

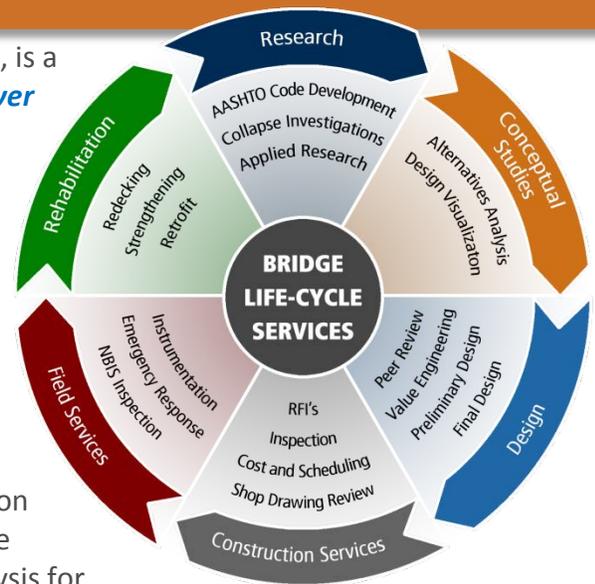


LIFE-CYCLE BRIDGE ENGINEERING

Modjeski and Masters, Inc. (MM), an employee-owned company, is a leader in providing full service bridge engineering services. **For over 125 years** these bridge support areas have included research, conceptual studies, design, construction services, field services, and rehabilitation.

MM is fully staffed to support the full range of bridge-related services, which are depicted in our illustration at the right. Our structural engineers design bridges of all sizes, types, and complexity levels, from conceptual phases through final design. Our field service engineers provide construction oversight, bridge inspection, nondestructive testing, and emergency response services. MM also has a strong resume for repair and rehabilitation of existing structures. We can perform hydraulic design for bridge replacement projects using HEC-RAS software, including risk analysis for upstream properties, erosion and sedimentation control plans, post construction stormwater management plans and other related tasks. We provide cost estimates to aid our clients in evaluating viable structure alternatives, securing funding, and preparing for the bidding process. Our project managers are experienced in providing overall management through every step of the project.

Whether it's using the latest in computer technology, or training our field personnel in climbing and rappelling, MM will do everything necessary to assure that the bridge's safety, and the safety of the people who use it, are never compromised.



RELEVANT INFORMATION

Client Testimonials

- “...without MM’s willingness and ability to rapidly accelerate their design efforts, the bridge would not have been funded or constructed.” (City of Columbia, Missouri)
- “The final design phase went very smoothly and the consultant met the deadlines. [MM] was easy to work with and very responsive throughout the project.” (Missouri DOT)

Numerous Project Awards

- **2019** Martin Luther King Bridge Approach Complex, Innovation in Transportation (WTS St. Louis Chapter, Jerilyn Hassard)
- **2018** Martin Luther King Bridge Rehabilitation, Merit Award (ACEC of Illinois Engineering Excellence)
- **2011** Columbia Terminal Railroad US Highway 63 Overpass, Honor Award (ACEC of Missouri Engineering Excellence)

197 Dedicated Employees

- **30** Project Managers
- **71** Structural Engineers
- **22** Electrical & Mechanical Staff
- **14** CADD Technicians
- **25** Bridge Inspectors
- **8** Construction Inspectors
- **4** Civil / Transportation Engineers
- **23** Other Staff

To Learn More Contact –

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YOU WANT IT WHEN?

MM understands that sometimes design schedules need to be expedited. Whether it's to meet a looming funding window or to minimize disruption to traffic due to an emergency closure, our Team can meet the challenge. We expedite services by providing clear communications with our clients and fellow team members, setting internal task level project goals, submitting schedule updates, and providing efficiency wherever possible to save time. A few examples of us fulfilling an expedite request without sacrificing quality include:



Illinois Route 127 Over Kaskaskia River. *Carlyle, IL* | MM provided final design services for the complete replacement of the existing structure including vertical and horizontal alignment adjustments, and re-alignment of two nearby intersections. To reduce the structure closure, piers were constructed beneath the existing bridge while it remained open to traffic. To assist the District with procuring available funding, MM expedited the design phase and **completed final design in three months**.



Columbia Terminal Railroad US Highway 63 Overpass. *Columbia, MO* | MM designed the overpass structure, a six-span steel girder bridge with four deck girder approach spans and two 85-foot through plate girder main spans. Design was originally planned to take sixteen months, however, due to the unexpected availability of Federal funding, the design phase was expedited and **compressed by six months**.



Interstate 80 Over the Mississippi River Emergency Repairs. *LeClaire, IL* | IDOT discovered cracks in the top flanges of various cantilevered floorbeams during a routine inspection. Rehabilitation details were developed to correct the fatigue prone details and prevent future cracking. MM worked under an extremely **compressed design schedule of four months** to allow construction to begin as soon as possible to restore full traffic to this structure.

RELEVANT EXPERIENCE

Following are projects that encompass our full spectrum of bridge engineering services. MM has performed these projects for a variety of local agencies including:



Illinois DOT



- Four Consecutive Open-End Contracts
- 25 Major River Bridge Inspections
- Bridge Design and Rehabilitation
- Emergency Services



Missouri DOT



- Technical Access NBIS, and FCM Inspections
- Bridge Engineering and Rehabilitation



BI-STATE DEVELOPMENT
Gateway to growth. On both sides of the river.



- Over Ten Years of Inspection Services
- Structural Design and Rehabilitation



Terminal Railroad Association of St. Louis



- Technical Access Inspections
- Bridge Design and Rehabilitation
- Emergency Services



Iowa DOT



- Second Consecutive Open-End Contract (subconsultant)
- Bridge Design
- Interchange Structure Design



IDOT Legal Load Parametric Evaluation. *Statewide, IL* | MM performed a parametric study, identifying areas in load rating procedures that did not meet federal mandates, and recommending policy changes which included modifications to existing posting/permit vehicles and the introduction of new posting/permit vehicles. By implementing these recommendations, IDOT's rating evaluations are now more accurate and in compliance with FHWA mandates.



US 40 Over Missouri River Study. *St. Charles, MO* | MM assisted with preliminary engineering studies for a new crossing, including locating the preferred alignment for the new crossing, investigating viable structures for both the main river bridge and the approach structures, and providing tie-ins to the existing highway network. Adequate clearance for construction, inspection and maintenance, progressive collapse, and site restrictions were also investigated.



MLK Bridge Ramp Replacement. *East St. Louis, IL* | Phase I, II and III engineering services are being provided for the replacement of the original approach ramp structure and miscellaneous repairs to six other structures. Services include overall project management, the preparation of a Bridge Condition Report, Project Report, Type, Size and Location plans, Structure Geotechnical Report, Plan Development Outline, final structure plans, and construction services as requested.



Mississippi Avenue Bridge Replacement. *Crystal City, MO* | MM designed this replacement structure while accommodating the increased vertical clearance requirements of BNSF. In order to achieve the required clearance while minimizing the effect on the approach roadway, MM designed the structure with a two-foot superstructure depth. Aesthetic features were also included in the design to compliment the downtown business district.



Eads Bridge Rehabilitation Construction Management. *St. Louis, MO* | MM provided construction management oversight services during the rehabilitation of this structure carrying MetroLink over the Mississippi River. MM was the point of contact for the Owner and managed a broad range of engineering services including attendance at regular progress meetings, submission of daily reports, responding to on-call questions from the Owner, and coordinating staff for inspections.



Union Station Tunnel Rehabilitation. *St. Louis, MO* | MM is providing Phase I, II, and III engineering services to reconstruct the steel portion of the tunnel. MM is collaborating with the Owner and Contractor to deliver the project using the CM/GC project delivery method and working to find ways to reduce cost. MM is providing engineering services for temporary construction access and temporary works as required, as well as answering RFI's, and reviewing shop drawings.

Research

Conceptual Studies

Design Services

Design Services

Construction

Construction

Field Services

Field Services

Rehabilitation

Rehabilitation



Bill Emerson Memorial Bridge Inspection. *Cape Girardeau, MO* | MM was selected by MoDOT to perform the 2014 NBIS and FCM inspections of the bridge as well as the first in-depth inspection of the structure's complex features. MM provided a complete "hands-on" visual and tactile inspection of each cable, including anchorages, utilizing technical access inspection methods. Vibration testing of the cables and ultrasonic testing of the back span hold-down pins were also performed.



CSX Railroad Over Scott Troy Road Emergency Inspection. *O'Fallon, IL* MM performed a structural inspection of the entire bridge, paying special attention to the impact damage caused by a boom truck striking the north side. The inspection included measuring displacement of the girders due to impact, measuring lengths and magnitudes of cracks and tears throughout the steel members, and performing a visual inspection of the entire structure for deficiencies not related to the impact.



Creve Coeur Mill Road Bridge No. 232 over Fee Fee Creek. *Maryland Heights, MO* | Deterioration of the end diaphragms and adjacent girder ends developed in this bridge. MM provided an in-depth inspection and structural investigation and found various structural constraints were inducing tensile stresses into the girder ends / integral end bents causing cracking. A rehabilitation strategy was proposed to eliminate these constraints and final plans and specifications were provided.



Old Chain of Rocks Pedestrian Bridge. *Madison, IL* | MM provided services to convert this bridge to pedestrian use, coordinating closely with Trailnet to prioritize repairs and work within tight budgets. MM's series of projects including expansion joint and bearing rehabilitations, review of floorsystem ratings, miscellaneous steel and concrete repairs, and addition of an observation deck. As a result of combined efforts, the bridge was reopened and added to the National Register of Historic Places.

MM excels in providing streamlined design and construction solutions to best meet our client's needs.



MM is a part of the communities we serve, but with a global outreach. Our MidAmerica Offices are located in Edwardsville, Illinois and St. Louis, Missouri. We have been providing excellence in engineering to the region from these local offices since 1995.



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