



AECOM Bridge Practice

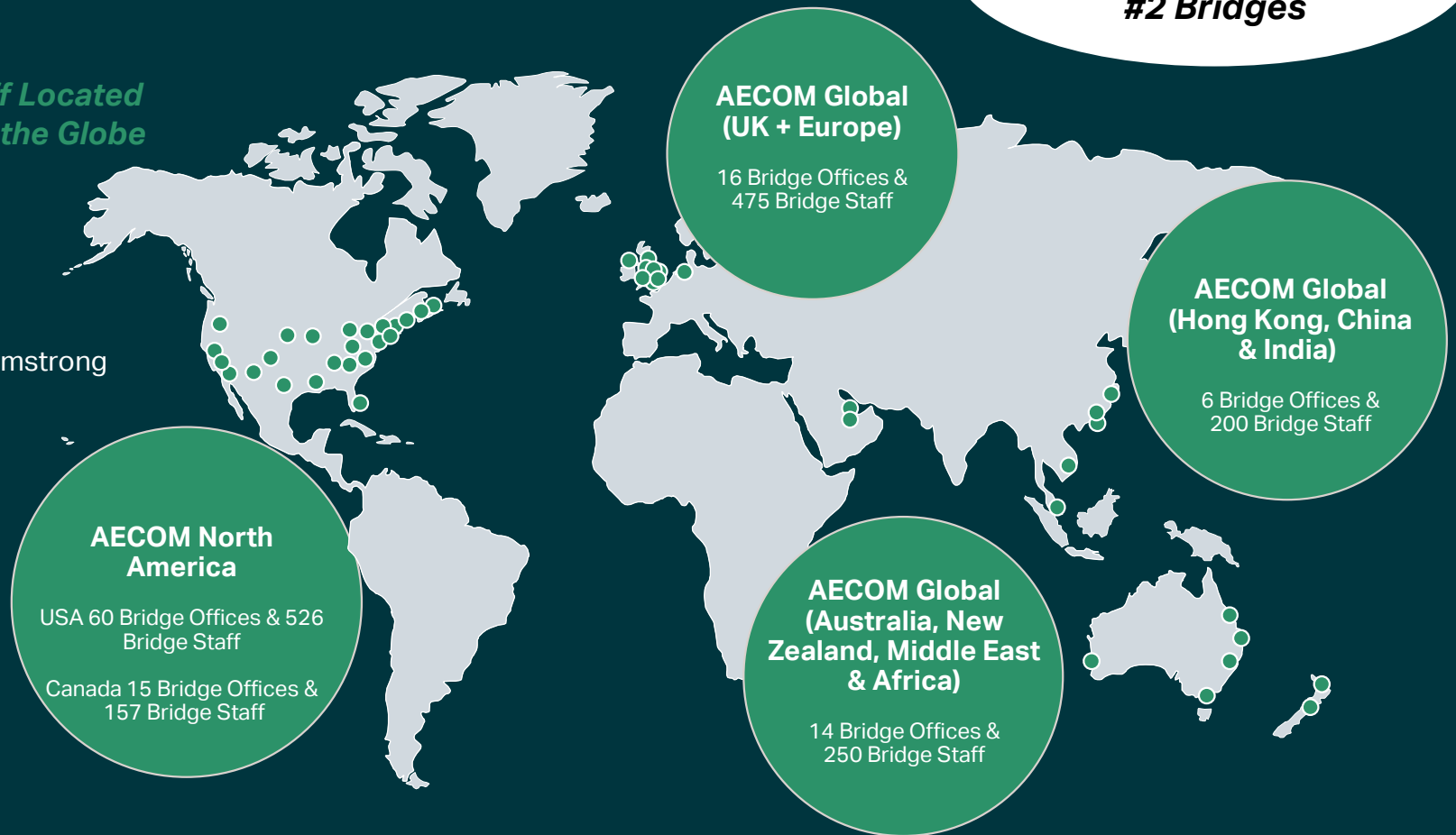
Ironton Russell Bridge over the Ohio River, OH & KY

AECOM Global Bridge Practice

**2022 ENR Rankings:
#1 Transportation
#2 Bridges**

*Over 1608 Bridge Staff Located
in 111 Offices Around the Globe*

URS: Greiner & EC Driver
Maunsell & Faber Maunsell
Earth Tech: TAMS & JMI
DMJM+Harris: LoBuono Armstrong
CTE



How AECOM DCS Americas Delivers Bridge Projects



Three-Part Technical Structure Since 2004

- Local Knowledge is provided by our regional offices
- National Strength & Innovation is provided by our Complex Bridge Practice
- International Expertise is provided by our Global Complex Bridge Practice

A Quality Driven Practice: Technical Excellence; Communication; Collaboration; and Continuity

**Global Transportation
Business Line
Chief Executive**
Mark Southwell

Global Practice Leaders
Robin Sham (APAC)
Kandiah Kuhendran (EUR)
Ausaf Haris (MEA)
Tony Willis Aus/NZ

**Complex Bridge Practice Director
DCS Americas Transportation**
Ken Butler, PE

**East Region
Chief Executive**
Bane Gaiser

**West Region
Chief Executive**
Matt Crane

Chief Bridge Engineer
Joe Tse, PE

Bridge Quality Director
Rick Land, PE

**Preservation and
Rehabilitation Practice
Leader**
Barry Colford, PE

Bridge Architecture
Bradley Touchstone, FAIA

Technical Practice Leads
Eric Nelson, PE
Barry Chung, PE
Nathan Porter, PE
Bob Anderson, PE
Steve Matty, PE
Firooz Panah, PE

**Inspection Practice
Leader**
Brett Canimore, PE

AMERICAS BRIDGE PRACTICE

Global
East
West



Director, Complex Bridges Ken Butler, PE

Background & Experience



38 years of
experience in
complex
structures
design

Harry Nice Bridge Replacement, MD (DB)

Frederick Douglass Memorial Bridge, Washington DC (DB)

Arlington Memorial Bridge, Washington DC (DB)

Charles Cullen Bridge, DE (DB)

Carolina Bays Parkway, SC (DB)

Florida Avenue Bridge, LA (DBB)

I-49 Connector, LA (DBB)

Natchez Trace Parkway Arches, TN (DBB)

Senator Roth Bridge, DE (DBB)

Richmond San Rafael, CA (DBB)

William Clark Bridge, IL (DBB)

IH-35 Brazos River, TX (DBB)



Registered PE:

VA, FL, MD, PA, NY, NJ,
SC, NC, CA, D.C, DE, LA,
OH, KY



Chief Engineer, Complex Bridges

Joe Tse, PE, P.Eng

Background & Experience

Gordie Howe International Bridge P3, Detroit MI – Windsor Ontario. *Sr. Bridge Engineer, Final Design & Construction Support*

Kosciuszko Bridge – NY. *Sr. Bridge Engineer, Technical Support – All Phases of Design*

Pearl Harbor Memorial Bridge over the Q-River – CT. *Sr. Bridge Engineer, Design & Construction – All Phases*

Bayonne Bridge Navigational Clearance Project – *Team Leader on Constructability Review & Technical Support in Design & Construction phases*

JFK AirTrain – NY. *Technical Manager for PANYNJ. Provided Design Review & Construction Support for 8.4-Mile Elevated Guideway Structures*

Burlington-Bristol Bridge – Burlington, NJ. *Lift Span and Truss Approach Spans. Lead Engineer on Inspection, Rehabilitation and Deck Replacement.*

Tacony-Palmyra Bridge, PA-NJ – Bascule, Tied Arch & Truss Spans. *Project Engineer for Rehabilitation, Assessment and Emergency Repair.*

✓ 43 years of experience in complex structures design. Experience includes 7 design-build and 3 P3 projects

✓ Affiliations include ASBI-PCI Committee for Segmental Standards & PTI Committee on Cable-stayed Bridges.

Registered PE: NY, NJ, VA, DE, FL, GA, KY, MD, MI, MN, OR, TN

Registered P.Eng: ON, BC





Preservation & Rehabilitation Practice Leader

Barry Colford, PE

Background & Experience

✓ 43 years of experience in bridge design and complex bridge preservation and rehabilitation

Twin Delaware Memorial Suspension Bridge Rehabilitation (\$40 million) – DE& NJ.
Project Director

Anthony Wayne Bridge Suspension Bridge Rehabilitation (\$17 million) – OH.
Project Director

Ben Franklin Bridge (\$30 million) – PA & NJ.
Project Director

Strategic Plan for Service Life Extension of Verrazzano Narrows, RFK, Bronx Whitestone and Throgs Neck Suspension Bridges (\$3 million) – NYC, NY. *Project Director*

Commodore Barry Bridge Rehabilitation (\$40 million) – Technical Advisor

Verrazzano Narrows Bridge, Biennial Inspection (\$1 million) – NYC, NY.
Cable Specialist

Bronx Queens Expressway (\$6 million) – NYC, NY. *Preservation Panel Member*



Bridge Quality Director

Rick Land, PE

Background & Experience

 **42 years of experience in project delivery, structure design and construction. 36 years with Caltrans at various levels & positions.**

Registered PE: CA

Caltrans Chief Deputy Director

- Managed Caltrans internal operations (all programs, ~ 20,000 employees)

Caltrans Chief Engineer and Deputy Director for Project Delivery

- \$2 billion annual delivery of statewide transportation projects (90% in-house design)
- Responsible for statewide project delivery program, policies and procedures

Caltrans State Bridge Engineer

- Responsible for bridge-related project delivery, policies and procedures
- AASHTO Bridge Committee, T-3 Technical Committee Chair for Seismic Design

Owner/Executive Level Involvement in Complex Bridge Projects

- East Spans Replacement, Projects San Francisco-Oakland Bay Bridge
- (Precast Segmental Concrete Approach Spans, Self-Anchored Suspension Bridge)
- Gerald Desmond Bridge Replacement (Cable-Stayed)
- New Benicia-Martinez Bridge (Cast-in-Place Segmental Concrete)
- New Carquinez Bridge (Suspension)

Frederick Douglass Memorial Bridge

District Department of Transportation (DDOT)
Washington, DC

\$474 million (DB)

- Lead Engineering firm and EOR for Archer Western and Granite Construction (South Capital Bridgebuilders)
- New 1,445-ft-long triple-arch bridge with 540-ft-long spans
- 100-year service life
- I-295 Reconstruction & Two Large Traffic Ovals
- Open to traffic September 2021 and Final Completion Spring 2023
- ACEC Pinnacle Award Winner

Financials:

- ❖ Gross Revenue: \$45M
- ❖ NM/NSR: 16.72%
- ❖ NM/GR: 11.5%
- ❖ DLM: 2.81

Arlington Memorial Bridge

National Park Service & FHWA - EFLHD
Washington D.C.

\$197 million (DB)

- Lead Engineering firm and EOR for Kiewit
- Removed Bascule Span and replaced with fix spans
- Removed deck and replaced with precast deck
- Removed & replaced internal pier support system
- 75-year service life
- Open to traffic December 2020 (1000-day schedule)

Financials:

- ❖ Gross Revenue: \$12.2M
- ❖ NM/NSR: 25%
- ❖ NM/GR: 16%
- ❖ DLM: 3.09

Nice / Middleton Bridge DB

Maryland Transportation Authority (MDTA)
Newburg, MD

\$463 million (DB)

- Lead Engineering firm and EOR for Skanska Corman McLean
- 1.9-mile replacement bridge over the Potomac River
- 100-year service life
- Demolition of existing structure
- Open to traffic October 12, 2022

Financials:

- ❖ Gross Revenue: \$31.6M
- ❖ NM/NSR: 37%
- ❖ NM/GR: 21%
- ❖ DLM: 3.51

Gordie Howe International Bridge P3

Windsor-Detroit Bridge Authority
Windsor, ON & Detroit, MI



\$5.7 billion (P3)

- Lead Engineering firm and EOR for Dragados, Fluor & Aecon for the new 1.5-mile-long bridge
- 2,798-ft-long main span, the longest cable-stayed bridge in North America (1,171 & 1,155-ft-long side spans)
- 722-ft tall pylons & 138-ft vertical navigation
- Substantial Completion: Fall 2024

Selmon Expressway – West Extension DB

Tampa Hillsborough Expressway Authority (THEA)
Tampa, FL

\$230 million (DB)

- Lead Engineering firm and EOR for Kiewit
- 1.3-mile-long precast segmental viaduct
- Open to traffic April 2021



I-49 Lafayette Connector

Louisiana Department of Transportation &
Development (LDOTD)
Lafayette, LA

\$1.2 billion (CMAR TBD)

- 3.5-mile-long urban precast segmental viaduct with signature bridge as centerpiece
- SEIS & Preliminary Engineering On-going

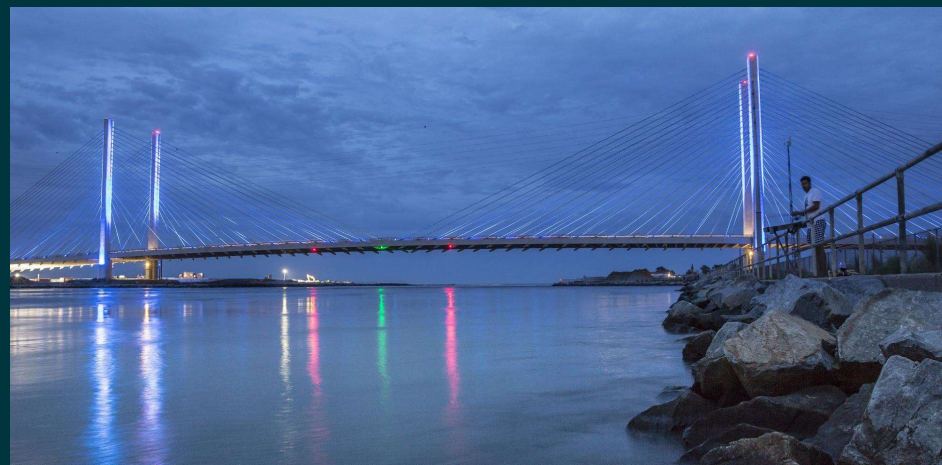


Charles Cullen Bridge

Delaware Department of Transportation (DelDOT)
Rehoboth Beach, DE

\$150 million (DB)

- EOR responsible for final design, and construction phase services
- Concrete cable-stayed bridge with a main span of 950 feet. Cast-in-place edge girder deck system
- Provided Load Rating and Maintenance and Inspection Manuals
- Completed 2012



Ironton Russel Bridge

Ohio Department of Transportation (ODOT)
Ironton, OH

\$75 million (DBB)

- EOR for ODOT responsible for the preliminary design, final design, and construction phase services
- 1,642-ft long concrete cable-stayed bridge with a 900-ft long main span
- Provided Load Rating and Maintenance and Inspection Manuals
- Completed 2015



US 60 Bridge over Tennessee River

Kentucky Transportation Cabinet (KYTC)
Paducah, KY

\$66 million (DBB)

- Lead Engineering firm and EOR
- 1,800-ft long bridge with 400'-900'-500' spans (8th longest in world)
- Rigorous seismic demand
- Completed 2013

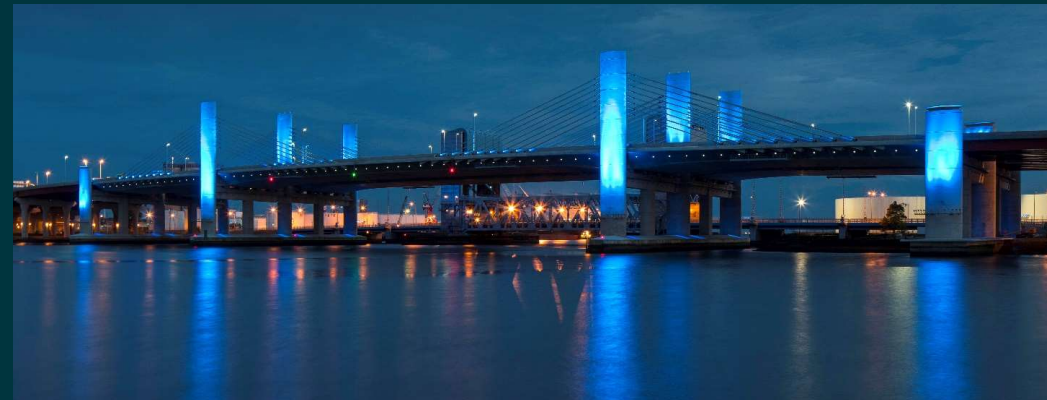


Pearl Harbor Memorial Bridge

Connecticut Department of Transportation (ConnDOT)
New Haven, CT

\$550 million (DBB)

- Lead Engineering firm and EOR
- Twin 3-span structures with 515-ft extradosed cable-stayed spans
- Currently performing Load Rating & Health Monitoring
- Completed 2015





Conventional Bridge Projects

Ironton Russell Bridge over the Ohio River, OH & KY

I-90/94 at I-290 (Circle Interchange)

Illinois Department of Transportation (IDOT)
Chicago, IL

\$800 million (DBB)

- Lead Engineering firm and EOR
- 30 bridges (8 complex curved girders)
- Major MOT/Phasing (400k vpd -most congested in nation)
- Completed 2022



I-595/I-95/FL Turnpike

Florida Department of Transportation (FDOT)
Fort Lauderdale, FL

\$1.22 billion (PPP)

- AECOM was the Lead Engineering firm to a Dragados
- Widening of 10.5-miles of freeway: 3 new reversible toll lanes; and 2.7-miles of tollway with direct express lane connections
- 9 interchanges (including 2 system-to-system, 63 bridges, 150 utility conflicts)
- MOT in highly congested area (200,000 vpd)
- Completed 2014



I-635 LBJ East

Texas Department of Transportation (TxDOT)
Dallas, TX

\$1.74 billion (DB)

- Lead Engineering firm to Fluor / Balfour Beatty CJV for reconstruction and widening 11.2 miles of I-635 from 12 lanes to 22 lanes
- Reconstruction of a major interchange at I-30
- Reconstruction of over 60 bridges including a signature 300 ft span tied arch bridge
- 2024 completion



I-35E/I-30 Horseshoe

Texas Department of Transportation (TxDOT)
Dallas, TX

\$715 million (DB)

- I-35 / I-30 East Segment Lead for a Fluor / Balfour Beatty CJV with 21 bridges and 26 retaining walls
- 150+ utility adjustments
- Complex urban maintenance of traffic plan (460,000 vpd) with extensive traffic control and drainage design
- Completed 2017





Preservation Projects

Ironton Russell Bridge over the Ohio River, OH & KY

Delaware Memorial Bridge Rehabilitation

Delaware River and Bay Authority (DRBA)
New Castle County, DE

\$40 million

Main cable and anchorage dehumidification of both eastbound and westbound suspension bridges. Design of the system and construction monitoring.

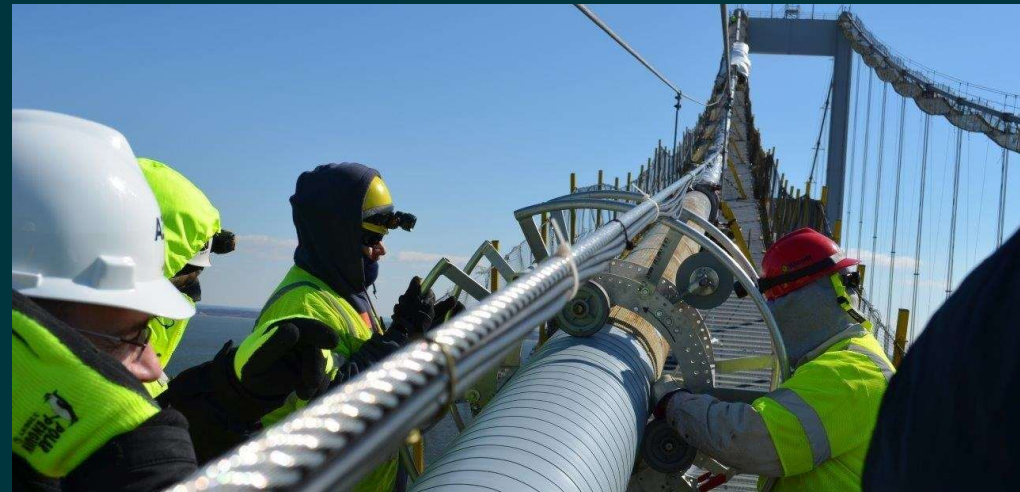


William Preston Lane Jr. Memorial Bridge Suspension Cable Dehumidification

Maryland Transportation Authority (MDTA)
Annapolis, MD

\$36 million

Main cable and anchorage dehumidification of both eastbound and westbound suspension bridges. Design of the system and construction monitoring

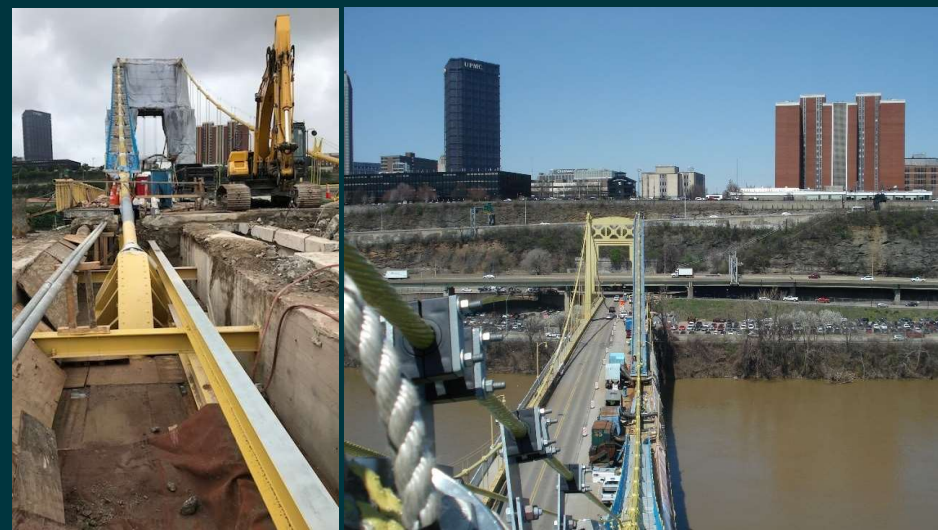


South Tenth St. Bridge Rehabilitation

Allegheny County
Pittsburgh, PA

\$20 million

Providing design and construction monitoring of the rehabilitation of the of the bridge. Work includes main cable and anchorage dehumidification; cable band bolt tightening; steelwork repairs and painting



Anthony Wayne Bridge Rehabilitation

Ohio Department of Transportation (ODOT)
Toledo, OH

\$17 million

Providing design and construction monitoring of the rehabilitation of the bridge. Work includes main cable and anchorage dehumidification; cable band bolt replacement; main cable wire repairs; hand-rope replacement; steelwork repairs and painting



Commodore Barry Bridge Preservation

Delaware River Port Authority (DRPA)
Chester, PA

\$40 million

Providing design and construction monitoring of steel repairs and painting of the 1644 ft longest cantilever span bridge in the US.

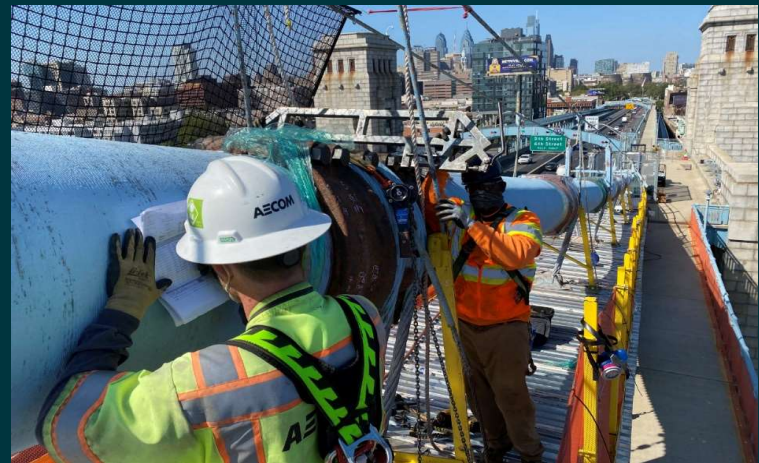


Ben Franklin Bridge Suspended Span Rehabilitation

Delaware River Port Authority (DRPA)
Philadelphia, PA

\$20 million

Providing design & construction monitoring of this \$200 million rehabilitation of the suspended spans of the bridge. Work includes main cable and anchorage dehumidification; cable band bolt replacement; suspender replacement; main cable wire repairs; steelwork repairs and painting.



Strategic Plan for Service Life Extension of the **TBTA Suspension Bridges**

MTA Bridges and Tunnels
(Triborough Bridge and Tunnel Authority – TBTA)
New York City, NY

Carrying out innovative risk analysis to determine the risk prioritization of the main elements of the TBTA's four main suspension bridges. TBTA requested that AECOM carry out similar analysis on all their other structures and two road tunnels.



Rehabilitation of Main Cables and Replacement of Suspender Ropes for the **George Washington Bridge**

Port Authority of NY/NJ (PANYNJ)
Fort Lee, NJ

Providing specialist construction monitoring services for the cable dehumidification on the project; and provided Peer review of rehabilitation





Maintenance Inspections & Health Monitoring

Ironton Russell Bridge over the Ohio River, OH & KY

Maintenance Inspections



Glen Canyon Bridge, AZ

Maintenance Inspections – Steel Trusses



Brent Spence Bridge Inspection – Covington, KY



Commodore Barry Bridge Inspection – Chester, PA



Greater New Orleans #1 Bridge Inspection, LA



Betsy Ross Bridge Inspection – Philadelphia, PA



Vicksburg Bridge Inspection – Vicksburg, MS



Long Allen Bridge Inspection – Morgan City, LA

Maintenance Inspections – Cable Stayed



2010 – Varina Enon Bridge
Richmond, VA



2006 & 2015 –
Zakim Bridge
Boston, MA



1999 though 2011
Senator Roth Bridge
Wilmington, DE



2020 – La Plata Bridge
San Juan, Puerto Rico



2012 – Charles Cullen Bridge
Rehoboth Beach, DE



2018 – US 82 Bridge
Greenville, MS



Sunshine Skyway Bridge
Tampa, FL

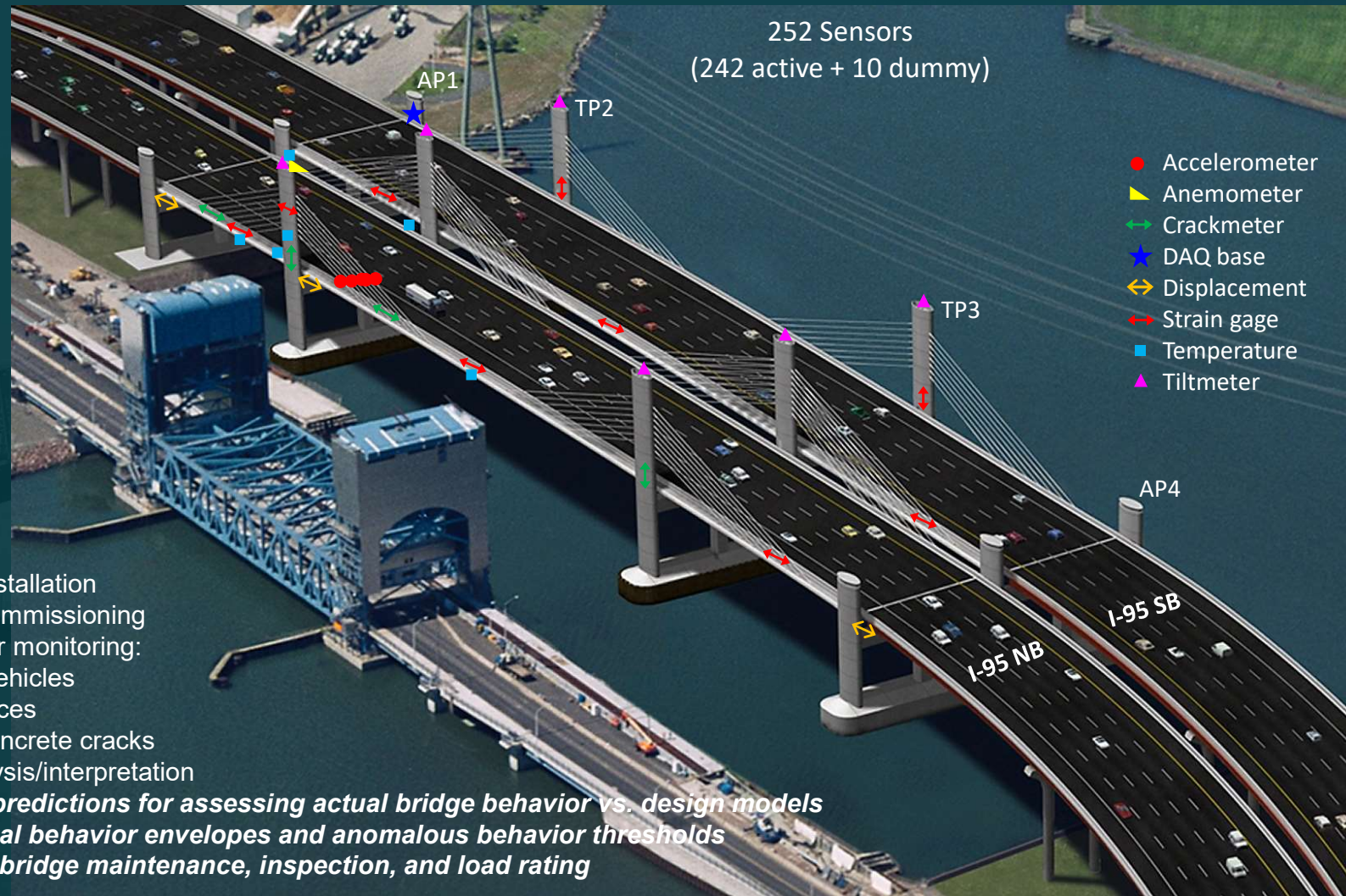


Dames Point Bridge
Jacksonville, FL



Brooklyn Bridge
New York City, NY

Pearl Harbor Memorial Bridge Instrumentation, Evaluation & Health Monitoring



- ❖ Designed 252-sensor SMS
- ❖ Prepared procurement package
- ❖ Inspection & oversight during installation
- ❖ Acceptance testing & system commissioning
- ❖ 3 rounds of testing during 2-year monitoring:
- ❖ Live load test using controlled vehicles
- ❖ Cable plucking test for cable forces
- ❖ Photogrammetric mapping of concrete cracks
- ❖ Data collection/processing/analysis/interpretation
- ❖ **Comparisons with analytical predictions for assessing actual bridge behavior vs. design models**
- ❖ **Establishing parametric normal behavior envelopes and anomalous behavior thresholds**
- ❖ **Recommendations regarding bridge maintenance, inspection, and load rating**

Bridge Instrumentation, Evaluation & Health Monitoring

Varina-Enon Bridge (I-295 over James River)
– External P-T Tendon Evaluation through Vibration Testing



3

AECOM Bridge Instrumentation & Evaluation

AECOM

Complex Bridge FY 2023 Wins

1. Verrazano-Narrows Bridge – Conceptual Design (\$700k+)
2. Simon Kenton Suspension Bridge Rehabilitation (\$1.5M)
3. MTA Park Ave, NY (\$28.4M)
4. Mackay Bridge Cable Strength Evaluation (\$TBD)
5. Natchez Trace Parkway Arches (\$500k)
6. VDOT Rte. 3 Robert Norris Replacement; EA & Constructability Assessment (\$1.1M)
7. ALDOT I-10 Mobile River PDB (\$35M estimated)
8. VDOT Varina Enon Rehabilitation (\$250k)
9. Hennepin (Minnesota) cable investigation: (\$TBD)



I-10 Mobile River Bridge (ALDOT)

\$1.6B PDB teamed with Kiewit

Complex Bridge FY 2023 Key Targets

1. TBTA RK-70/RK-19 (\$400M DB): teamed with Halmar/HNTB; RFQ issued Feb 23
2. VPRA Long Bridge, Washington DC (\$600M PDB + \$750M DB): teamed with Archer Western & Traylor & Kokosing; RFQ expected March 2023
3. ODOT/KYTC Brent Spence Bridge, OH (\$3.1B PDB): teamed with Walsh/Kokosing; Final RFP due 3/31
4. WSDOT SR520 Portage Bay Bridge (\$800M DB): teamed with Skanska; RFP due July 2023
5. Newport/Pell Suspension Bridge cable investigation (\$3M): SOQ expected in March 2023
6. KY8 Licking River Bridge (\$60M PDB): teamed with Walsh; RFP due end of Feb
7. Wallups Island Bridge, VA (\$80M DB) teamed with Skanska
8. **I-95 over Lake Marion, SC (\$331M DB) teamed with Skanska – no go??**
9. I-10 Bayway, AL (\$1B PDB) teamed with Kiewit as IQF
10. **Talmadge Cable Stay Bridge, Savannah, GA (\$175M CMGC) – no go??**



Brent Spence Bridge Project (ODOT & KYTC)

\$3.1B PDB teamed with Walsh/Kokosing

A large cable-stayed bridge with a white concrete structure and blue cables, spanning a body of water. A small white boat is moving across the water in the foreground. The sky is clear and blue. The bridge's design features a tall central pylon and multiple stay cables. The water is a dark greenish-brown color. In the background, there is a rocky shoreline with some construction equipment and a red container.

AECOM

Charles Cullen Bridge over Indian River Inlet, Rehoboth Beach, DE

Delivering a better world