



FAST CAST BRIDGE®

Fast Cast Bridges for Rural Transportation Solutions

February 20, 2025

Presentation Overview

Fast Cast Bridge Story

Fast Cast Structural Engineering

Owners' Stories/Real World Application:

Choctaw Nation, Kennedy Road

Muscogee Nation, Old Morris Highway

Crystal Ball

Intro to Premier Steel Services / DCI Engineers

Premier Steel Established in 2004

as an ASIC certified and NQA-L1 compliant quality systems structural steel fabricator.

Federal Government Experience

Extensive experience in Federal government, national laboratories, commercial, and tribal projects nationwide.

A Growing Company

Expanded from a 43,000 ft² facility to a 120,000 ft² facility with 40+ employees

DCI Engineers Established in 1988

providing structural and civil engineering services.

Niche Services Including

Heavy industrial, right-of-way, sustainability and bridge services.

National Footprint

20+ regional offices throughout the west coast, Alaska, mountain states, Texas and the east coast. Licensed in all 50 states as well as most Canadian provinces.



Fast Cast Bridge® Story

Origin Story: Inspired in spring 2019 by a northeast Oklahoma cattleman's suggestion to create quick-installation bridges, utilizing expertise in composite and multi-story construction to develop the Fast Cast Bridge.

Design & Installation: Concept developed with DCI Engineers for structural design; first bridge installed in June 2019. To date, **35 Fast Cast Bridges installed.**

Achievements: Received Registered Trademark (June 1, 2021) and **US Patent #11,319,679 B2** (May 3, 2022). Allows sole sourcing, reducing procurement time frames. 2024 World Bridge Engineering Conference Innovative Bridge Project of the Year Less than \$10M

Efficiency and Speed: Fabricated in a quality-controlled environment, reducing field construction time to fewer than three days—several bridges completed in just one day post-footing installation.

What is the Fast Cast Bridge®?

Overview of Fast Cast Bridge: A composite steel and concrete forming system designed for quick installation and monolithic concrete pouring. Installation crews follow a copyrighted step-by-step installation guide and safety system for efficient and safe assembly.

Customizable Features: Options include bike and pedestrian lanes, varying edge conditions, water gaps, and solar street lighting packages. Consistent abutment treatments for both winged and flat abutment retaining walls.

Durability and Environmental Protection: Steel outer shell protects concrete from environmental damage, including spalling. Coated with a 20+ mil polyamine epoxy, providing 30+ years of corrosion resistance without the need for blasting. Anti-graffiti additives and a variety of paint colors are available for enhanced functionality and aesthetics.



Structural Engineering

- Designs for 20ft, 30ft, 40ft, 50ft and 60ft single spans and retained heights up to 25ft
- Bridge deck and beams use conventional mild reinforcement and no prestressing
- Bridges designed to AASHTO LRFD vehicular live loading and any required superimposed dead and vehicular live loads.
- Partially precast tub girder design to eliminate any temporary shoring and all bolted connections to eliminate any field welding
- Modular design to improve construction speed



Kennedy Road Story



Kennedy Road Story

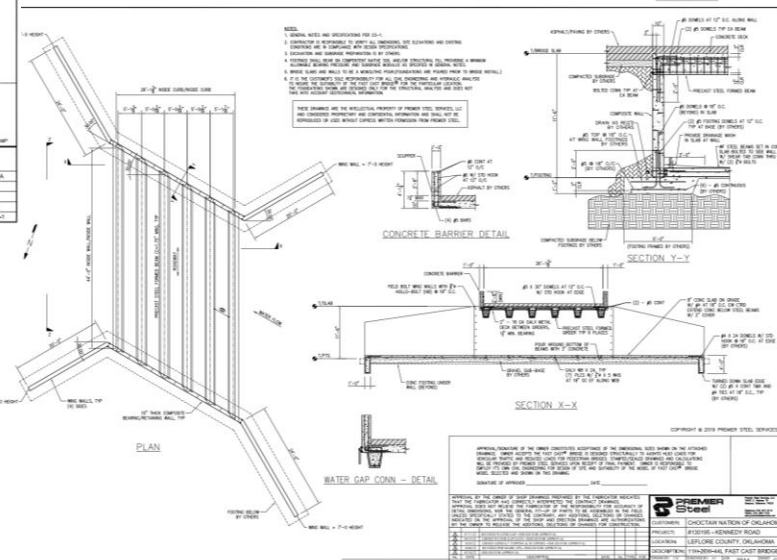
Project Overview: The bridge was beginning to lean causing uncertainty about the structural integrity of the bridge. Closing the bridge was undesirable due to the significant detour length and potential negative impacts on residents and businesses. Guy Engineering provided hydraulic design to determine the appropriate size of the bridge and civil engineering services; Premier Steel provided the structural design for the Fast Cast Bridge®.

Collaboration & Procurement: The team sought a fast and efficient replacement which Premier Steel could provide with their Fast Cast product. In partnership with Choctaw Nation, Guy Engineering provided design services to replace Bridge #191 on Kennedy Road in Leflore County.

Bridge Specifications: Bridge class box culvert with a 11' height, 26' wide roadway, and 44' on a 30-degree skewed angle. Features tapered wing walls and apron slabs for erosion control. Foundations include cast-in-place concrete spread footings prepared by other contractors.

Construction Efficiency: Entire bridge structure prefabricated by Premier Steel Services. Field-placed concrete for base slab, support walls, and bridge deck poured monolithically without temporary shoring. Completed in three days, reopening the stream bed during ongoing road construction.





Construction Pictures



Old Morris Highway Story



Old Morris Highway Story



Project Overview: Flood damage washed out a multi-culvert structure on Old Morris Highway, Okmulgee, Oklahoma. Okmulgee County received funding through the Muscogee Nation for repair and replacement within Reservation boundaries.

Collaboration & Procurement: Muscogee Nation hired Cross Timbers Consulting as the civil engineer for the project. The Fast Cast Bridge® was directly purchased from Premier Steel Services for rapid installation, with Cross Timbers Consulting coordinating sizing.



Bridge Specifications: Bridge class box culvert with a 12' height, 44' wide roadway, and 42' clear span on a skewed angle. Features tapered wing walls and apron slabs for erosion control. Foundations include cast-in-place concrete spread footings prepared by other contractors.

Construction Efficiency: Entire bridge structure prefabricated by Premier Steel Services. Field-placed concrete for base slab, support walls, and bridge deck poured monolithically without temporary shoring. Completed in three days, reopening the stream bed during ongoing road construction.

Old Morris Highway Design Documents

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Construction Pictures



Construction Pictures





FAST CAST PRODUCT SUITE™



FAST CAST BOTTOMLESS BRIDGE™





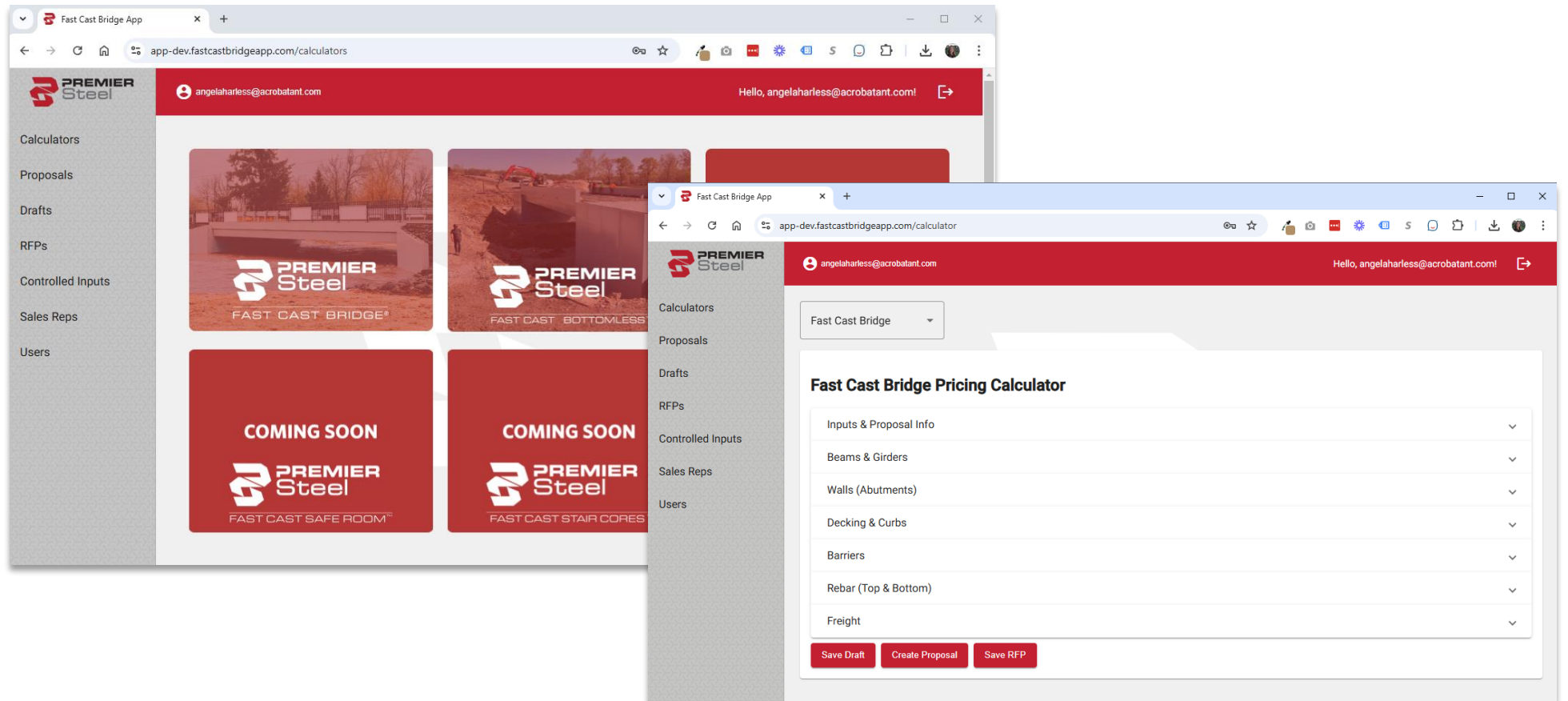
FAST CAST CULVERT ENDS™



Flexibility to Add Bridge Elements



Pricing Application



Problem Solving in Bridge Construction

Innovative Design Approach: Efficient structural design timelines enable civil design professionals to streamline project workflows and complete plans more effectively.

Skilled Labor Challenges: Retaining highly skilled labor for fieldwork is increasingly difficult, emphasizing the need for innovative solutions to reduce dependency on extended on-site work.

Safety as a Priority: Ensuring field worker safety remains critical and costly, particularly as prolonged on-site durations increase exposure to risks.

Cost Efficiency: Roadway downtime or detours incur significant tangible and intangible costs for both contractors and the traveling public, highlighting the importance of minimizing disruptions.



FAST CAST BRIDGE®

Questions?

