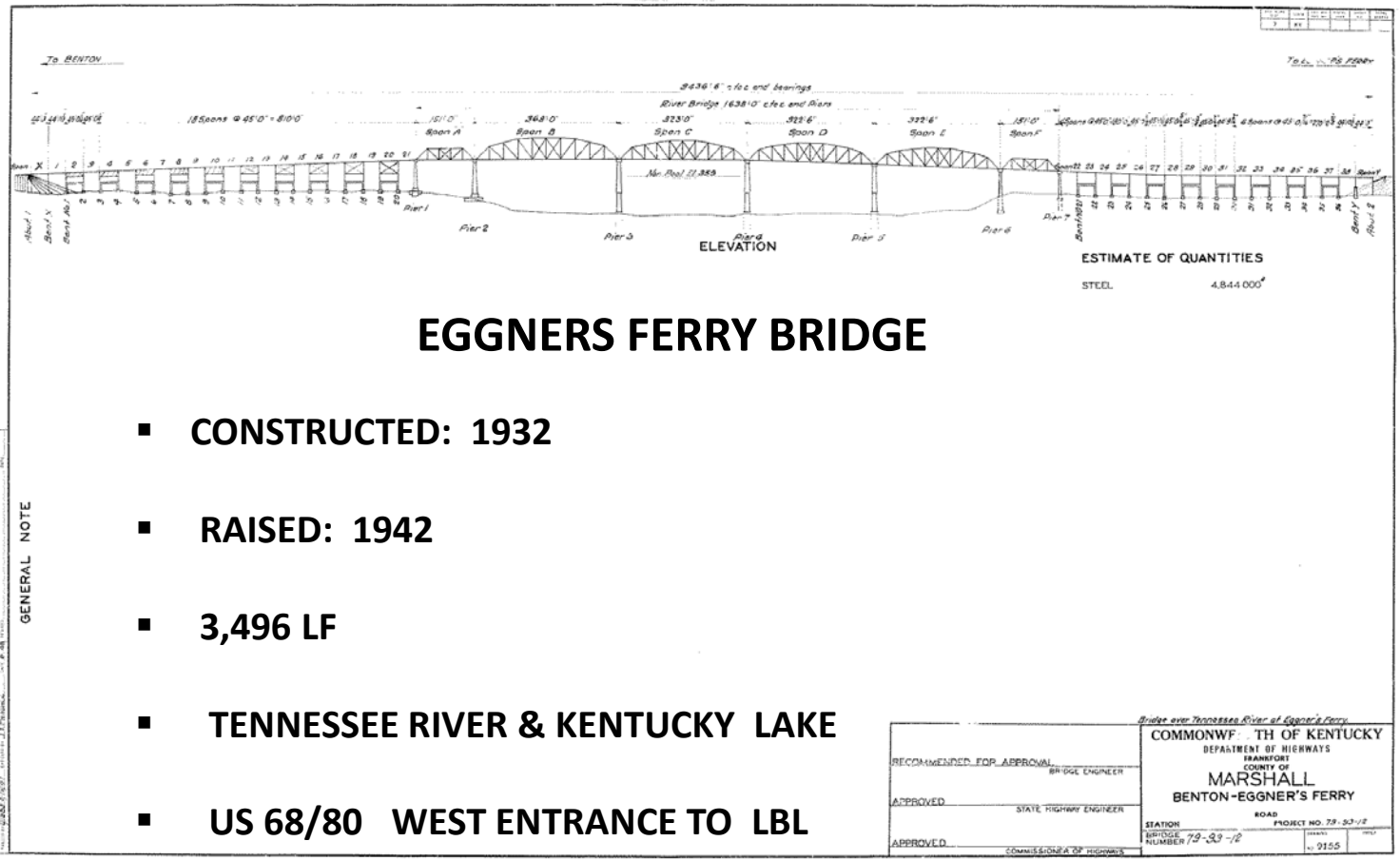
Eggners Ferry Emergency Repair

Michael Oliver, P.E.
Murray Section Supervisor

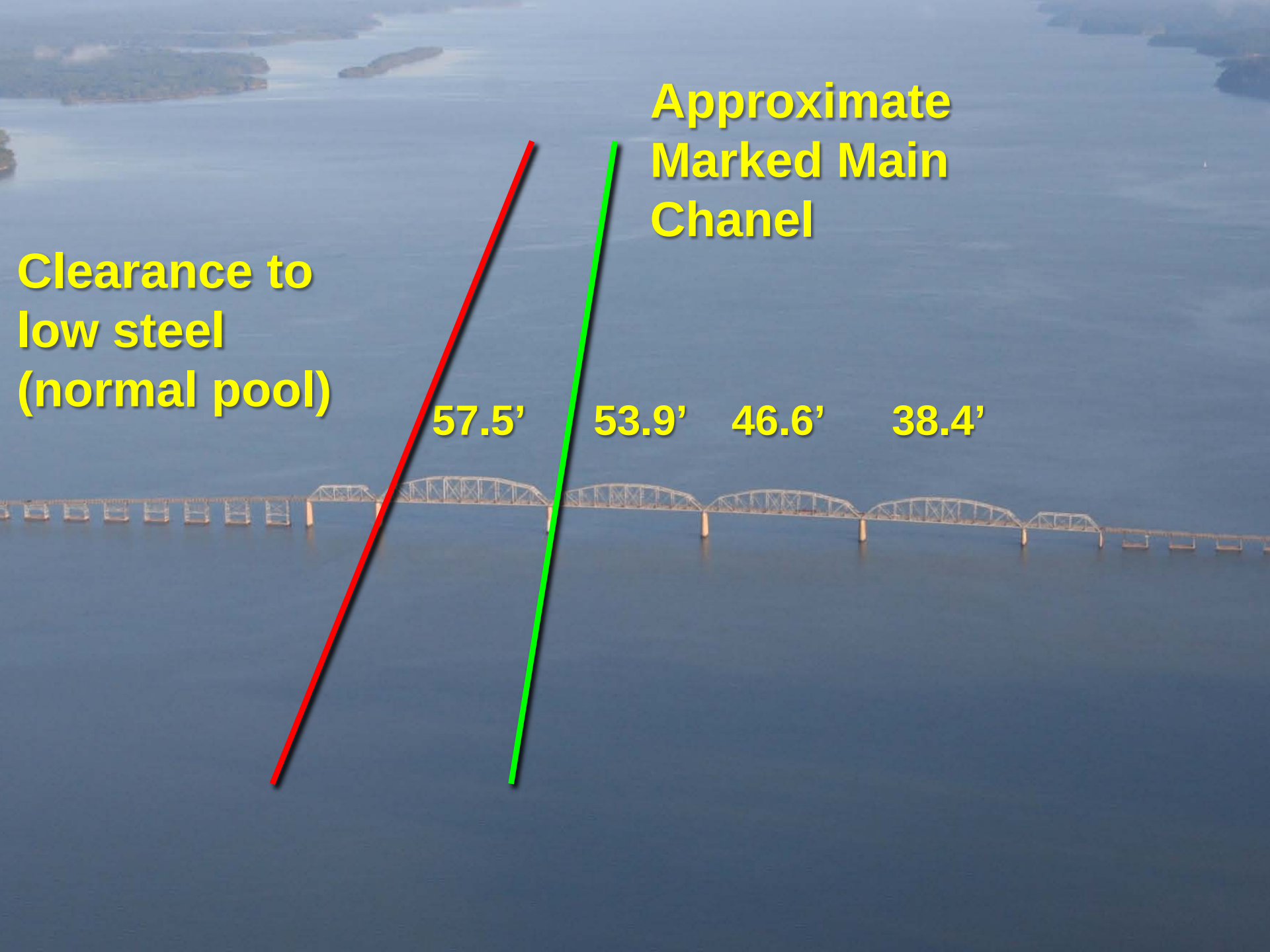
KENTUCKY TRANSPORTATION CABINET



EGGNERS FERRY BRIDGE

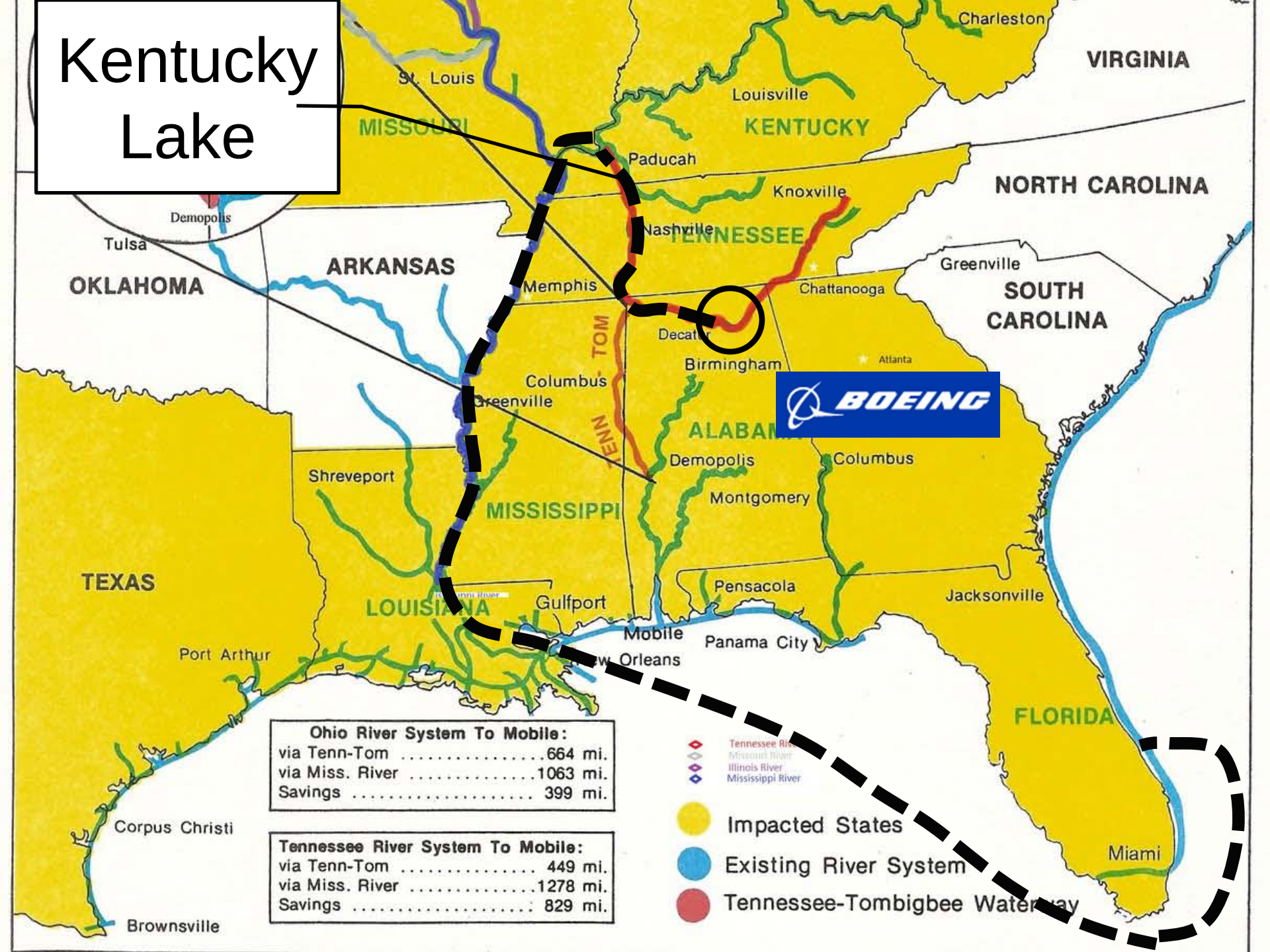
- **CONSTRUCTED: 1932**
- **RAISED: 1942**
- **3,496 LF**
- **TENNESSEE RIVER & KENTUCKY LAKE**
- **US 68/80 WEST ENTRANCE TO LBL**

BRIDGE


Approximate
Marked Main
Chanel
Clearance to
low steel
(normal pool)
57.5’
53.9’
46.6’
38.4’

Delta Mariner

Type:	Roll-on/roll-off cargo ship
Tonnage:	8,679 GT; 3,953 DWT[2]
Length:	312 ft (95.1 m)[5]
Beam:	84 ft (25.6 m)[5]
Height:	50 ft (15.2 m)[6]
Draft:	8 ft (2.4 m)[5]

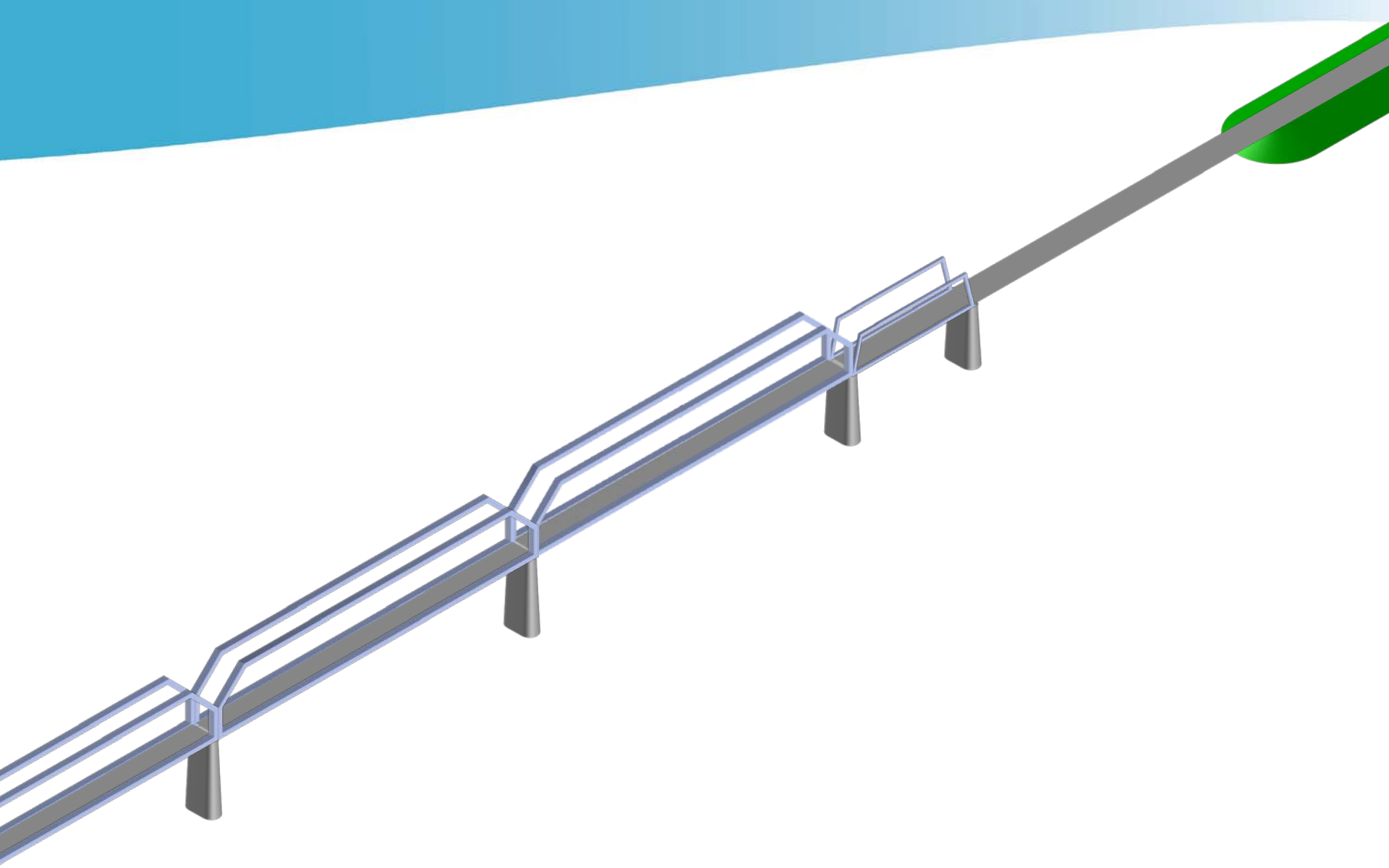

Kentucky Lake
St. Louis
MISSOURI
Louisville
KENTUCKY
Charleston
VIRGINIA
Paducah
Knoxville
NORTH CAROLINA
Demopolis
Tulsa
OKLAHOMA
ARKANSAS
Nashville
TENNESSEE
Memphis
Chattanooga
Greenville
SOUTH CAROLINA
TOM
Decatur
Birmingham
Atlanta
Columbus
Greenville
TENN
ALABAMA
Demopolis
Columbus
Shreveport
Montgomery
MISSISSIPPI
TEXAS
Pensacola
Jacksonville
LOUISIANA
Gulfport
Mobile
Panama City
Port Arthur
New Orleans
FLORIDA
Ohio River System To Mobile:
via Tenn-Tom .....664 mi.
via Miss. River .....1063 mi.
Savings ..... 399 mi.
Tennessee River System To Mobile:
via Tenn-Tom ..... 449 mi.
via Miss. River .....1278 mi.
Savings ..... 829 mi.
Tennessee River
Missouri River
Illinois River
Mississippi River
Impacted States
Existing River System
Tennessee-Tombigbee Waterway
Corpus Christi
Miami
Brownsville
BOEING

The Cargo

Atlas V Rocket
(Scheduled launch April 27, 2012)

The Event

- Accident: Jan. 26, 2012, around 8:10 PM
- UT-Chatt. Tennis Team among last to cross
- Robert Parker, “I got close.”
- No Injuries

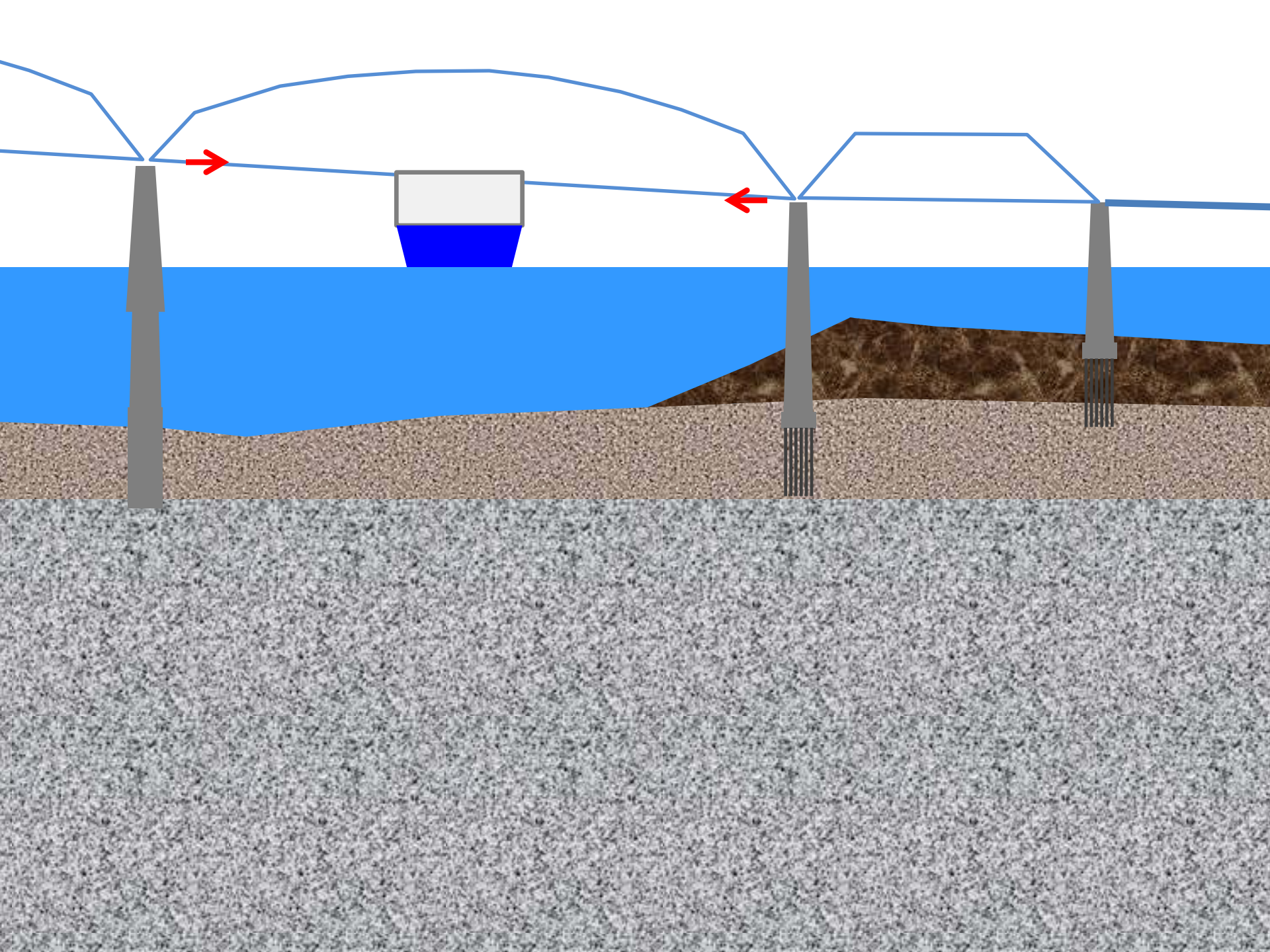


January 26, 2012 8:10PM

© AP

© AP

01/27/2012



Repair Concepts

- Prefab 2 Span Bridge
- Nickajack Bridge Reuse
- New Single Span Truss
- Steel Plate Girder

Additional Concepts

- Ferry Service
- Expedite New Bridge Construction

Nickajack Bridge

Replacement Considerations

- Time is Critical (Lengthy Detour)
- 70’ Water Depth
- Existing Adjacent Pier Concerns
- Permits
- Navigation

The Solution

- Design/Build Procurement
- Single Span Steel Truss
- Concrete or Asphalt Deck
- 20’ Roadway Width (same as existing)
- HS-20 Live Load
- New DL No More Than 110% Current DL
- New Bearings
- Rehab Existing Pier Caps
- No Navigation Changes

The Solution

- Procurement thru Div. of Purchases
- Adv. Date: February 24, 2012
- Bid Date: March, 5, 2012
- Open to Traffic: May 27, 2012 (Memorial Day Weekend)
- $50,000/Day Penalty

The Result

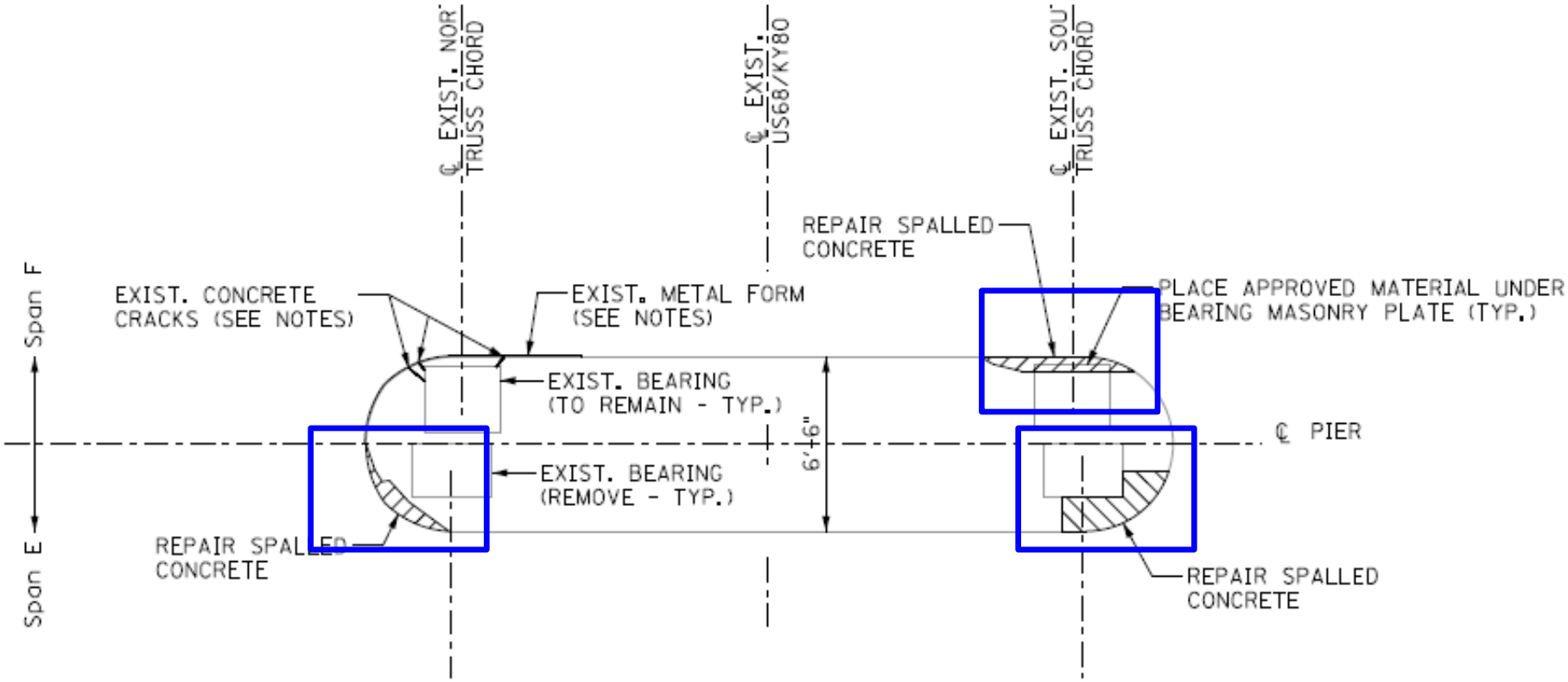
- 3 Bids Received
  - $7M
  - $11.2M
  - $11.4M
- Contractor: Hall Contracting - $7M
  - Designer: Michael Baker, Jr. Inc.
  - Detailer: Tensor Engineers
  - Fabricators:
    - Beam/Angles – Padgett, New Albany, IN
    - Gussets – United Steel, Louisville,KY
- Contract Executed: 03/07/2012

The Design

- Single Span 320’ Truss
- 295 Tons of Steel
- 6.5-inch Concrete Deck
- Integral Floor System

Existing Pier Retrofit

- No jacking of the existing span

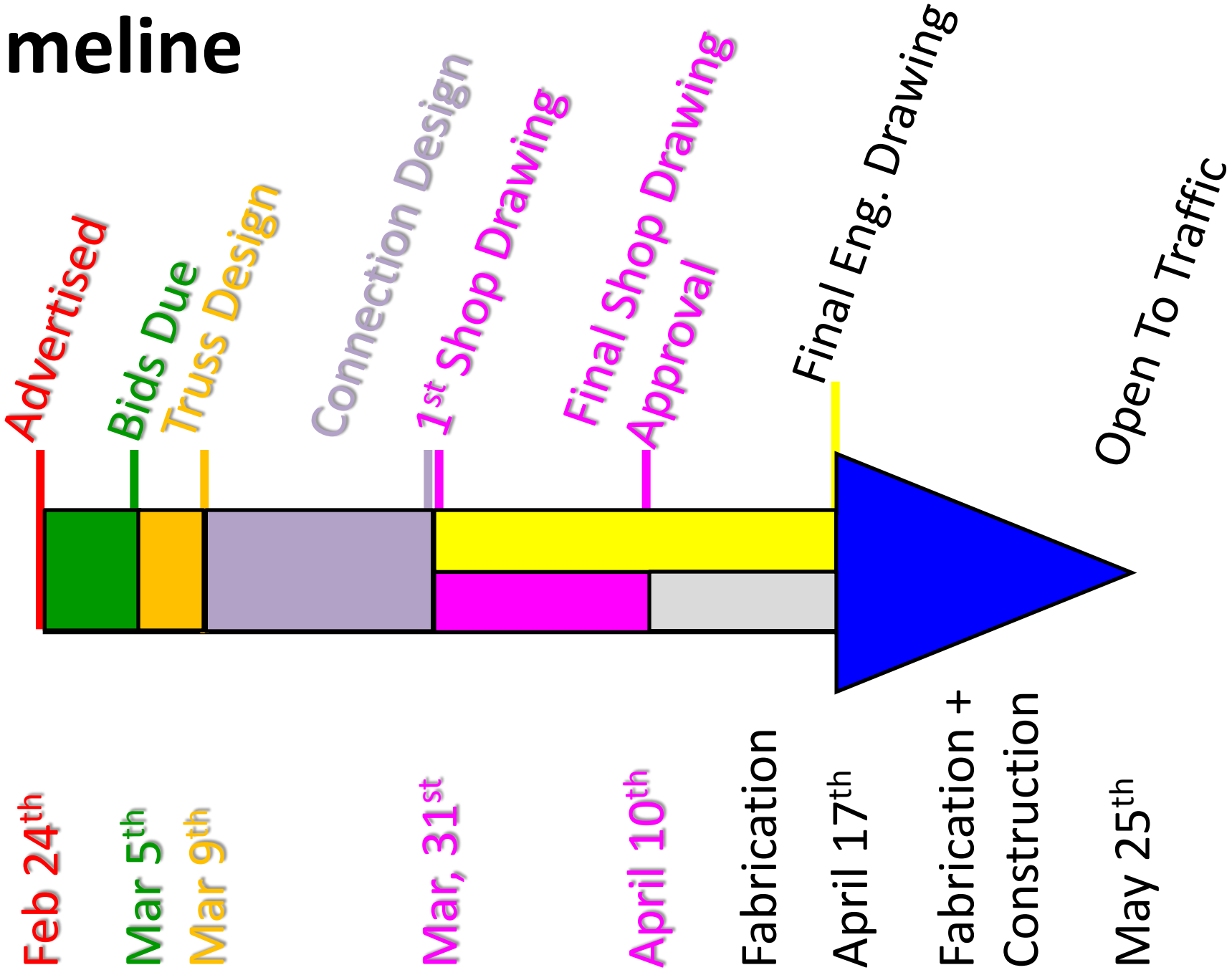


PIER 6 – EXISTING PLAN CONCRETE REPAIR LIMITS

Lessons Learned

- Great Support From Frankfort
- Good Coordination Among Team
- In Future, Always Check Nav. Clearances.

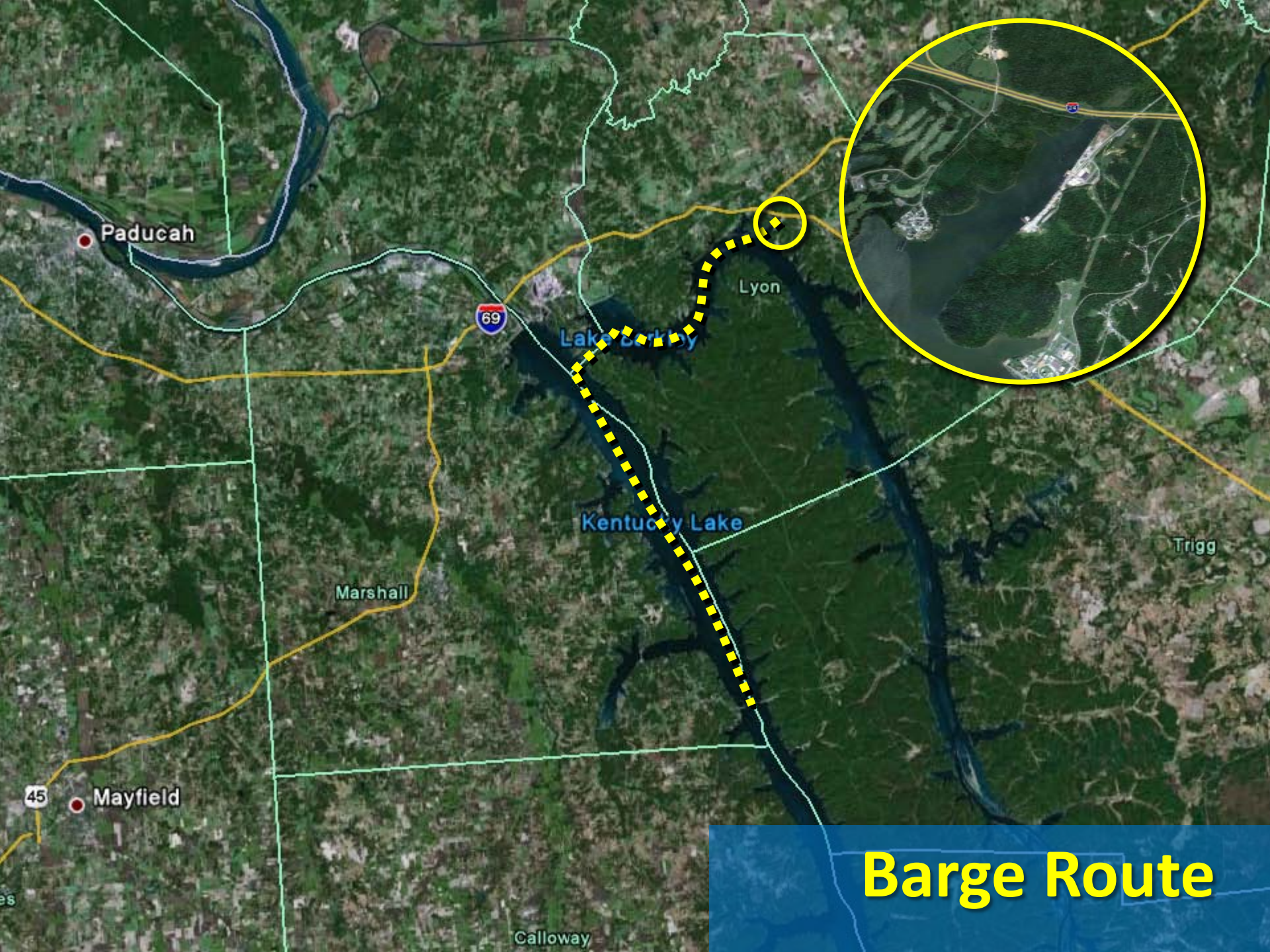
Timeline


Advertised
Bids Due
Truss Design
Connection Design
1st Shop Drawing
Final Shop Drawing Approval
Final Eng. Drawing
Open To Traffic
Feb 24th
Mar 5th
Mar 9th
Mar, 31st
April 10th
Fabrication
April 17th
Fabrication + Construction
May 25th

Truss Assembly at Eddyville Riverport

Loading Truss and Cranes on Barge

Loading Truss and Cranes on Barge

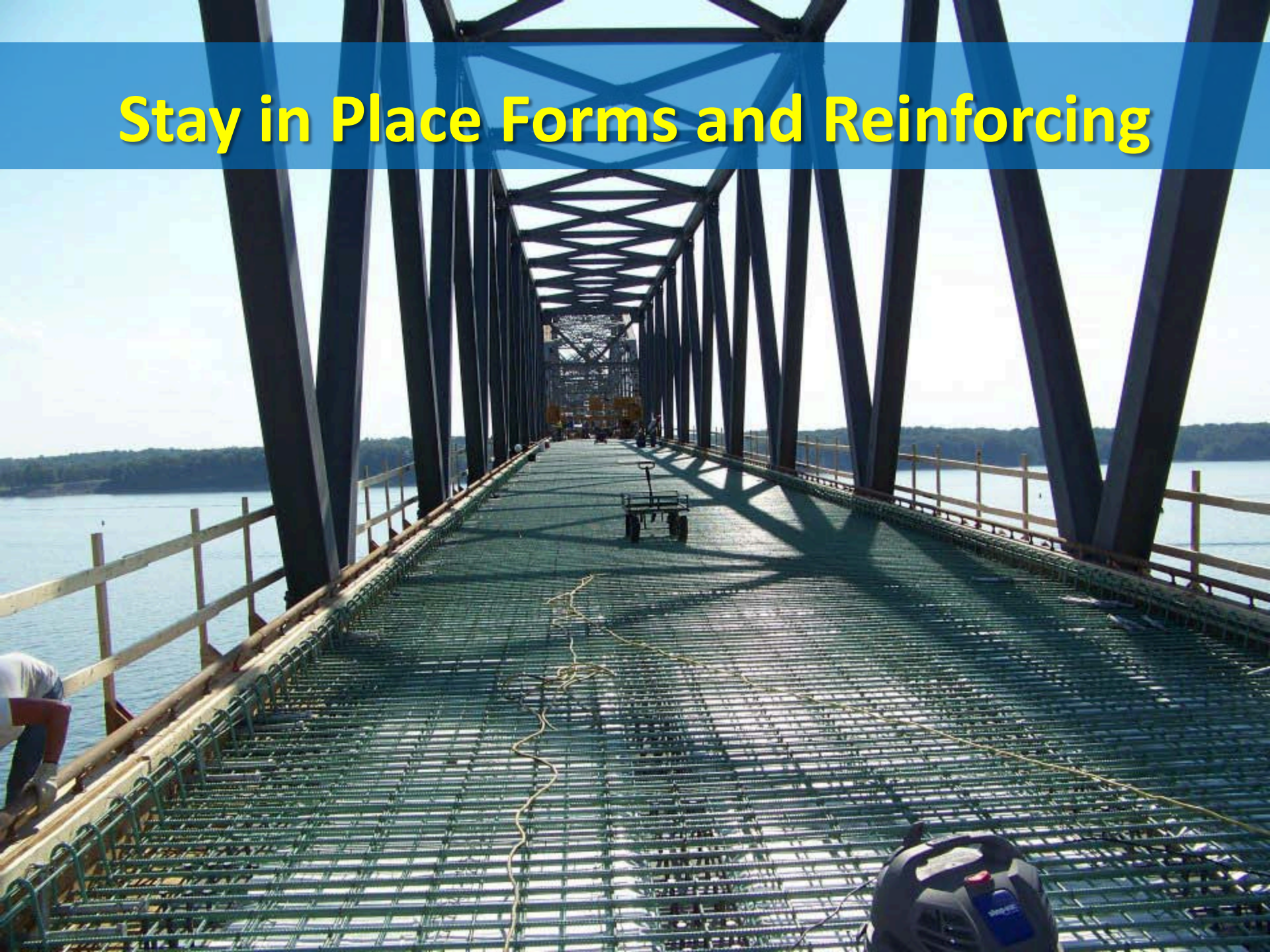

Paducah
69
Lyon
Lake Barkley
Kentucky Lake
Trigg
Marshall
45
Mayfield
Calloway
Barge Route

Transport

Lifting Truss

Lifting Truss

Stay in Place Forms and Reinforcing



Deck Pour

The Opening

- Open to Vehicles Friday May 25, 2012, at 1:00 PM
- Open During Entire Memorial Day Weekend with Festivities on Friday
  - Bridge Walk
- 2.5 Days Before Contract Deadline

Open to Traffic

A Success Story

- Thorough Vetting
- Quick Decisions
- Expedited Procurement
- Rapid Design
- Aggressive Fabrication Schedule
- Opening Date Ahead of Schedule
- A Win for All

SHIP
HAPPENS
2012