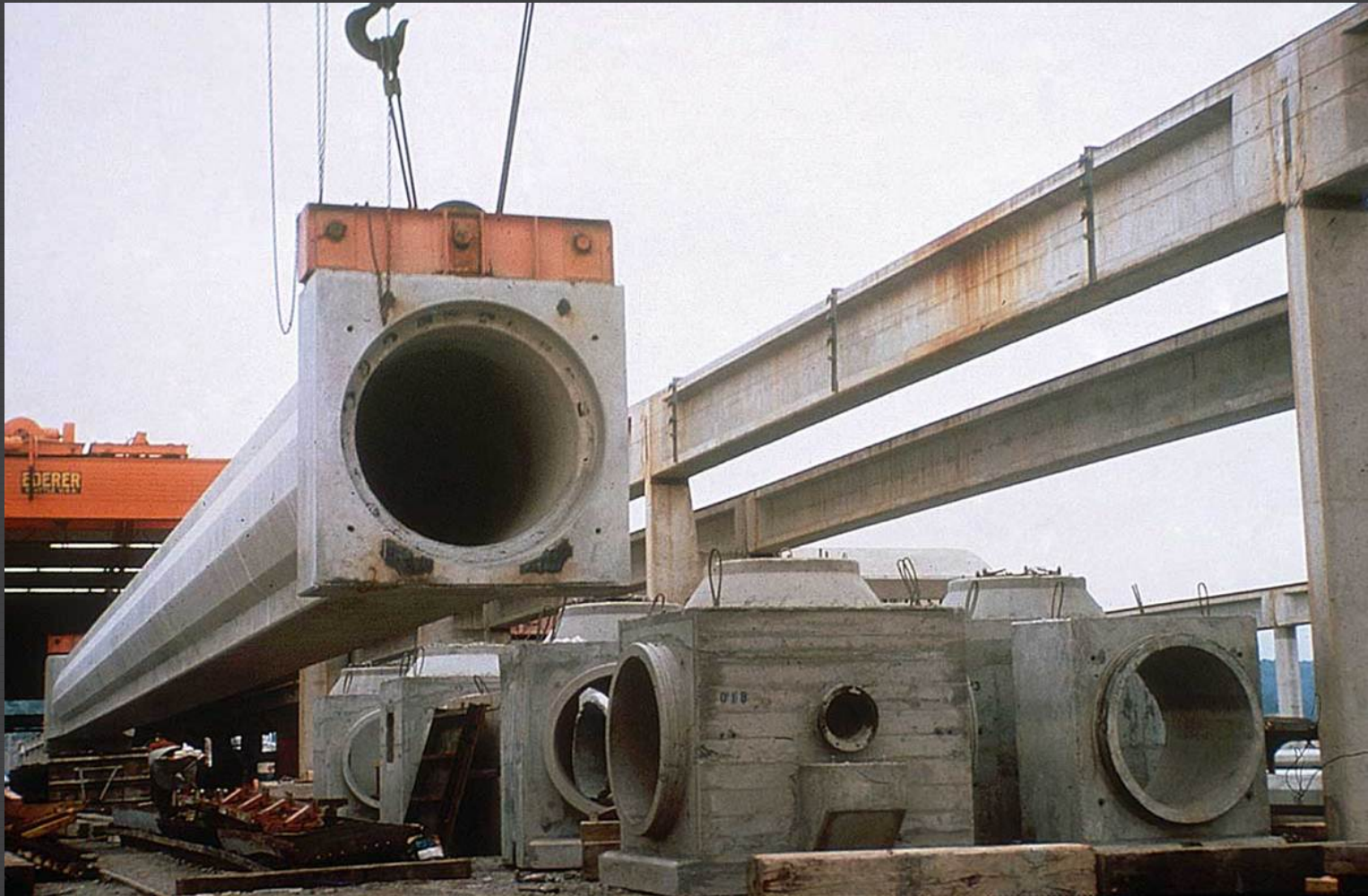
“Temporary Structure”
Which is Still in Operation



Seattle Monorail – 1962 World's Fair Erecting Guideway Beams



Kenmore Interceptor – 1965 Complete “Bridge” Underwater



Scatter Creek, WA - SR 410 - 1965 Weyerhaeuser Mill Road Flood Replacement



1950s Log Truck Loading Practice

Scatter Creek – Girder and Leg Erection

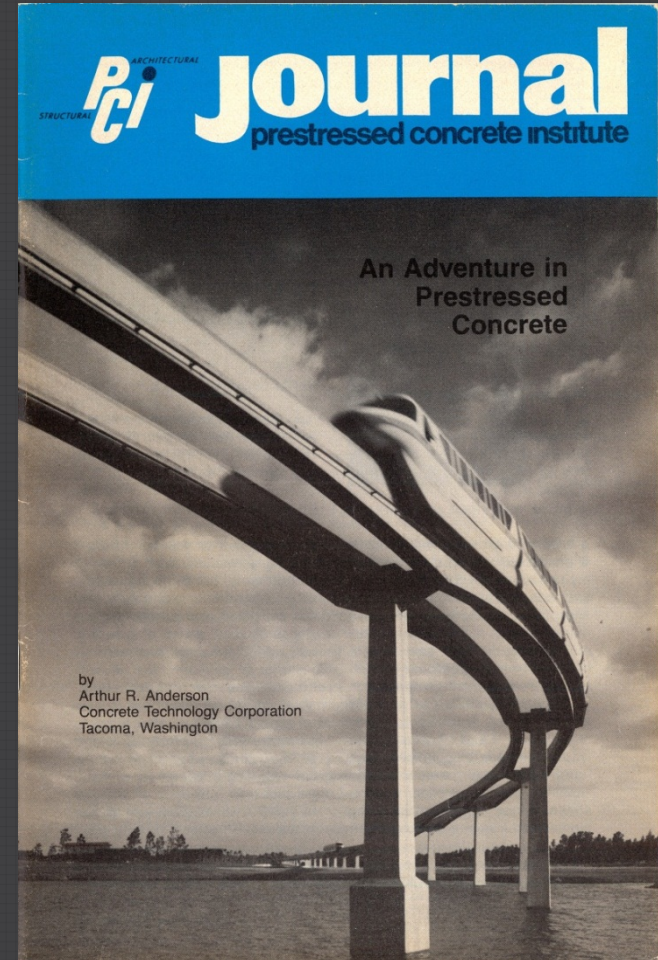


Sollecks River – Olympic National Forest – 1967 High-Lead Logging System Erection

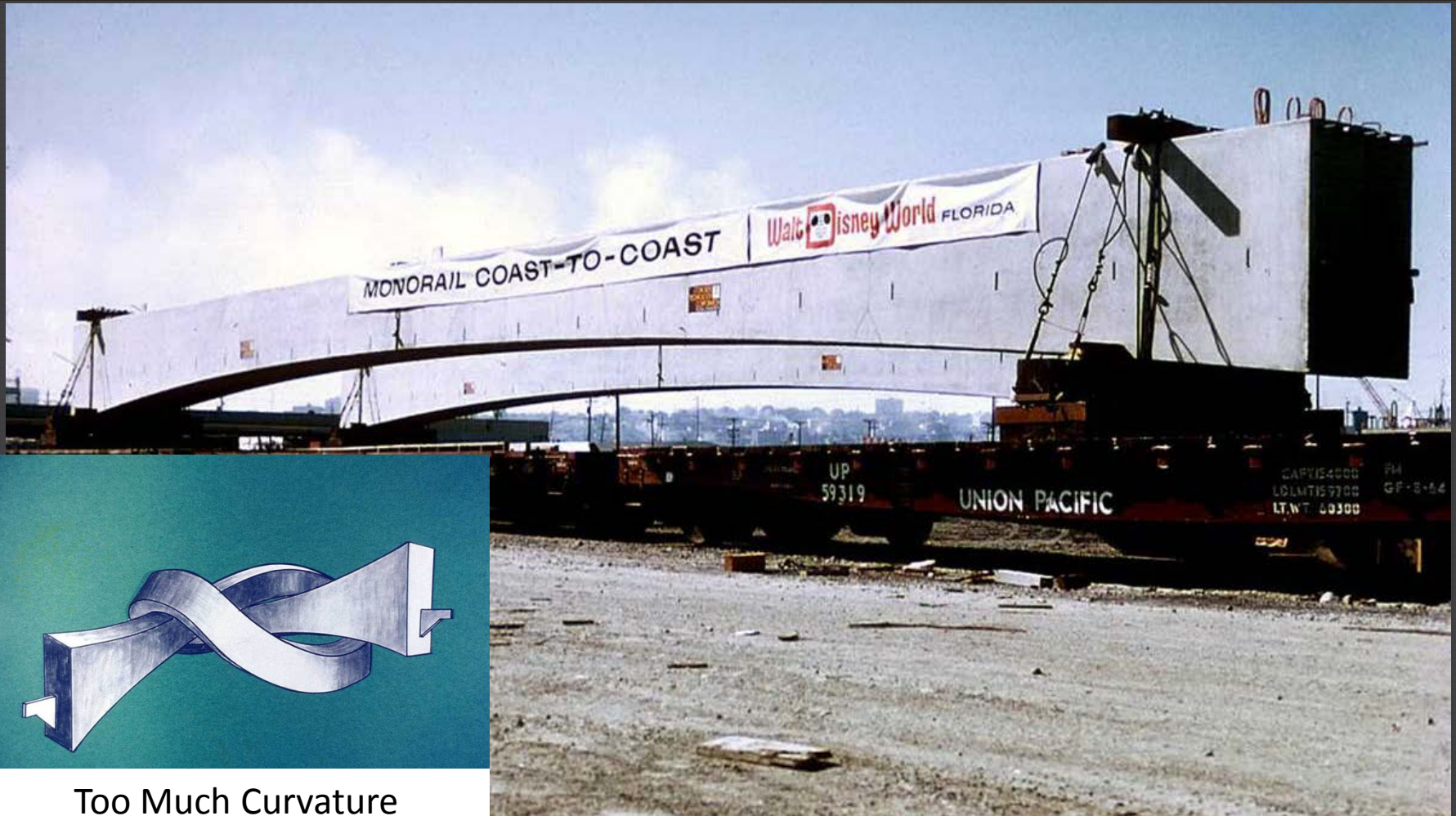


From the collection of the Forks Timber Museum

Walt Disney World Monorail - 1970



Walt Disney World Monorail - 1970 Shipping Curved Beams from Tacoma, WA

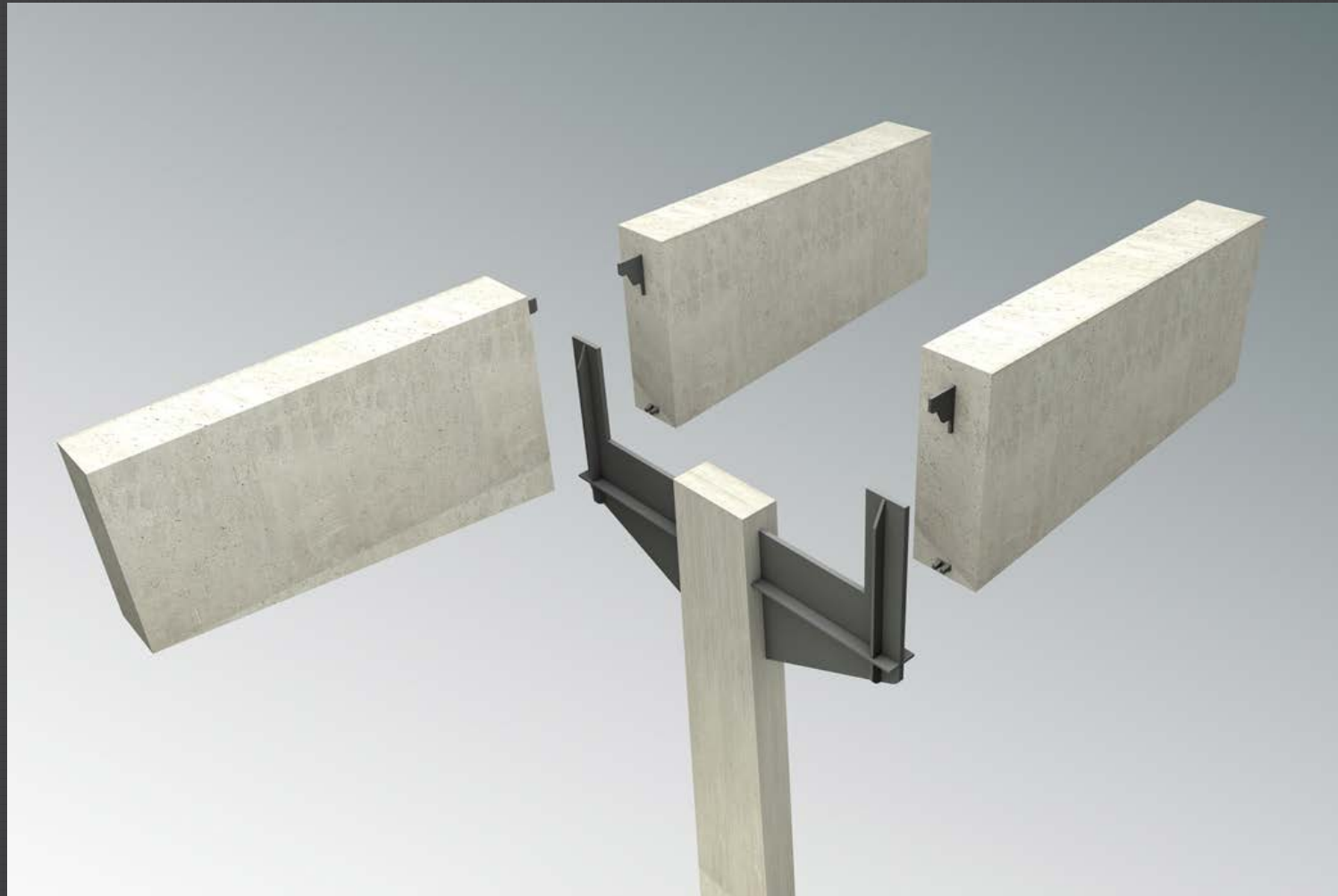


Too Much Curvature

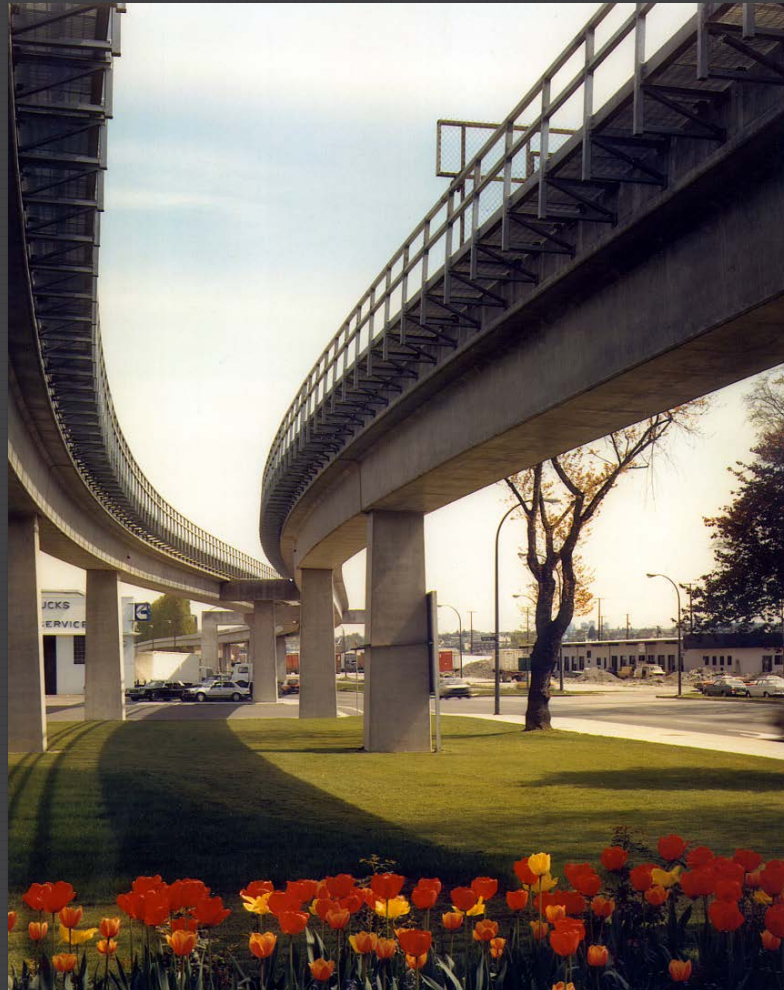
Disney – Precast Pier and Early Beam Erection Scheme - 1970



Disney (Epcot) – Precast Pier and Later Beam Erection Scheme - 1981



Vancouver SkyTrain - 1986



Vancouver SkyTrain Precast Concrete Guideway Beams



Typical 30m Guideway Beam

Vancouver SkyTrain Precast Concrete Guideway Beams



Inserts for rail and LIM rail cast into beam deck

Vancouver SkyTrain Precast Concrete Guideway Beams



Rail and direct fixation fastener secured directly to beam deck

Vancouver SkyTrain Extended Spans



Detroit CATS - 1988

Horizontally Curved PC Guideway Beams



Getty Center Tramway - 1993



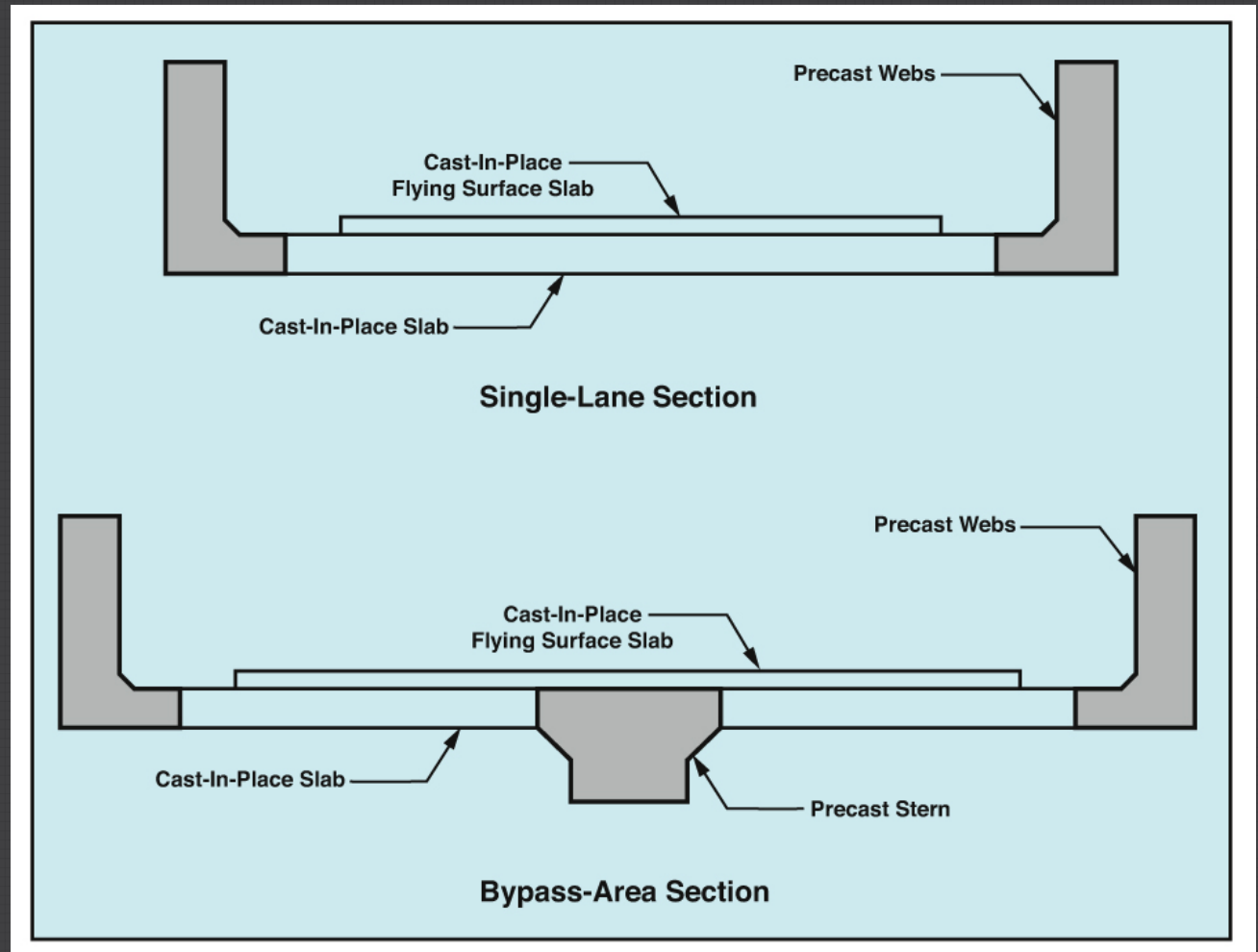
Getty Center Tramway



Guide rails secured to precast web elements

Getty Center Tramway

Tramway Typical Sections



Reedy Creek - 1997



Reedy Creek



Completed bridge is just feet from wetland trees

NE 36th Street Bridge – WA SR 520 – 2009 (Highways for LIFE Socket Columns)

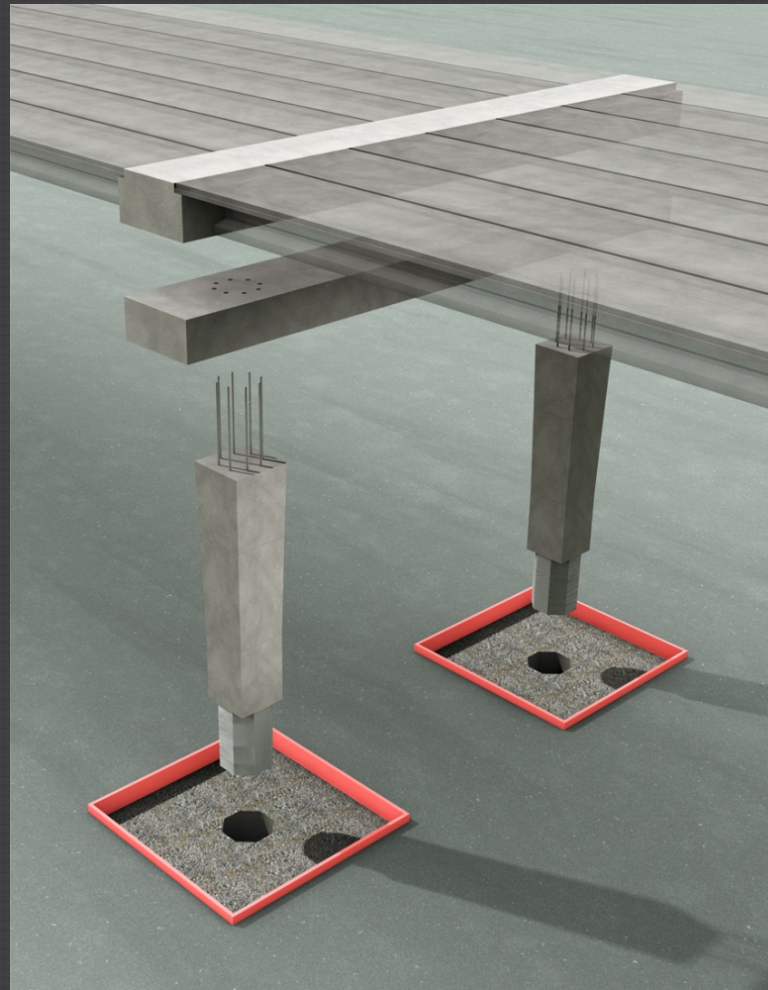


Highways for LIFE Demonstration Project – 2011 I-5 at Ground Mound, WA



Highways for LIFE Demonstration Project

Precast Bent System Concept



Highways for LIFE Demonstration Project

Pier Cap Erection



Highways for LIFE Demonstration Project

Pier Cap Erection

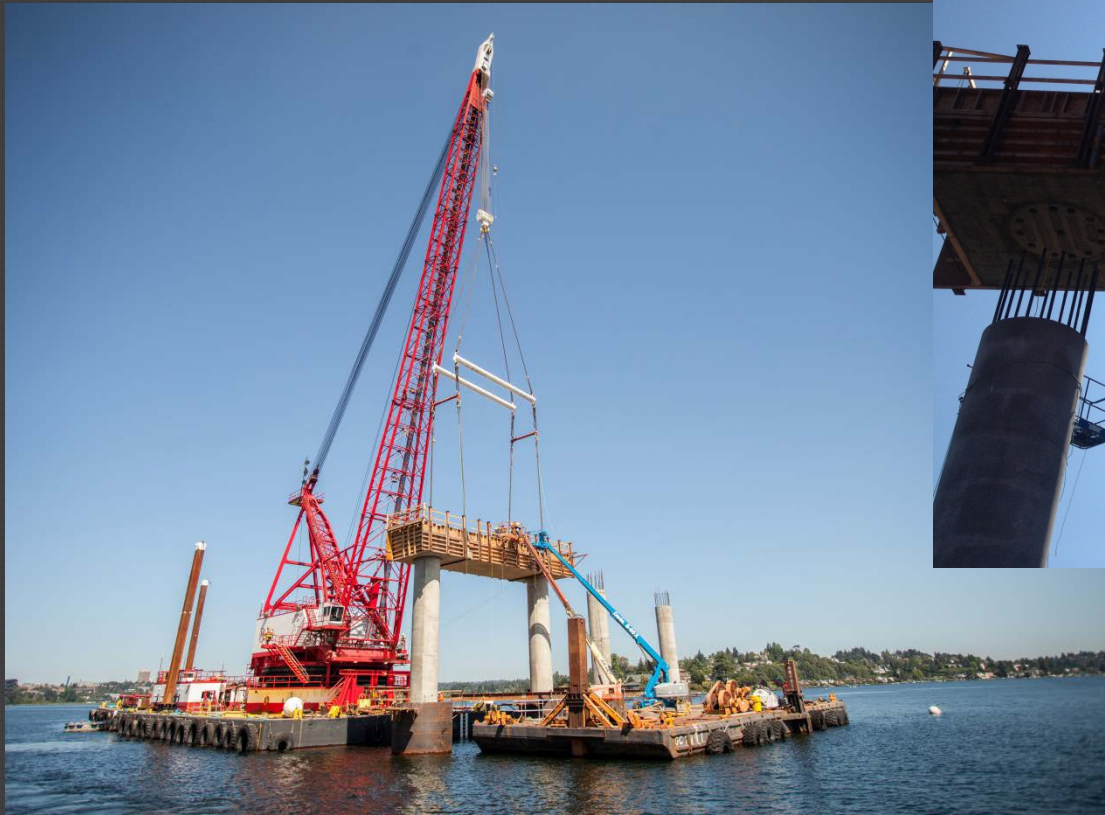


Highways for LIFE Demonstration Project Completed Bridge

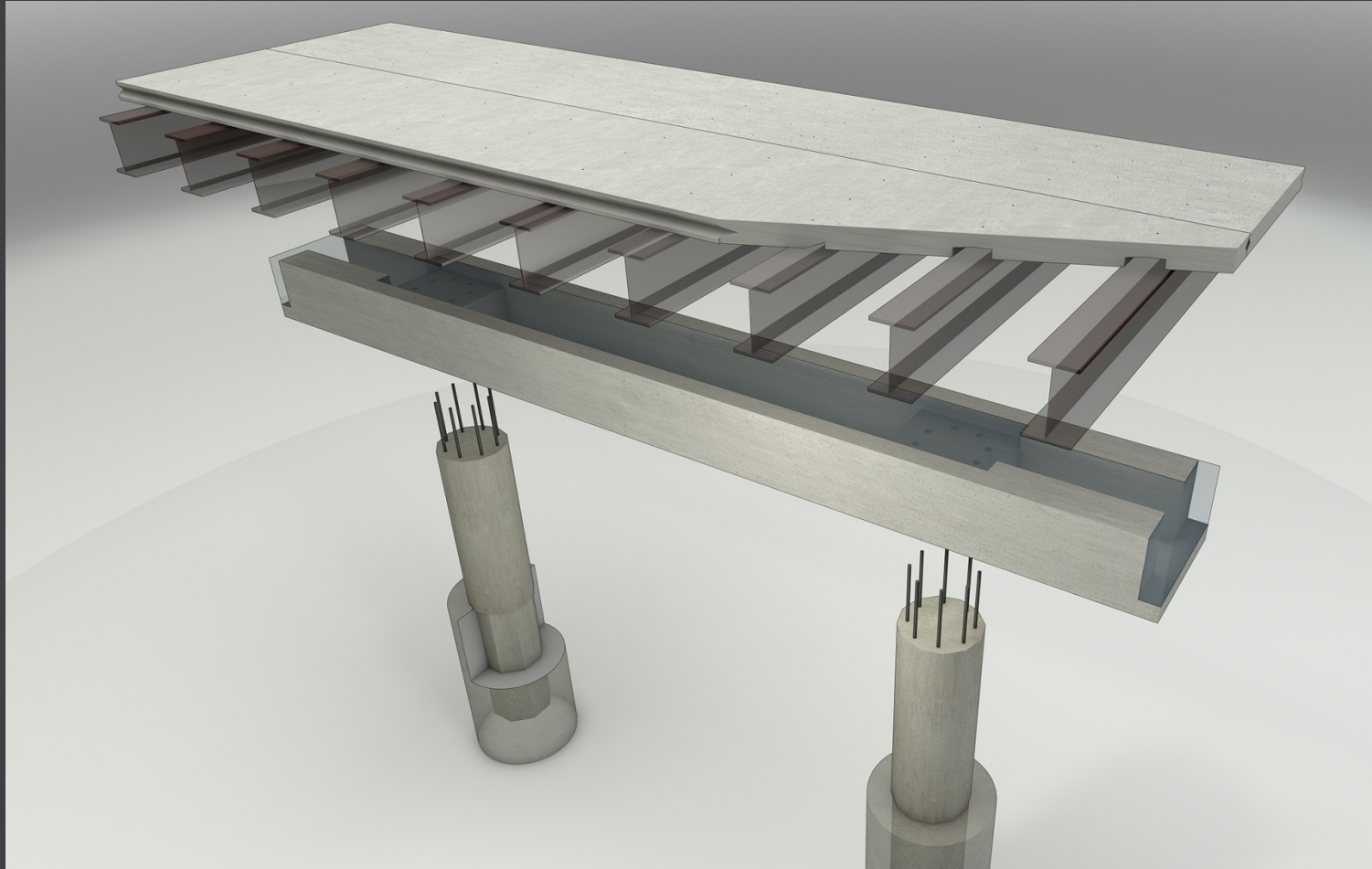


SR 520 Floating Bridge & Landings - 2013

Precast Crossbeam – Pier 36



Boeing Bridge – Current Full-Depth Precast Concrete Bridge Deck



Future of ABC

Limited only by our own Imagination

- Increased Durability
- Improved Seismic Connections
- Use of Alternate Materials
- Use of Higher Performance Concrete/Steel

Thank You!

Questions?