



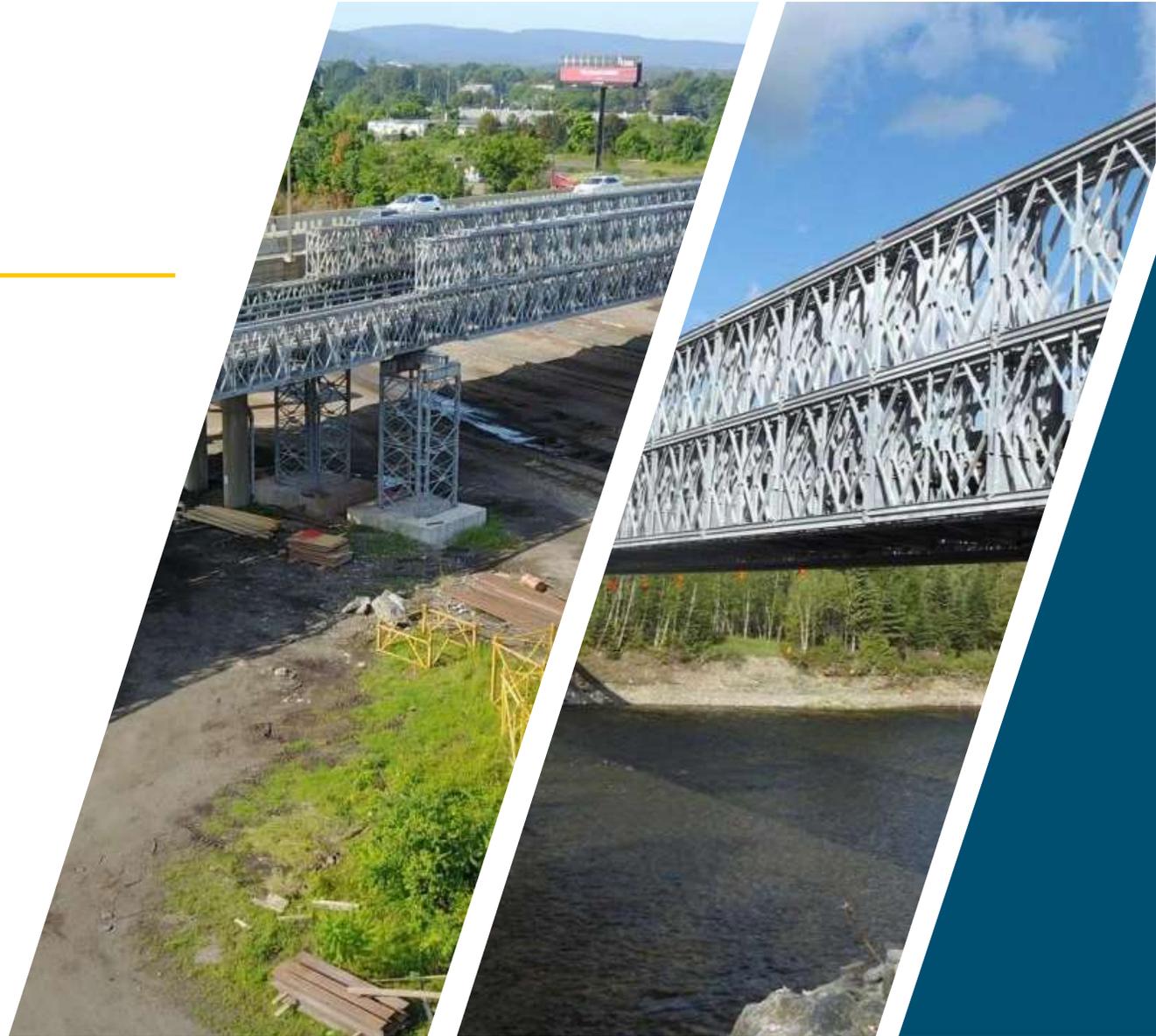
TEMPORARY STEEL BRIDGES

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ACROW

OVERVIEW

- Why Temporary?
- Why Steel?
- Temporary Applications
- About Acrow
- Why Acrow?
- Q&A



THE CHALLENGE

- “36 percent of U.S. bridges — nearly 224,000 spans — need repair work. 78,800 bridges should be replaced.”
- “More than 43,500 bridges are rated in poor condition and classified as “structurally deficient.”
- “If placed end-to-end, these bridges would stretch over 6,100 miles — long enough to crisscross the country from Los Angeles to Portland, Maine and back again.”

Source: ARTBA 2022 Bridge Report Summary

WHY TEMPORARY STEEL BRIDGES?

- Cost
- Speed of assembly and installation
- Safety
- Versatility
- Transportability
- Sustainability
- Durability
- Reusability



DETOUR / BYPASS



CONSTRUCTION



MILITARY



EMERGENCY



TYPICAL DESIGN CRITERIA

- Bridge span(s), roadway width and loading
- Loading Design - ASD, LRFD, MLC, Heavy Haul
- Bridge deck type:
 - Plain steel for Asphalt Overlay
 - Steel deck with shop-applied anti-skid coating
 - Timber decks – Wood locally supplied/Crane Mats
 - Stone Filled Pans
- Guard Rail Test Level Design TL-1 through TL-4

TYPICAL BRIDGE SPECIFICATIONS

BRIDGE

- Designed to meet AASHTO LRFD, ASD, HS-20, HS-25, HL-93 or applicable State and permit loads
- Bridge roadway widths (12' through 42')
- Simple span bridges (10' through 300')
- Pedestrian bridges (5', 6', 8', 12' wide - lengths to 200')
- Single or multiple spans, Independent or Continuous, (Length unlimited)

BRIDGE DECK

- Steel orthotropic roadway deck units
- Driving surface options (asphalt, anti-skid, and plain steel)
- Wood

DETOUR / BYPASS

- Accelerated Bridge Construction
- Versatile, temporary access
- Length, width and strength are easily customizable
- Safe detours around construction sites
- Rapidly installed in days
- Increased safety for motorists
- Economical
- Main line Interstate or Secondary roads



DETOUR

TEXAS DOT

Nacogdoches County, Texas.

Temporary modular steel bridge for detoured traffic during highway construction.

Keeping the same horizontal alignment and maintaining two lanes of traffic on the Texas DOT-designated Hurricane Evacuation Route was a legal mandate.

- Bridge: 130' clear span
- Width: 24'



I-91 MULTI-YEAR INTERSTATE RENOVATION

Eight Steel temporary towers ranging from 29 to 38' in height were used the temporary bridge

- Bridge: 500' – 5 spans
- Width: 2 Lanes - 30' between curbs
- Design Load: HL-93
- Guard Rail designed for Test Level 4



I-295, CAMDEN COUNTY, NEW JERSEY

Steel Temporary bridge structure is serving as a detour over a dozen lanes of I-295 and Route 42 during the replacement of the Browning Road Bridge.

Two cantilevered footwalks, one for pedestrians and one to carry utilities.

- Bridge: 450' – two spans
- Width: Two Lanes - 24'
- TL 4 Designed Guide Rail



STATE HIGHWAY 92, DELTA, COLORADO

Replacement of a three-span steel camelback pony truss built in 1938

- Bridge: 250' Clear Span
- Width: Two Lanes – 30'
- Design Load: HL-93
- TL 4 Designed Guardrail



KAUAI, HI

Temporary bridge was built in only eight days and expected to be in use through the completion of the replacement of the existing Kapa'a Stream Bridge.

Average Daily Traffic of approximately 12,600 vehicles.

- Span: 210'
- Width: 24' – two lanes
- TL4 Designed Guardrail



DETOUR BRIDGE I-80 WB, PARK CITY, UT

Crossover was too expensive
due to grade differential

- Length: 360' 3-span bridge
- Width: 13' 7"
- Design: Load: HL-93



DETOUR BRIDGE RYE, NY

Route 287 EB to I-95 NB
Heavily-travelled interstate
traffic

In place for 2 years

4% cross slope, Asphalt

- Length: 390' multi-span
- Width: 36'
- Design Load: HS-25



BYPASS BRIDGE

I-10 Tucson, AZ

Asphalt

- Length: 200' clear span bridge
- Width: 30'
- Design Load: HL-93
- TL 4 Designed Guardrails



BYPASS BRIDGE INTERSTATE I-80

Rockaway, NJ

3 lanes wide

- Length: 170' single span
- Width: 3 Lane – 36'
- Design: Load: HL-93
- TL 3 Thrie Beam Guardrail



DETOUR BRIDGE BINGHAMTON, NY

Route I-81/Route 17
Interchange

Main Span over Norfolk
Southern RR

- 7 sets of steel temporary towers
- Length: 990' (6 spans)
- Width: 18'
- Design Load: HS-20
- TL3 guardrail

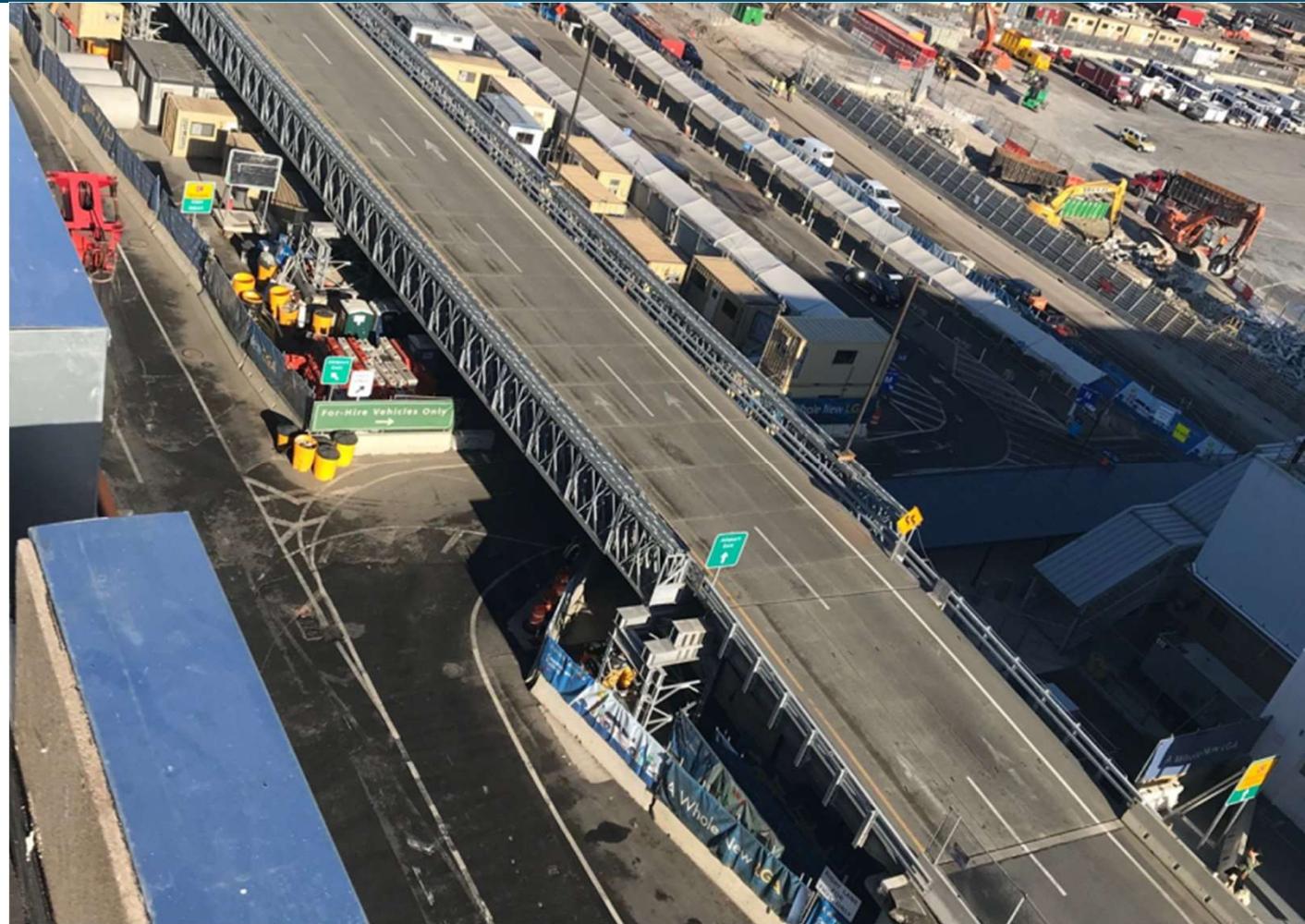


DETOUR BRIDGE

LaGuardia Airport, Delta
Airlines Terminal C+D

Part of the LaGuardia Airport
\$8.0B reconstruction

- Length: 460' total (in 6 spans)
- Width: 30'
- Design Load: HS20-44



RAIL BRIDGE

CSX Railroad, Ohio

- Length: 125'
- Width: 18'
- Design Load: Cooper E-80



RAIL BRIDGE

Barclay Center

Atlantic Yards

Brooklyn, NY

Reconstruction of MTA Yard

- Length: 4 span continuous bridge (90'-90'-90'-80')
- Design load: Cooper E-60



RAIL BRIDGE

London, ON

- Length: 70'
- Width: 18'
- Design Load: Cooper E80



MOVABLE BRIDGE

Quincy, MA

Fore River Bridge

In place 14 years

2 – 2L bridges side by side

20 approach spans also provided

Vertical lift of 90' to provide clearance for large ships

- Length: 210'
- Width: 2 x 2 Lane – 24'
- Design Load: HS 20



MOVABLE BRIDGE

Martha's Vineyard, MA

Bascule/draw bridge

Acrow provided the approaches and the bascule

Full package, including mechanical, electrical and control systems

- Spans: 80' / 60' / 90'
- Width: 2 Lane – 24'
- Design Load: HS-20



PEDESTRIAN BRIDGE

- Length: 70'
- Width: 5' Box Bridge
- Design Load: 85 PSF



BOX TYPE PEDESTRIAN BRIDGE

Metro North

Acrow shoring towers

Acrow excludes ramps, stairs,
roofing etc.

- Length: 60'
- Width: 8'
- Design Load: 90 PSF



CONSTRUCTION

- Versatile, durable, cost-effective
- Length, width and strength are easily customizable
- Rapidly installed within days using minimal equipment, labor and build area
- Full highway load-carrying capability to support both standard and heavy-duty applications
- Fast, easy assembly and disassembly with minimal equipment
- Easily transported in standard shipping containers



CONSTRUCTION ACCESS

Massachusetts

- Length: 100', 60' & 40'
- Width: 13'-7"
- Design Load: HS-25 / IMT AF-180D



CONSTRUCTION ACCESS

Twin engine Cat 657 scraper
designed

Over Highline Canal

Littleton, CO

MSE type abutment

- Length: 50'
- Width: 18'
- Wood Deck



SITE ACCESS

Power Transmission Line

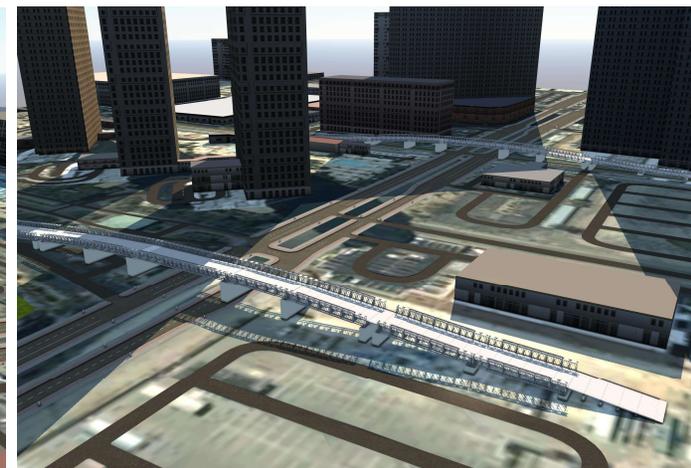
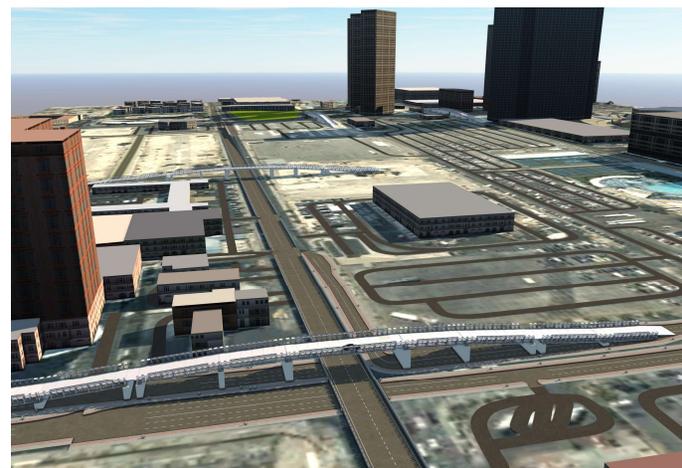
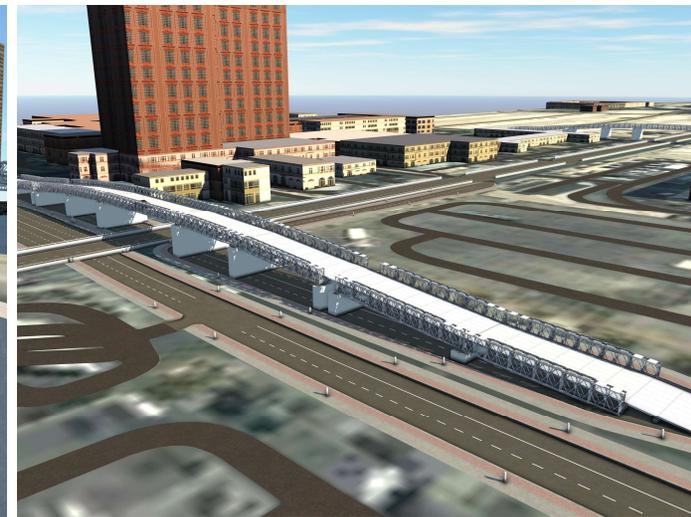
- Length: 80'
- Width: 14'
- Design Load: HS25



SITE ACCESS

Las Vegas F1

- 4 Bridges
- 700' Multi-Span bridges
- Design Load: HL93



BEAM BRIDGE SITE ACCESS

Power Transmission Line
Project

- Length: 45'
- Width: 14'
- Loading: HS25



BEAM BRIDGE

Town Bridge

Eastern Connecticut

- Length: 45'
- Width: 12'



BEAM BRIDGE

Monroe State Forest

Monroe, MA

- Length: 45'
- Width: 12'
- Design Load: HL-93



BEAM BRIDGE

Construction Access

Connecticut

- Length: 35'
- Width: 18'
- Design Load: HS-25



PIPE & UTILITY BRIDGE

Utilized a bridge to carry gas pipes

- Length: 140'
- Width: 8'
- Design Load: Pipe loading



PIPE BRIDGE

2 Bridges & 4 Towers for 3 x 24" Sewer Bypass HDPE pipes

- 4 x 18' – 11 1/8" towers
- Bridge 1 – 135' x 6'
- Bridge 2 – 100' x 6'



MILITARY

- Mission-critical infrastructure
- Line of Communication Bridges
- **Commercial Off The Shelf - COTS**
- Rapid deployment
- Military and humanitarian response



MILITARY BRIDGE

Wet Gap Bridge located in Qayyarah, Iraq

- Length: 787.40' (240m)
- Width: 13.78' (4.2m)
- Design Load: MLC
80T/110W



MILITARY BRIDGE

Dry Gap Bridge, Aberdeen Test Center

- Length: 170'
- Width: 16.4'
- Design Load: MLC-120T/150W



EMERGENCY

- Accelerated Steel Bridge Construction
- Rapidly assembled and installed
- Length, width and strength are easily customizable
- High-quality U.S. steel from ISO-certified mills and galvanized to protect against corrosion
- Full highway load-carrying capability to support both standard and heavy-duty applications
- Steel facilitates fast, easy assembly and disassembly with minimal equipment



EMERGENCY

BRITISH COLUMBIA, CANADA

The bridge replaces a section of road damaged during heavy rains.

- Bridge: 260' clear span
- Width: 13.78'
- TL-2 guardrail system



EMERGENCY SKAGIT RIVER, WA

I-5 Bridge Collapse

Acrow provided two bridges
within a week

Start to finish, opened in 15
days

- Length: Each Bridge = 160-
foot clear span
- Width: 2 Lane – 24'
- Design Load: HL-93
- TL4 Designed Guardrail



EMERGENCY

US 85. Lusk, WY

3 weeks before the 75th Anniversary of the Sturgis, SD motorcycle rally, this major artery from I-25 and I-80 to Sturgis was shut down.



EMERGENCY FIXED IN TIME

US 85. Lusk, WY

Built with WYDOT owned Acrow bridging, WYDOT crews and Contractor + Acrow support

- Length: 200' clear span
- Width: 2 Lane – 24'
- Design Load: HL-93



EMERGENCY

Spencer Dam, NE

Route 281 over the Niobrara River

- Length: 600' multi-span bridge (6x 100' continuous spans)
- Width: 18'
- TL4 Designed Guide



EMERGENCY I-95 BRIDGEPORT, CT

Tanker truck fire shut down I-95

Triple Single Reinforced
(TSR3)

- Length: 80'
- Width: 36'



EMERGENCY PAHI'I STREAM BRIDGE

7.0 Magnitude Earthquake
Difficult and very remote
location, providing only
access for over 700 people in
Maui

- Length: 140'
- Width: 13' 7"
- Design Load: HL-93



EMERGENCY

LOUISIANA DOTD

Temporary two span bridge that restores critical route to residents impacted by hurricane Ida.

Steel components delivered over a two-week period

- Bridge: Two 100-foot-long spans
- Width: 24'



EMERGENCY HURRICANE IVAN FLORIDA

I-10 bridge over Pensacola Bay (built using FDOT-owned Acrow bridging inventory)



EMERGENCY HURRICANE KATRINA

New Orleans, LA

Most aggressive bridge project at the time (2005) – supplied in 3 months!

Existing spans were 65ft.

Water damaged piers and we filled in with Acrow Bridge

- Length: 4,220'
- Width: 2 Lane – 24'
- Design Load: HS-25



EMERGENCY WORLD TRADE CENTER 9/11

Worker access sidewalk and
five support piers.

Epoxy deck and cantilevered
walkway

Was utilized for several years.

- Length: 460' long
- Width: 30' wide

Photo shows final 80-ton
column transported between
honor guard.



PONTE LENZINO, TREBBIA RIVER VALLEY, ITALY

Restoring traffic after flooding caused the partial collapse of the bridge.

Construction of the temporary structure took just 12 days

- Bridge: 180' single span
- Width: 24'
- Design Load: Eurocode loads up to 44 metric tonnes



SUMMARY

WHY STEEL?

- Availability
- Cost
- Sustainability
- Significantly less time on site due to prefabrication
- No forms to build, and strip
- Better quality control
- No negative impact caused by weather, lighting, etc.
- Fabrication in precision jigs and robotic welding
- Lighter in weight, therefore less expensive substructure required
- Steel is almost 100% recyclable
- Easier to modify
- Historically proven that steel bridges outlive concrete bridges
- Easier maintenance and inspection
- Achieve longer spans, so less expensive if you can eliminate piers
- Rehabilitate to extend life span
- Quicker installation times

WHY ACROW?

- Proprietary, proven, advanced modular steel technology
- Expertly manufactured in the USA using high-quality, high-strength steel
- Easily customizable solutions to desired length, width and strength
- Precision-engineered and designed for safety and durability
- Hot-dip galvanized to eliminate corrosion and minimize maintenance
- Rapid installation with minimal labor and equipment
- Engineering support from start to finish
- Delivered in partnership with key stakeholders

ACROW

ABOUT ACROW

- Established in 1951
- World leader in design, engineering and manufacture of prefabricated modular steel bridges
- Headquartered in Parsippany, NJ
- Manufacturing Facilities in Milton, PA, and Lydney, Gloucestershire, UK
- Staging yards in Lafayette, NJ, Eden NC and Centralia, WA
- Proprietary steel technology derived from the Bailey Bridge



PERMANENT



TEMPORARY



MILITARY



EMERGENCY



DEVELOPMENT
PROGRAMS

ACROW



ACROW

C O N N E C T S

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