

RAIL BRIDGE AND STRUCTURE SERVICES

Excellence in rail bridge design, inspection and construction services

Michael Baker
INTERNATIONAL

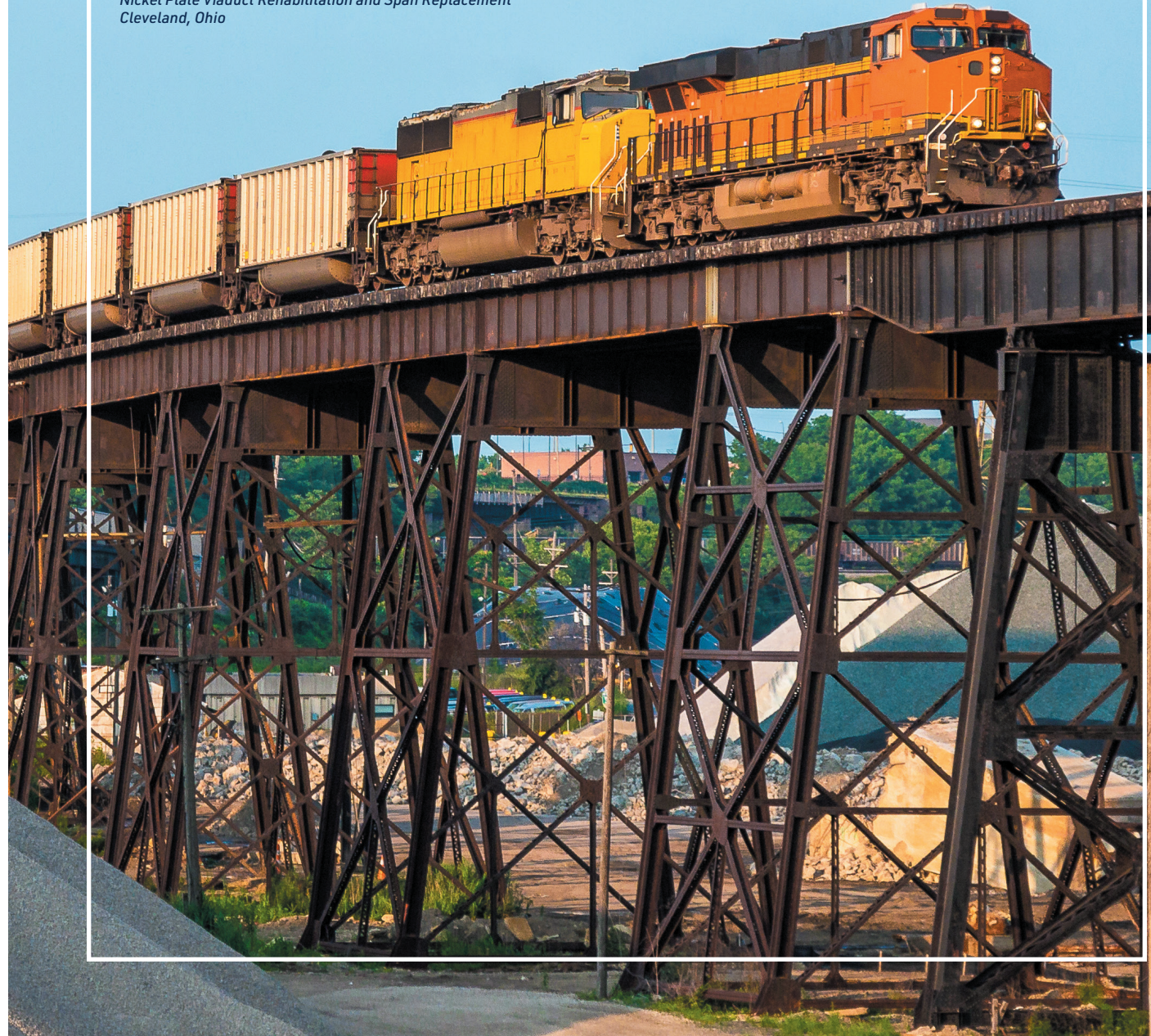


ADVANCING RAILWAY EXPANSION, SAFETY AND INFRASTRUCTURE IMPROVEMENT

Michael Baker International is at the forefront of bridge infrastructure maintenance and replacement by applying the latest advancements in design, construction services and inspection to our projects. Our rail and transit and bridge teams collaborate nationwide to design and build innovative and efficient structures that serve as the backbone of our nation's railroad infrastructure for the people and freight who safely travel across them each day.

DELIVERING RAIL BRIDGE AND STRUCTURE SERVICES FOR MAINTENANCE AND CAPACITY IMPROVEMENTS

*Nickel Plate Viaduct Rehabilitation and Span Replacement
Cleveland, Ohio*



We Make a Difference



STRUCTURAL INTEGRITY MERGED WITH CONSTRUCTABILITY TO FACILITATE EFFECTIVE CONSTRUCTION.

Construction Management for the Replacement of
Bridge NO-84.50 over the Leaf River / Hattiesburg, Mississippi
Client: Norfolk Southern Corporation

REPLACEMENT AND REHABILITATION DESIGN FOR COMPLEX GEOMETRY.

Replacement of Bridge N-680.20 over
North Court Street / Circleville, Ohio
Client: Norfolk Southern Corporation



INNOVATIVE DESIGN TO MINIMIZE ENVIRONMENTAL IMPACTS.

Swanton Yard Design and Engineering / Swanton, Ohio
Client: Norfolk Southern Corporation



CAPABILITIES

Bridge & Structure Design

- Accelerated Bridge Construction
- Earth Retention Systems
- Emergency Assessment & Repairs
- On-line Replacements
- Off-line Replacements
- Pipe & Box Culverts
- Rail-Structure Interaction Analysis
- Rehabilitation & Repairs
- Seismic Review & Retrofit
- Structure Inspection & Load Rating
- Temporary Shoring & Staging Design

Associated Services

- Asset Management
- Construction Services
- Design-Build
- Environmental Permitting & NEPA Documentation
- Geotechnical Engineering
- Hydrology & Hydraulics
- Program Management
- Public Projects
- Survey [Conventional, Mobile LiDAR, Unmanned Aircraft Systems (UAS)]
- Track & Civil Design
- UAS for Bridge & Structure Inspection
- Utility Coordination & Design
- Yard & Intermodal Terminal Design

Visit mbakerintl.com/practices/rail-and-transit
for more information about our capabilities
and iconic projects.

CONTACT

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Sand Canyon Avenue Grade Separation at the Metrolink/BNSF Railroad

Irvine, California

Client: City of Irvine

Sand Canyon Avenue is a major arterial highway paralleling S.R. 133 between I-5 and I-405 that intersects the LOSSAN rail corridor supporting BNSF freight and Metrolink/Amtrak commuter rail operations. The project lowered Sand Canyon Avenue under the railroad tracks and widened the roadway from four lanes to six lanes. The grade separation relieves traffic delays, and the new roadway provides access for vehicles, pedestrians and bicyclists to travel safely under the railroad tracks.

Project improvements included a new rail bridge structure, walls, landscaped median and parkways, water/stormwater management features, bicycle facilities and utility corridors. The proximity of the new rail grade separation to the adjacent freeway interchange and business communities required a complex construction sequence.

OVERCOMING CHALLENGES IN COMPLEX ENVIRONMENTS TO IMPROVE MOBILITY AND CONNECT COMMUNITIES

Replacement of Pin-Connected Through Truss over the Sandusky River

Bucyrus, Ohio

Client: Norfolk Southern Corporation

The existing structure, constructed in 1901, was a single-span pin-connected through truss bridge on concrete gravity abutments that carried one main line track. Multiple challenges were presented to the team while performing the design, including the active mainline that limited the time available for a replacement outage along with local permitting requirements associated with the Sandusky River.

Michael Baker's solution involved replacing the bridge with a single through plate girder span, with construction sequencing that included the erection of the replacement span on temporary supports adjacent to the existing bridge to facilitate a slide-in installation. The team also reused the existing abutments with retrofits, including micropile foundations connected to the front of the abutment to provide additional foundation resistance for the increased superstructure dead load.

