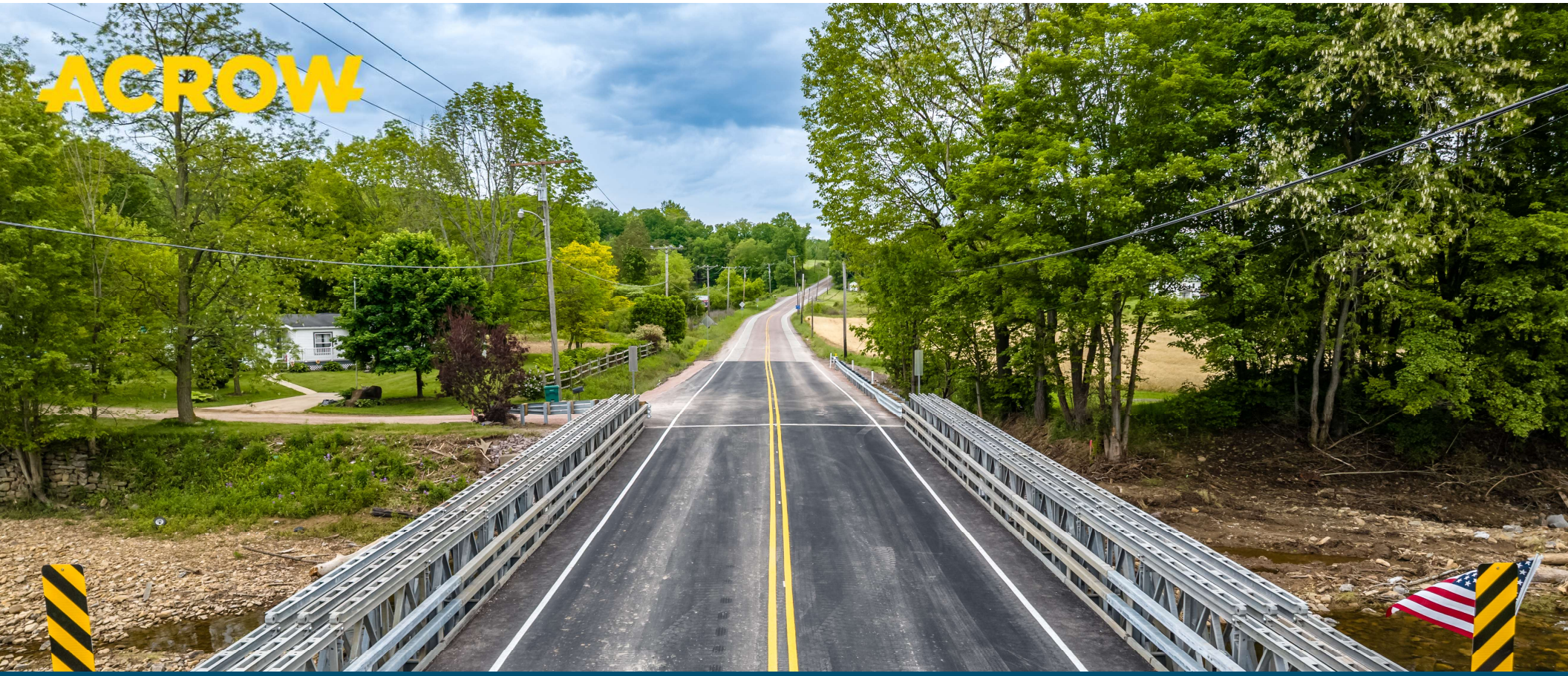


MODULAR STEEL BRIDGES IN ACTION
PINEY CREEK EMERGENCY BRIDGE
BOYNTON, SOMERSET COUNTY, PA

Eugene Sobecki, Director National Sales & Military Business Development

AGENDA TODAY

- The Challenge
- Why Steel?
- Why Emergency steel bridges?
- Piney Creek Project
- About Acrow
- Q&A

THE CHALLENGE

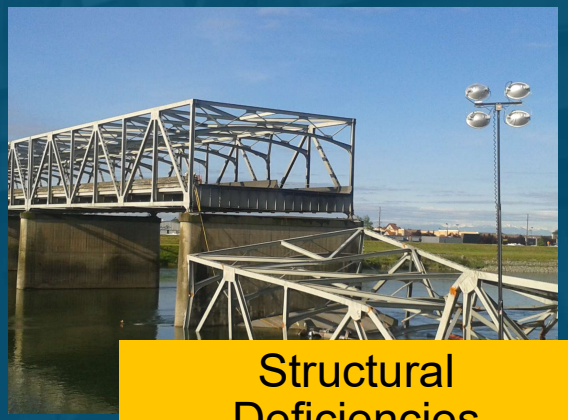
- The ARTBA analysis of the recently released 2024 U.S. Department of Transportation (DOT) National Bridge Inventory (NBI) database finds that **36 percent of all U.S. bridges** require major repair work or replacement.
- 221,800 spans need repair, including 76,175 bridges that should be replaced. •
- Of the bridges needing repair, 42,067 are rated in poor condition and classified as “structurally deficient.”

Source: ARTBA 2024 Bridge Report Summary

THE REAL CHALLENGE

Aging Infrastructure

Bridge Closures & Traffic Disruption



Structural Deficiencies

High Maintenance and Repair Costs

Rapid Response to Natural Disasters

Remote Access

WHY EMERGENCY STEEL BRIDGES?

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

THE CHALLENGE AT PINEY CREEK ON US 219, BOYNTON PA

- Heavy rains caused significant damage to the original bridge.
- The bridge was closed on May 14, 2025 by PennDOT in the interest of public safety.
- Even with immediate detours put in place, the closure had a significant impact on a crucial two-lane section of the route.
- An average of 4,700 vehicles, many of them large commercial trucks, cross the bridge each day.

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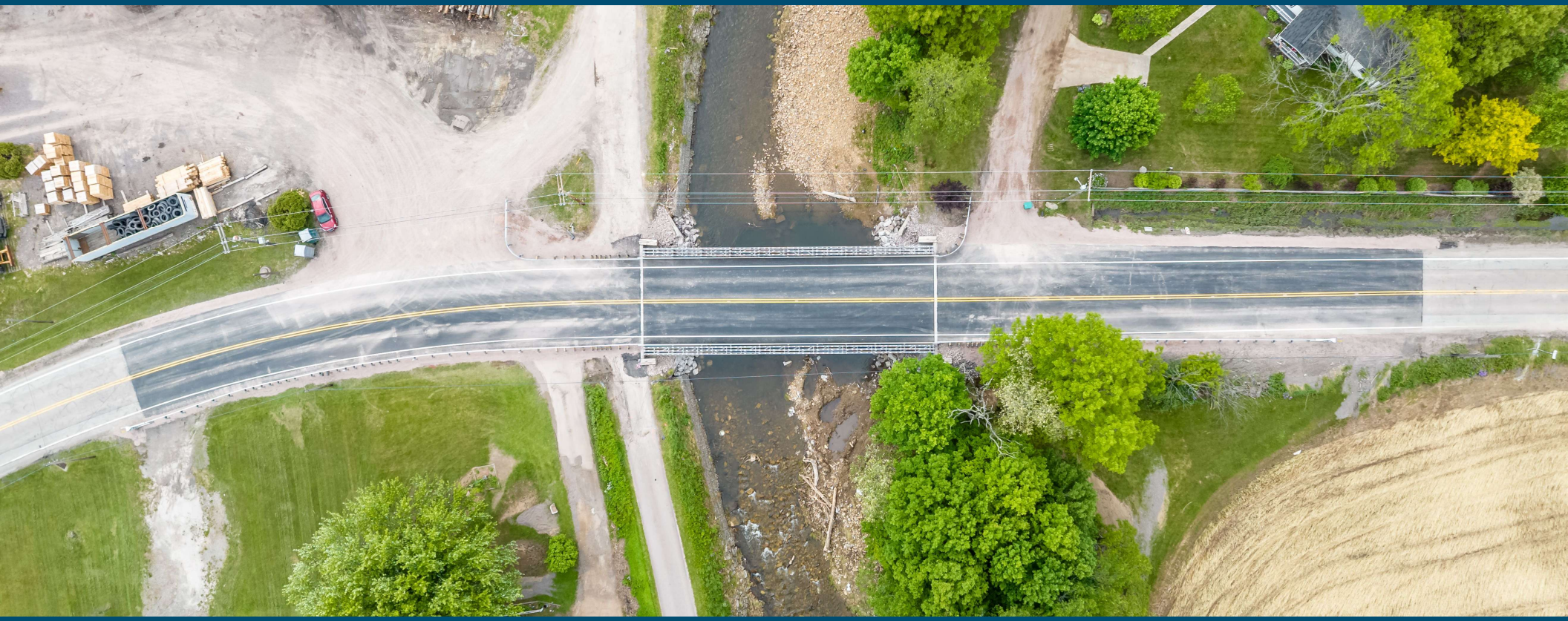


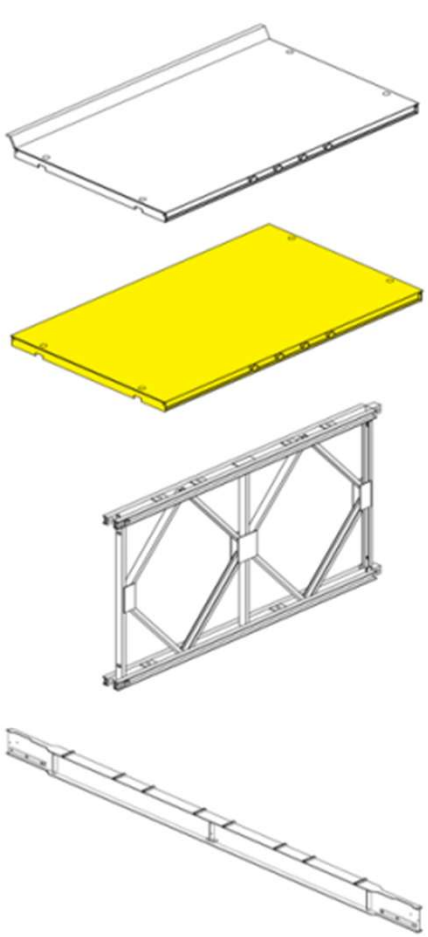
PROJECT SITE OVERVIEW

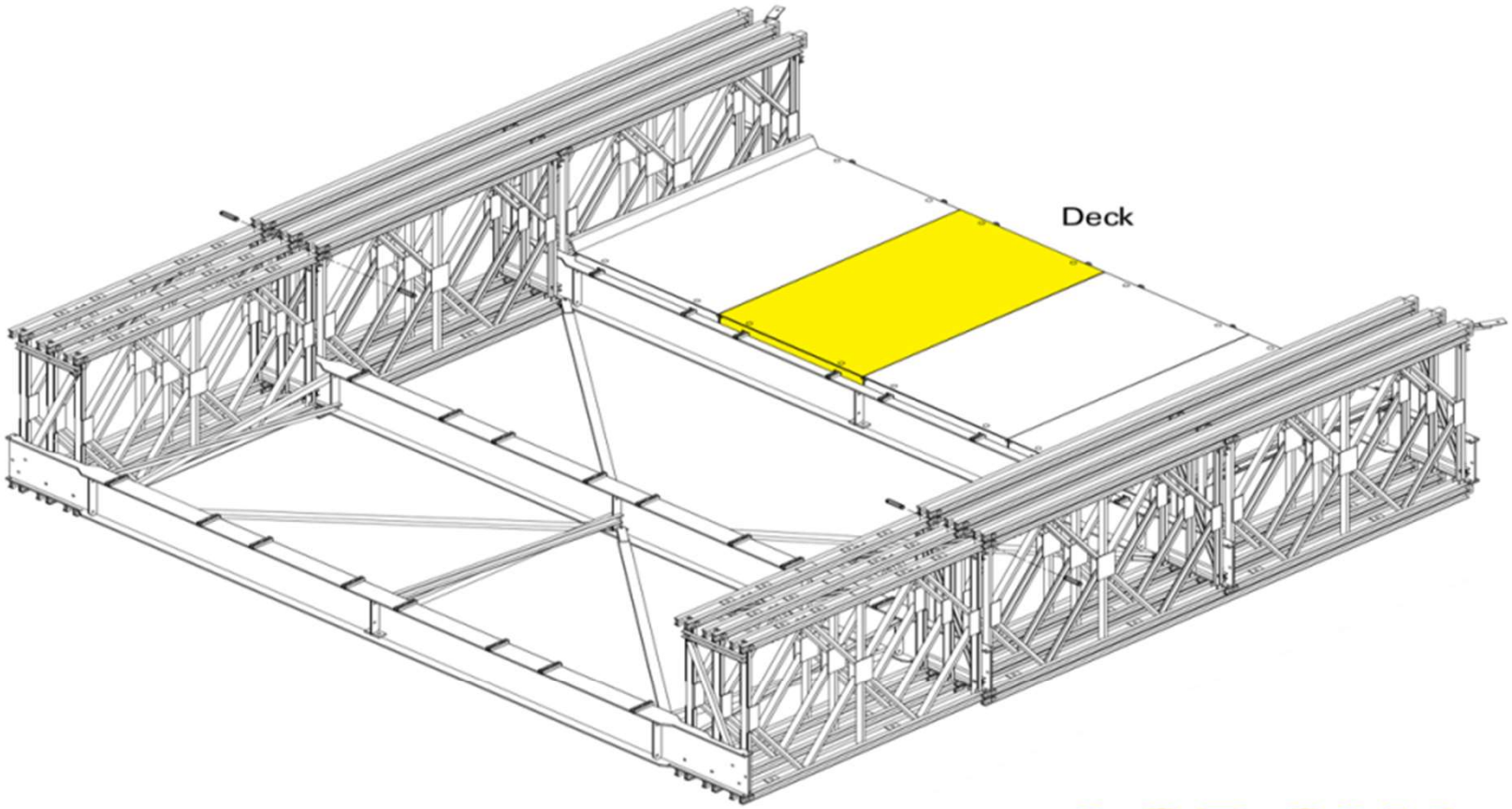
SR219 (Mason-Dixon Highway) in Boynton PA approx 90 mi SE of Pittsburgh

PROJECT REQUIREMENTS

- Speed of assembly and installation to expedite re-opening of the route to traffic
- Assembled and launched on-alignment with the current roadway to minimize any delays in reopening the route to traffic.
- On-site technical assistance and night work to minimise impact
- Technical compliance with PennDOT requirements

MODULAR PANEL BRIDGE





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BRIDGE SPECIFICATIONS

Emergency modular structure

- 100 feet long
- 30 feet wide
- Deck paved with a crowned asphalt overlay
- Guardrail system designed to meet the demands of TL-4 loading.
- Designed for PHL-93 legal and P-82 permit loading per PennDOT Design Manual Part 4 (DM-4).

PROJECT TIMELINE

DAY 1
THURSDAY
MAY 15, 2025

- The morning following the bridge closure, May 15, Acrow received a call from project contractor Merlo Inc., checking on availability of materials.
- By late that afternoon, the span length and width had been decided.
- That evening, Acrow sent preliminary reactions to Merlo to enable them to design the bridge foundations.
- By Sunday, May 18, Acrow had the bridge drawings and calculations completed.
- The bridge was loaded out from Acrow's Lafayette, NJ storage yard on Monday May 21st with the components arriving at the site the next day.

PROJECT TIMELINE

DAY 6
TUESDAY
MAY 2O, 2025

- On May 20, Acrow's Field Service Representative (FSR) arrived at the site to provide guidance on the safe and efficient assembly of the bridge.
- The team worked round the clock in 12-hour shifts to expedite the project, with Acrow's FSR working with both shifts.

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OVERNIGHT ASSEMBLY

PROJECT TIMELINE
DAY 7
WEDNESDAY
MAY 21, 2025

The crane arrived at the site the next afternoon.

PROJECT TIMELINE
DAY 7
WEDNESDAY
MAY 21, 2025

By 6:30 that evening, the bridge had been lifted onto its bearings.

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PROJECT TIMELINE
DAY 8
THURSDAY
MAY 22, 2025

The Merlo team continued to work overnight to deck the bridge.

PROJECT TIMELINE

DAY 10
SATURDAY
MAY 24, 2025

The bridge opened to traffic on Saturday May 24, **less than two weeks after the closure.**

THE RESULT: RAPID CONNECTIVITY

Working in partnership with key project partners including:

- Temporary bridge design & supply: Acrow Bridge
- Contractor: Merlo, Inc.
- Engineer: Gannett Fleming TranSystems, Inc.
- Owner: PennDOT

ACCELERATED BRIDGE CONSTRUCTION WITH ACROW

- **SPEED** – Reduced downtime and optimized costs and allowed for a temporary bridge to be launched in less than 2 weeks
- **SOLUTION** – Allowed us to restore traffic quickly with an easy installation
- **SERVICE & SUPPORT** – Acrow sent technical support personnel to ensure a smooth installation
- **SAFETY** – Working with partners to ensure a safe installation and safe working practices at all times.

OTHER EMERGENCY PROJECTS

- 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

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

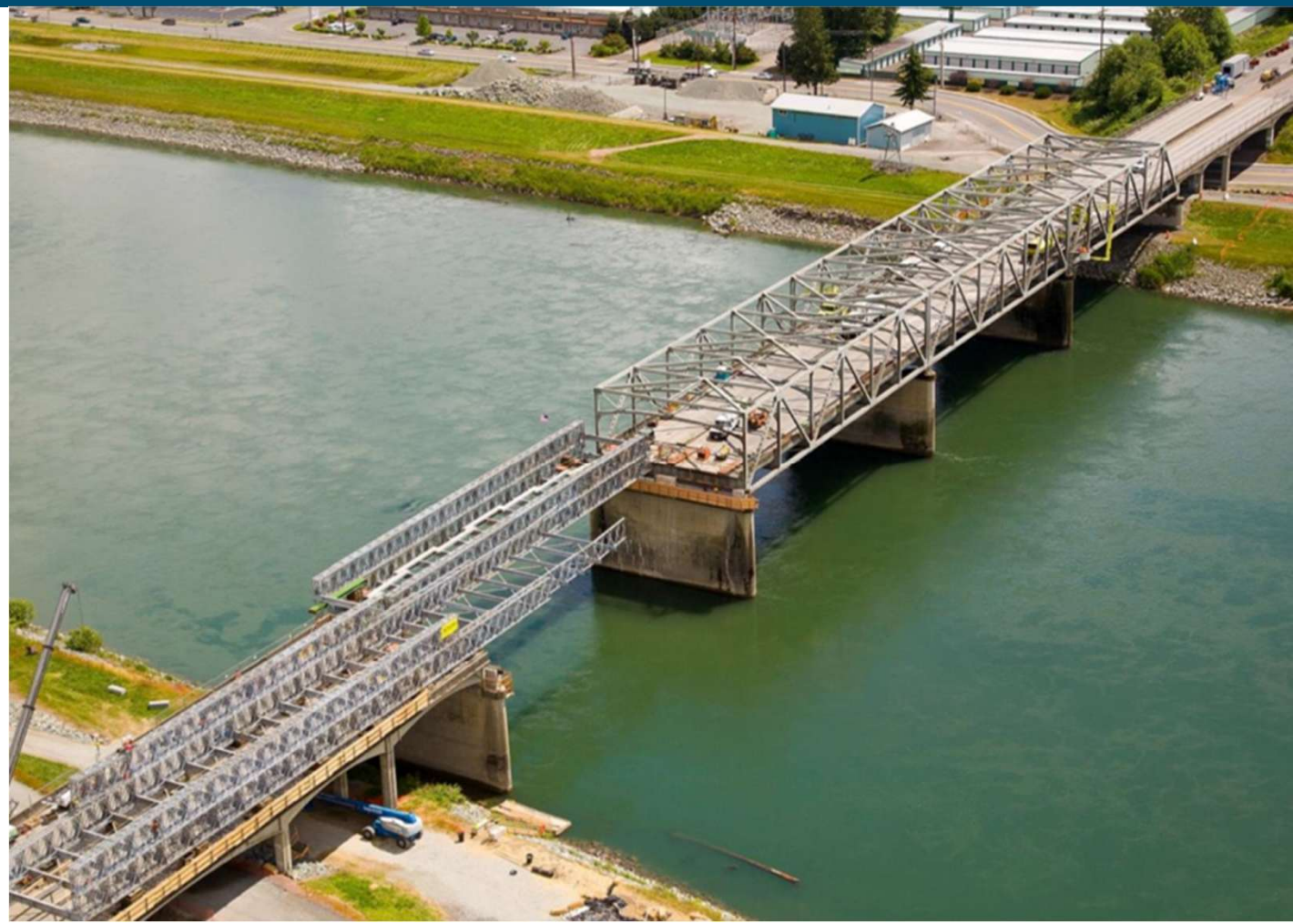
EMERGENCY
SKAGIT RIVER, WA

I-5 Bridge Collapse

Acrow provided two bridges within a week

Start to finish, opened in 15 days

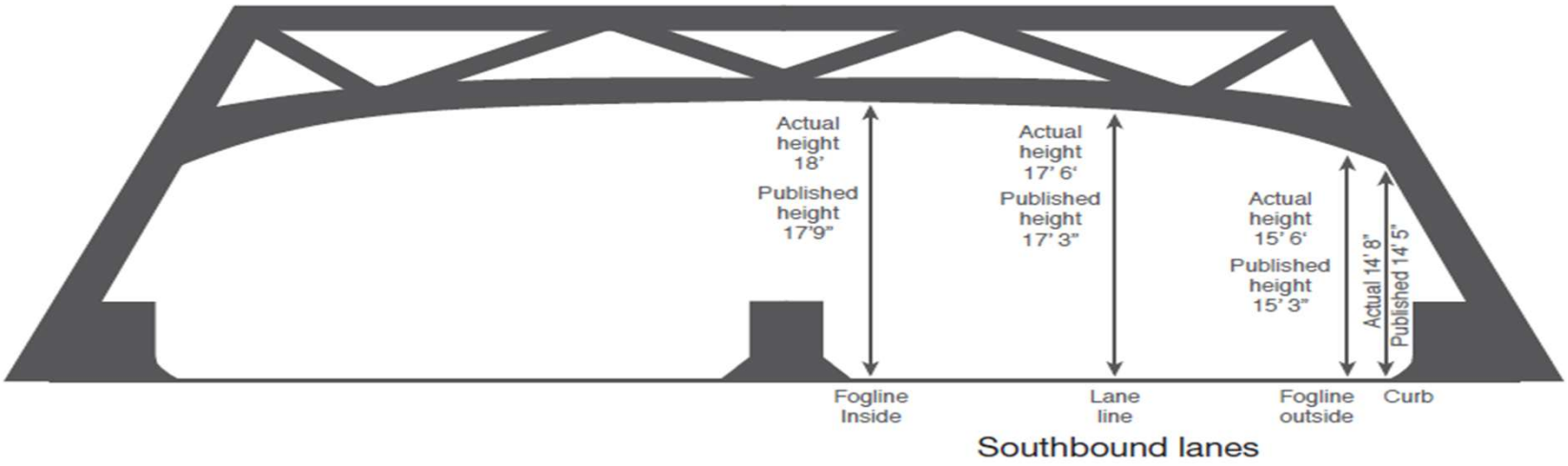
- Length: Each Bridge = 160-foot clear span
- Width: 2 Lane – 24’
- Design Load: HL-93
- TL4 Designed Guardrail



EXISTING BRIDGE DESIGN

Vertical height clearance

As an extra measure of precaution, the Bridge and Structures office of the Washington State Department of Transportation publishes bridge clearance heights up to 3 inches less than actual heights. For example, if the actual vertical clearance is 15 feet 3 inches, it may be listed in WSDOT's Bridge List as 15 feet. It is the responsibility of the driver or freight hauler to consult the Bridge List or visit the oversize/overweight restrictions web page found on WSDOT's website.



COLLAPSED 160 FOOT SPAN

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COLLAPSED 160 FOOT SPAN

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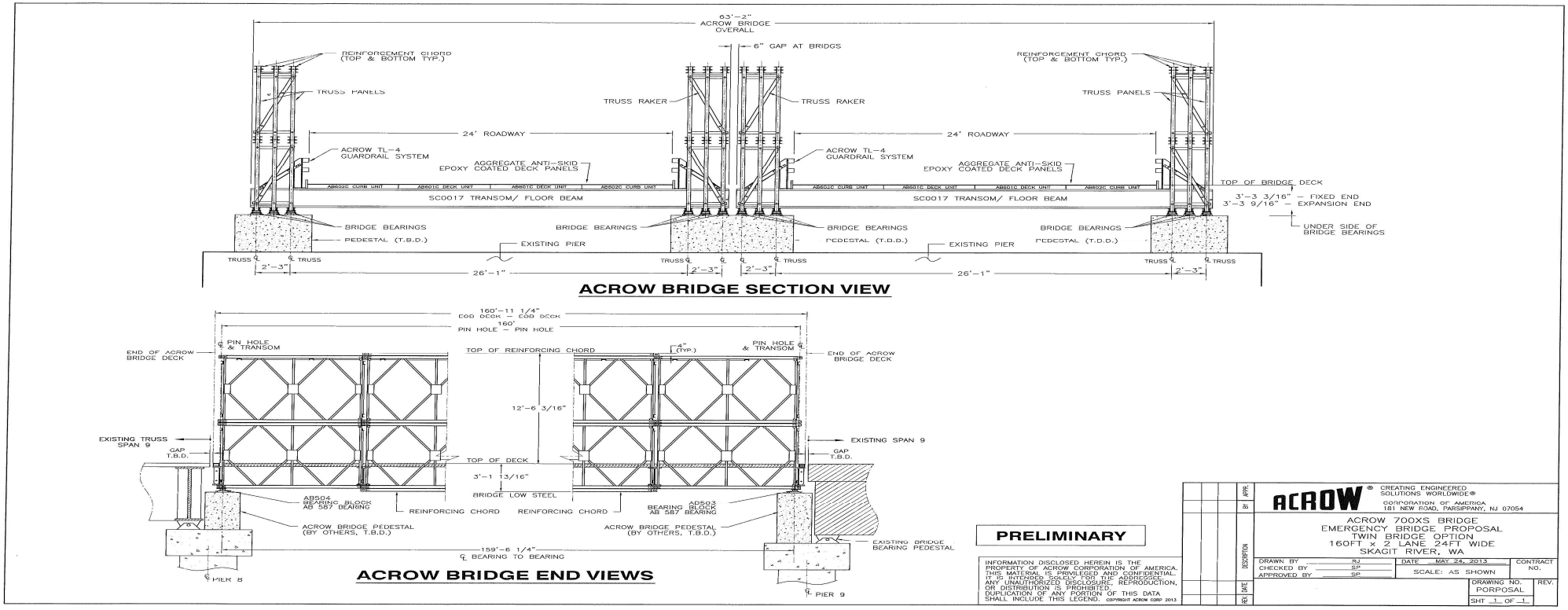
THE ACROW SOLUTION



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STEEL ARRIVES AT SITE

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BUILDING BRIDGE ON APPROACH SPAN

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FIRST BRIDGE LAUNCH

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LAUNCHING NOSE UTILIZED

FIRST BRIDGE IN PLACE

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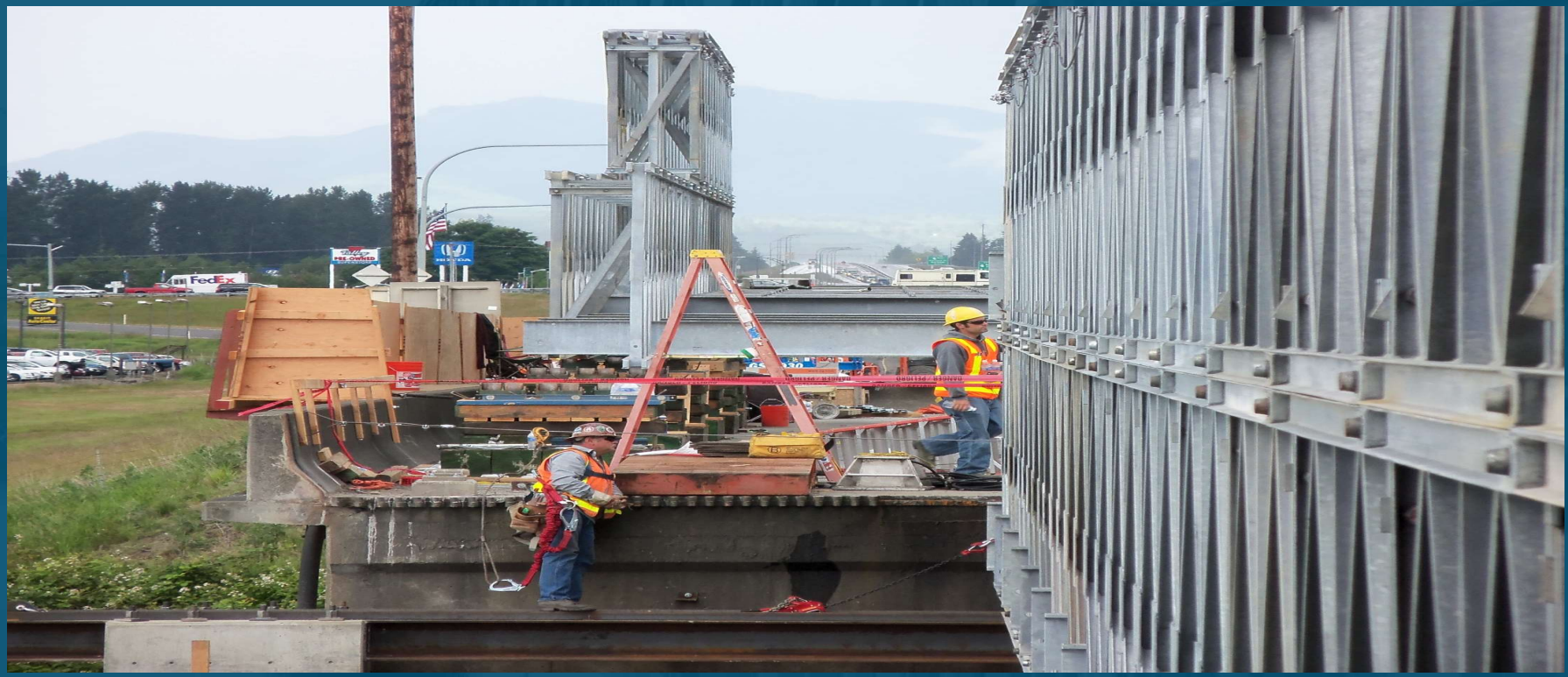
SECOND BRIDGE LAUNCH

ACROW

SECOND BRIDGE LAUNCH



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SECOND BRIDGE LAUNCH

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SECOND BRIDGE LAUNCH

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BOTH BRIDGES IN PLACE

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BOLTING DECK

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APPLICATION OF TACK COAT

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FABRIC INSTALLED

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ASPHALT APPLICATION

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FINAL INSPECTION

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OPEN TO TRAFFIC

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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

- World leader in design, engineering and manufacture of prefabricated modular steel bridges
- Established in 1951; 300+ team members
- Headquartered in Parsippany, NJ
- Manufacturing Facilities in Milton, PA, and Lydney, Gloucestershire, UK
- Proprietary steel technology derived from the Bailey Bridge
- Original Equipment Manufacturer of modular bridge brands: Acrow & Mabey
- Staging yards in Lafayette NJ, Centralia WA and Millington TN

PERMANENT

TEMPORARY

MILITARY

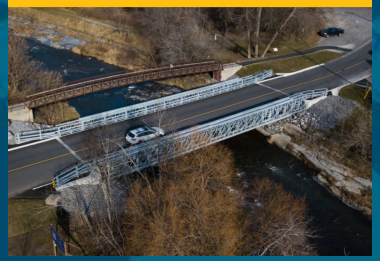
EMERGENCY

DEVELOPMENT PROGRAMS

ACROW

KEY APPLICATIONS

VEHICULAR



LONG SPAN

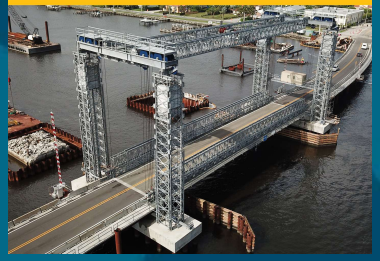
SHORT SPAN

PEDESTRIAN

RAIL

DETOUR RENTAL

MOVABLE



UTILITIES

HEAVY HAUL

EMERGENCY

OTHER APPLICATIONS

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