

TACKLING A BIG PROJECT

Painting the
Cape Fear Memorial Bridge







The Cape Fear Memorial Bridge

- ◆ North Carolina's tallest and only steel vertical lift span bridge
 - ◆ Span length 408.2'
 - ◆ Deck width 54'
 - ◆ Minimum vertical clearance 65'
 - ◆ Raised vertical clearance 135'





History of the Bridge

- ◆ Opened to traffic in fall of 1969



History of the Bridge

- ◆ Became the “iconic symbol of Wilmington”
 - ◆ Over 40 years later it is still one of the city’s most recognized landmarks.

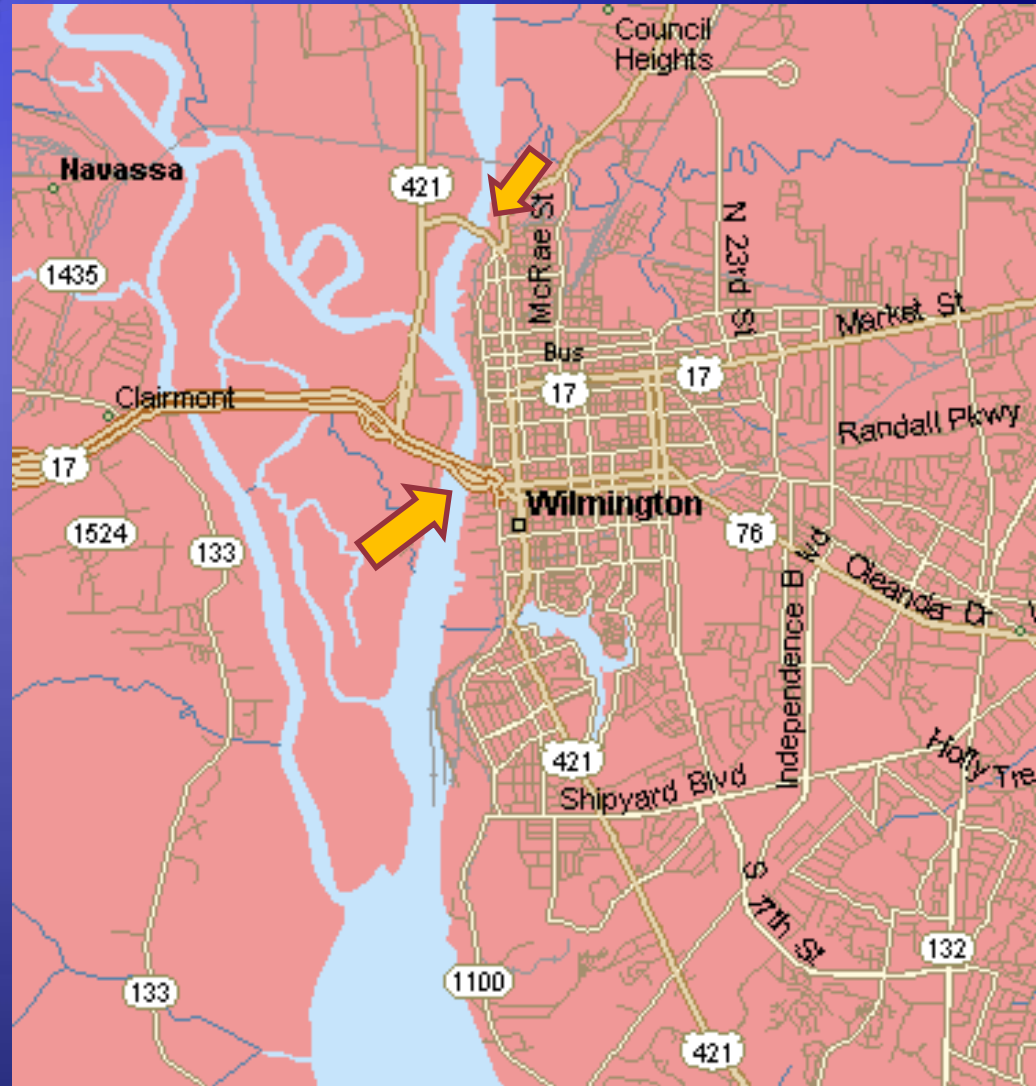




U.S. COAST GUARD

The Cape Fear Memorial Bridge

- ◆ Importance
 - ◆ 1 of 3 bridges serving Wilmington and New Hanover County
 - ◆ 1 of 2 bridges into downtown Wilmington
 - ◆ Carries US 17, US 76 and US 421 traffic



Wilmington – The Port City



Historical Attractions



Tourist attractions

◆ Night life





Beaches



USS North Carolina

Film Industry

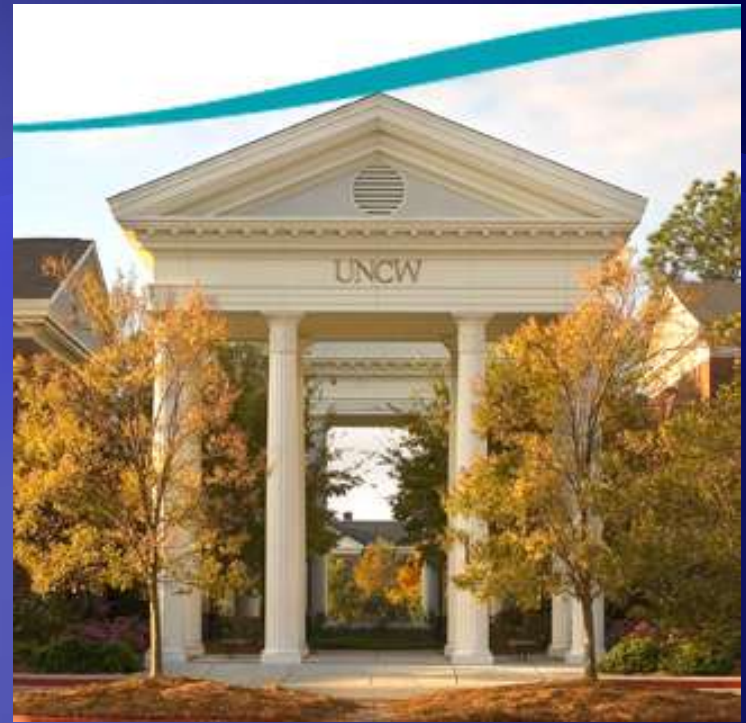




River Tours

Wilmington

- ◆ UNC Wilmington
- ◆ Cape Fear Community College



411 N. Front Street Cape Fear Community College

Wilmington

- ◆ Home of the USCGC Cutter Diligence



Wilmington

- ◆ Home to the North Carolina State Ports





PORT OF WILMINGTON

PORT OF WILMINGTON

INDEPENDENT PURSUIT

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Wilmington

- ◆ Oil terminals south of Wilmington generate high volumes of truck traffic.



Cape Fear Memorial Bridge

- ◆ Primary vehicle crossing for the Cape Fear River
 - ◆ ADT is 52,000 VPD
 - ◆ Over capacity during rush hour



Commuter Traffic

- ◆ Bridge carries daily traffic between Leland and other communities in Brunswick County.





Cape Fear River Shipping Channel

- ◆ Shipping vessels use the Cape Fear River up to and beyond the Cape Fear Memorial Bridge
- ◆ Bridge operations must be maintained 24 hours per day, 7 days per week





OAK GALAXY

TOKYO

NO SMOKING
SAFETY + FIRST







Maintenance History

- ◆ High maintenance structure
 - ◆ 1985 – bridge painted
 - ◆ 1996 – lift span received new steel decking
 - ◆ 2007 – bridge electrical control system replaced
 - ◆ 2010 – second painting contract let to VHP Enterprises

After 40+ years...



◆ Her age is showing





Painting the Cape Fear Memorial Bridge

- ◆ Poses many challenges:
 - ◆ Primary river crossing
 - ◆ High traffic volumes limit lane and bridge closures
 - ◆ Spans a shipping channel
 - ◆ Non-scheduled bridge openings for commercial and pleasure craft
 - ◆ Huge dynamic structure



Scope of the Work

- ◆ Cleaning and recoating existing steel
 - ◆ 190,098 ft² of lift span
 - ◆ 129,796 ft² of tower surfaces
 - ◆ 7,339 ft² of counterweight surfaces
 - ◆ 7,836 ft² of control house surfaces
 - ◆ 15,726 ft² of machinery housing
- ◆ Updated HVAC system for control tower
- ◆ Replace guide rollers
- ◆ Replace roadway lighting system

Coordination with the US Coast Guard

- ◆ At no time can the waterway be closed or narrowed to navigation without USCG approval.
- ◆ Waterway closing/narrowing must be requested 30 days in advance.
- ◆ All work in, on, or adjacent to navigable waters must have no adverse affect on waterway traffic.
- ◆ Normal bridge operations must be maintained at all times



Advanced Recycling Systems

KALLE & DIERCKX
www.kdrecycling.com

IR Innersoll Rand

Coordination with the US Coast Guard

- ◆ Once a request to raise the bridge is made by any river vessel, contractor must have bridge ready to raise in 60 minutes.
 - ◆ Work stops until shipping vessel passes under the bridge.
- ◆ Coast Guard has allowed a 4' variance on half the vertical lift span at one time.

Contract Time

- ◆ The date of availability
 - ◆ March 1, 2010
- ◆ The completion date for the contract
 - ◆ September 30, 2010
 - ◆ (214 days)

Intermediate Contract Time 3

- ◆ Requires the contractor to complete all bridge painting that requires bridge closures
 - ◆ Date of availability April 13, 2010
 - ◆ Completion date June 11, 2010 (60 days)

Intermediate Contract Time 3 Issues

- ◆ Contractor began work April 25, 2010
- ◆ Installation of scaffolding began on towers
- ◆ All work done at night
- ◆ Containment drawings were not approved until June 26, 2010.



Lane Closures

- ◆ From Memorial Day to Labor Day;
 - ◆ Sunday – Thursday:
 - ◆ 7:00 pm – 6:00 am
- ◆ From Labor Day to next Memorial Day
 - ◆ Monday – Saturday:
 - ◆ 9:00 am – 3:00 pm;
 - ◆ 7:00 pm – 6:00 am
- ◆ Holiday restrictions

Bridge Closures

- ◆ From Memorial Day to Labor Day;
 - ◆ Monday – Thursday:
 - ◆ 7:00 pm – 5:00 am
- ◆ From Labor Day to next Memorial Day
 - ◆ Monday – Saturday:
 - ◆ 7:00 pm – 5:00 am
- ◆ Holiday restrictions

Traffic Backups

- ◆ The first Friday night traffic backed up through downtown
- ◆ Second night, Contractor delayed bridge closure.
 - ◆ Backups still occurred
- ◆ Adjustments in time restrictions began in early May
- ◆ Extension of Intermediate Contract Number 3 was granted.

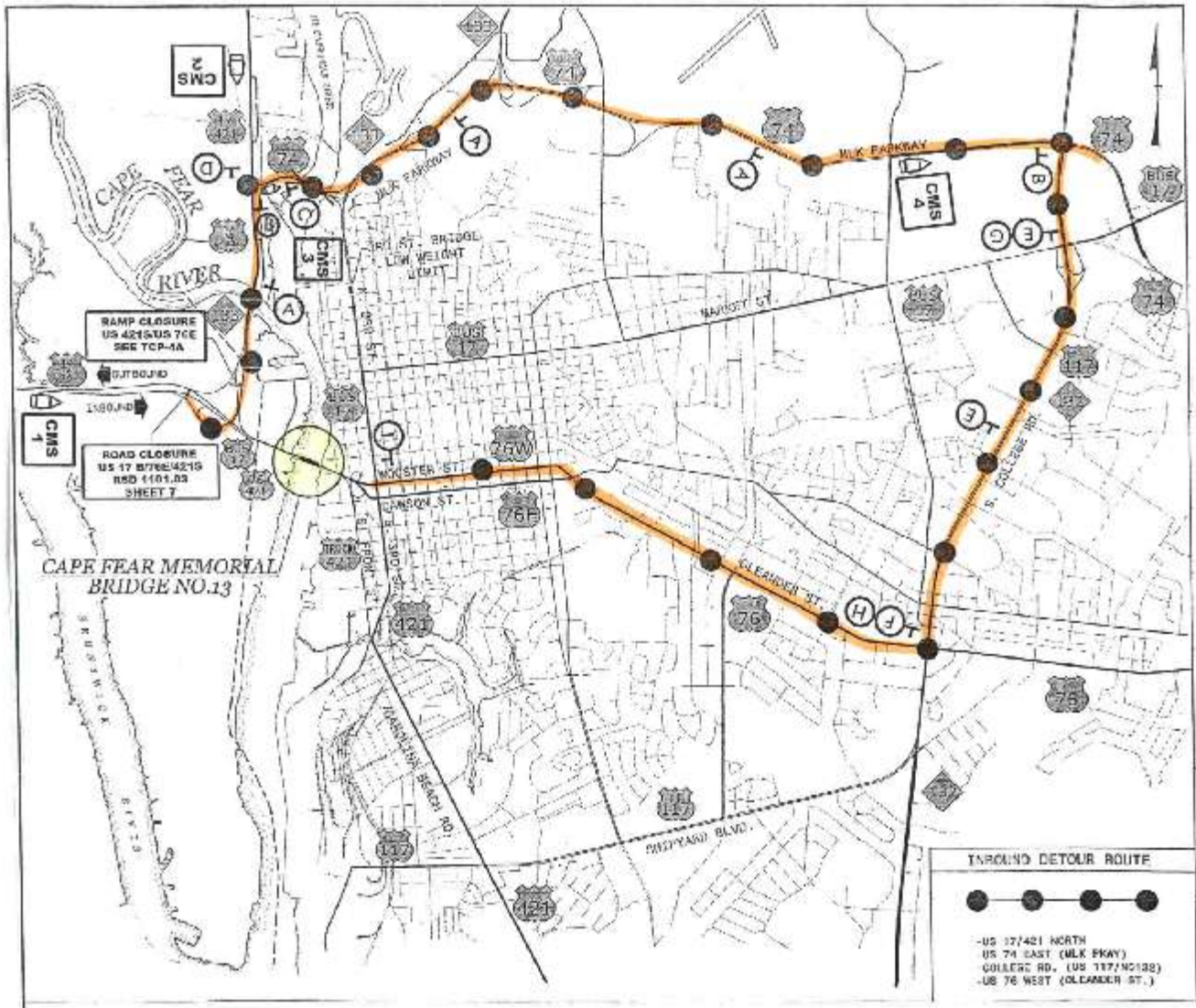


Traffic Control



Bridge Closure Detour Route

- ◆ Twelve mile detour route for bridge closures
- ◆ Requires 14+/- variable message boards
- ◆ 28+/- sets of detour signing
- ◆ Type III Barricades
- ◆ Drums and cones
- ◆ Detour signing remains
- ◆ Everything else must be set up for each closure
- ◆ 1.5 hours to install



CAPE FEAR MEMORIAL
BRIDGE NO.13

RAMP CLOSURE
US 4219/US 7CE
SEE TCP-1A

ROAD CLOSURE
US 17 N/NE 4219
RSD 1101.02
SHEET 7

AROUND DETOUR ROUTE

- US 17/421 NORTH
- US 74 EAST (MILK PWAY)
- COLLIER RD. (US 117/NO132)
- US 76 WEST (OLEANER ST.)



DETOUR

WEST

76

17

←

NORTH

421

NORTH NORTH
117 132
UNCW
←

76 EAST
Wrightsville Be
↓

Albert F. Rexin

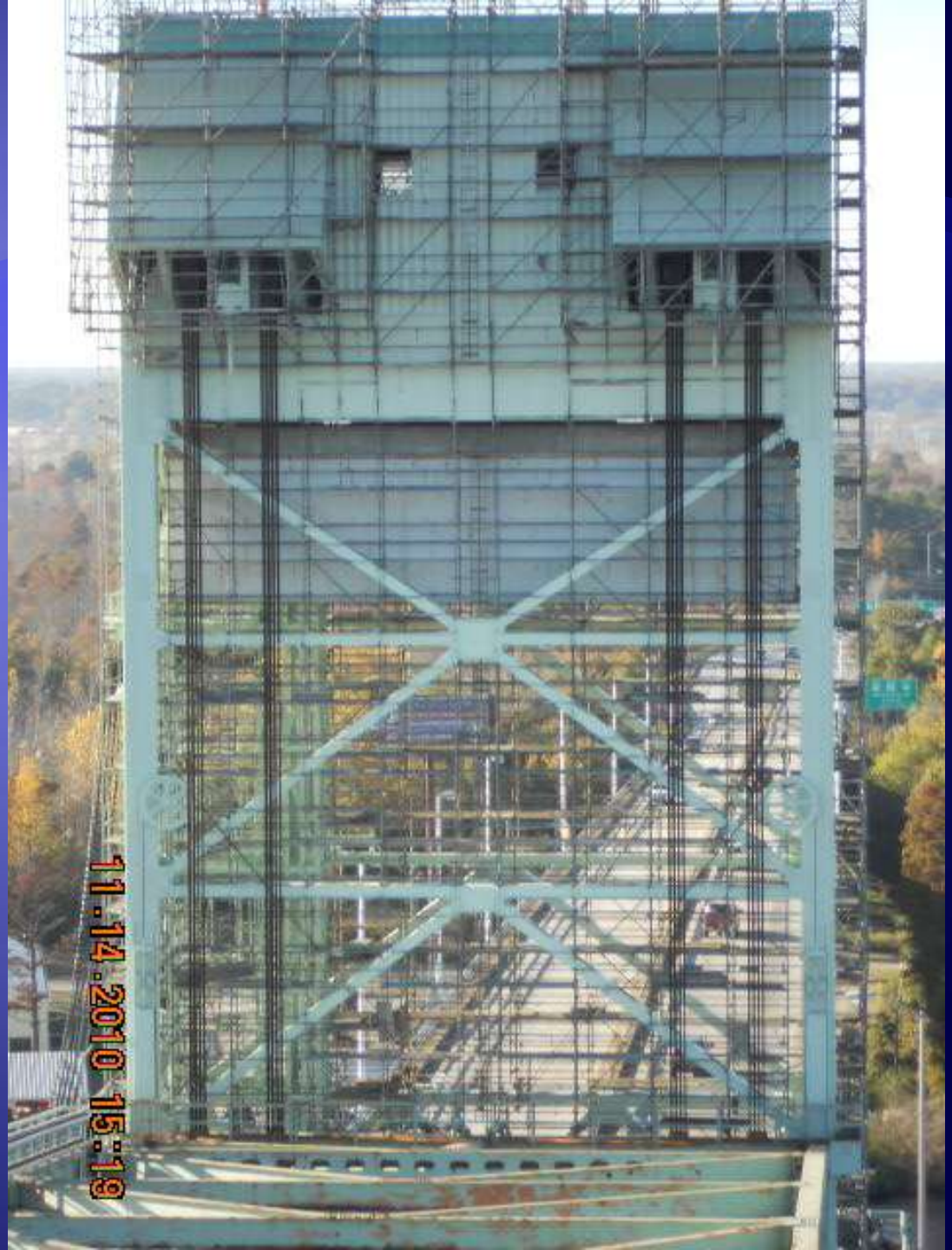


Scaffolding installation





- ◆ Installation slow
- ◆ Night time work
- ◆ Required Bridge closures







Containment Installation



Containment Issues

- ◆ Bridge that opens daily
- ◆ Must be able to open with one hour notice
- ◆ Time restrictions on Bridge closures
- ◆ USCG variance for river clearances is half a span at a time with only a 4 ft reduction
- ◆ Span balance maintained at all times

Tower Containment Issues

- ◆ Counterweights in tower must move freely
- ◆ Lift span must also be allowed to move
- ◆ Timely cleanup prior to openings

SLIPPERY WHEN WET











Lift Span Containment Issues

- ◆ Work schedule:
- ◆ Sunday thru Thursday 9:00 Pm to 5:00AM
- ◆ Maintaining minimum temperatures for curing
- ◆ Opening bridge on time before rush hour
- ◆ Bridge openings at any time
- ◆ Considering Saturday 11:00 Pm to 10:00 Am
Sunday Closures until Tourist season
- ◆ Monitoring traffic ; adjusting lane and bridge closures



Tackling a Big project

Summary and Conclusions:

- ◆ Constructability Reviews
- ◆ Pre-bid conference
- ◆ Required site visits
- ◆ Prequalification of Contractors
- ◆ Knowledgeable Inspection Staff


Tackling a Big Project

Lessons learned:

- ◆ Duck and run when BMU calls!
- ◆ Expect problems/changes
- ◆ All parties need to communicate
- ◆ Experiment with contract restrictions if necessary
- ◆ Keep Municipalities and public informed
- ◆ Coordinate with Coast Guard

Questions?





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