



**Missouri's  
Local  
Program**  
*for community  
development*

## COVER SHEET

(This must accompany your firm's letter of interest and does not count in the page limit)

Firm's Full Legal  
Name:

Master Consulting Engineers, Inc.

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Firm Contact Name:

Brad Loomis, PE, PTOE

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Work Category:

- Roadway Design
- Trails & Sidewalks
- Construction Inspection
- Traffic Engineering & TEAP
- Structures
- Environmental
- Historic Preservation
- Multimodal Planning / Systems and Facilities Design
- Transportation Planning – **NEW CATEGORY**

**December 12, 2025**

Ms. Ashley Buechter, P.E.  
Local Program Administrator

RE: MoDOT LPA On-Call Professional Services – Traffic Engineering and TEAP

Dear Ms. Buechter:

Master Consulting Engineers, Inc. (MCE) is pleased to present this proposal for Local Public Agency (LPA) Professional Services for the 2026-2029 cycle. For over 25 years, MCE has delivered engineering solutions that help agencies operate safer, more reliable, and more efficient transportation systems. We combine technical expertise, real-world experience, rigorous analytical tools, and a dedicated team of licensed professional engineers to support cities, counties, Departments of Transportation, and federal entities across the country.

### **General Experience of the Firm**

MCE and our staff have extensive experience performing the full range of traffic, safety, and operations engineering services, including:

- Traffic Impact Studies (TIS/TIA) for commercial, residential, industrial, hospital, university, and large-scale mixed-use developments
- Intersection and corridor operational analyses utilizing Synchro/SimTraffic, HCS, SIDRA, and VISSIM
- Signal timing optimization and coordination plan development
- Road Safety Audits (RSA), corridor safety studies, systemic evaluations, crash pattern analysis, and Highway Safety Manual (HSM) evaluations
- Safety Performance Functions (SPFs), Crash Modification Factors (CMFs), and predictive safety analysis
- Access management studies, turn-lane warrants, signal warrants, and queue evaluations
- Multimodal safety and operations analysis, including pedestrian, bicycle, transit, and freight assessments
- Microsimulation and scenario testing to evaluate future growth, mitigation strategies, and safety countermeasures
- Traffic modeling, planning, and design in support of local, state, and federal projects

MCE staff have successfully completed hundreds of traffic engineering studies over our 25-year history, supporting infrastructure planning, design, capital programming, HSIP funding applications, and project implementation.

### **Past Performance**

Our staff has demonstrated strong performance on traffic and safety engineering projects for:

- Municipal clients: Cities of St. Louis, Clayton, Brentwood, O'Fallon, Festus, Raytown, and others
- County agencies: St. Louis County, St. Charles County, and Jefferson County
- State DOTs: MoDOT, IDOT, FDOT, GDOT (including planning, safety, and design tasks)

Project types include traffic safety studies, corridor operational evaluations, impact studies, RSAs, microsimulation, crash analysis, lighting safety improvements, and systemic safety plans. Our clients consistently highlight MCE's accuracy, responsiveness, and reliability, key components of our long-standing reputation.

A brief description of our staff's past performance with MoDOT is shown below:

- *Traffic Signal Optimization – Route 21, St. Louis County, MO. (Federally Funded)* At a prior firm, Brad Loomis led a team that optimized the signal timing of 18 signals along the Route 21 corridor. Project

included building Synchro and TruTraffic models for the signal systems and execution of pre-project and post-project travel time runs. Analysis of left-turn time of day (flashing yellow arrow) implementation was completed as well as field implementation of the signal timing plans. Team also responded to customer service calls regarding adjustments to the signal timing and phasing.

In addition to these projects, MCE staff have completed traffic studies for City of Peoria, IL, City of St. Charles, MO, City of Iola, KS, Jefferson County, MO, and the Illinois Department of Transportation (IDOT).

Some example projects include:

- *MO Highway 370 and Mel Wetter Parkway Interchange Study – City of St. Charles Public Works, MO. (Locally Funded)* – At a prior firm, Brad Loomis led a team that developed Synchro and VISSIM models of several alternatives to connect Mel Wetter Parkway to Highway 370 with a new interchange. The project scope included conceptual alignments, profiles, interchanges/intersections, structures, economic impacts of improvements, safety improvements, conceptual cost estimates, and traffic modeling. The project included a public meeting to solicit feedback and gather input from stakeholders adjacent to the project area.
- *Traffic Signal Modifications – Miller Road and Vogel Road Intersection – Jefferson County Public Works, MO. (Locally Funded)* – At a prior firm, Brad Loomis supervised development of design for replacement of traffic induction loops on the westbound and eastbound approaches to Vogel Road. Evaluated the existing signal phasing and timing plan and the geometric configuration of the intersection to determine if flashing-yellow arrows were appropriate to replace the protected left-turn movements on both directions of Vogel Road. Design included all the field wiring, cabinet modifications, and controller programming to accommodate the new flashing-yellow arrow left turn phases.
- *Traffic Signal Design – Old Highway 21 and Rock Creek Road Intersection – Jefferson County Public Works, MO. (Locally Funded)* – At a prior firm, Brad Loomis supervised development of design for a new signal system at Old Highway 21 and Rock Creek Road. The design included induction loops for all through and left-turn approaches, as well as interactive flashing “signal ahead” advanced warning signs on both approaches of Old Highway 21. The design included all the field wiring, cabinet modifications, and controller programming to accommodate the new flashing-yellow arrow left turn phases.
- *Collection of Traffic Count Data – County Wide – Jefferson County Public Works, MO. (Locally Funded)* - At a prior firm, Brad Loomis supervised the collection of average daily traffic volumes at approximately 60 locations throughout the County. Data was collected using PicoCount2500 pneumatic road tube counters. The data results were analyzed to include vehicle classification and speed bands.

### Qualifications of Personnel

MCE’s technical staff includes Licensed Professional Engineers (PEs), Professional Traffic Operations Engineers (PTOEs), transportation planners, analysts, and modeling specialists with decades of combined experience. Our personnel bring:

- 25+ years of transportation experience
- Engineers with extensive traffic operations and safety backgrounds
- Deep experience in HSM Part B/C predictive methods and safety performance analytics
- Advanced modeling skills in VISSIM, SYNCHRO, CORSIM, HCS, SIDRA, TransModeler, and GIS-based analysis
- Strong proficiency in MUTCD, AASHTO Green Book, NACTO guidance, FHWA safety methodologies, and state DOT standards
- Certified Roadway Safety Professionals and staff with RSA training

Our team regularly performs peer review, quality control, and model calibration processes to maintain the highest standards of technical rigor.

**Project Manager/Lead Traffic Engineer: Brad Loomis, PE, PTOE** – Mr. Loomis has more than 23 years of experience in managing and designing various public works and private development projects. His experience and technical interests lie in the following areas: traffic engineering and operational analysis, roadway and highway; railroad design; federal and military facilities, and permitting.

**Senior Traffic Engineer/Planner: Sara Wagner, PE, ENV SP** – Ms. Wagner has more than 18 years of experience diverse experience in transportation, environmental, and planning sectors, with expertise in strategic planning, community engagement, urban planning/design, and sustainable transportation. She has a proven track record in private sector initiatives and projects for the Florida Department of Transportation, complemented by strong communication skills and a commitment to fostering valuable relationships with clients and stakeholders.

### **Familiarity/Capability**

MCE is highly experienced in delivering federal transportation projects, including those NAVFAC, AFCEC, USACE, and FHWA-funded local projects. Our project capabilities include:

- Compliance with NEPA, ADA, MUTCD, AASHTO, Buy America, Davis-Bacon, and other federal requirements
- Familiarity with FHWA safety protocols, systemic safety analysis, and federal grant documentation
- Ability to produce federally compliant reports, checklists, modeling files, and safety analyses

MCE understands the documentation, accuracy, quality, and record-keeping required to successfully deliver federal work. We are currently working on a traffic study for the US Army Corp of Engineers (USACE) Baltimore District at Fort Meade, Maryland and have completed a dozen Federal traffic engineering projects.

### **Accessibility**

MCE maintains a strong reputation for responsiveness to client needs—an important evaluation criterion. Key strategies include:

- Real-Time Communication Tools: Teams, Zoom, and Webex for virtual meetings; shared dashboards for status updates; immediate access to project managers.
- GIS-Based Field Mapping and Remote Evaluation Tools: Use of ArcGIS Online, StreetLight data, video traffic data collection, drone imagery, Google Earth Pro, and ATSPM datasets to quickly support remote evaluations.
- Cloud-Based Project Delivery: Shared OneDrive/SharePoint workspaces ensure clients have direct access to schedules, drafts, models, and deliverables.
- Dedicated Project Managers: Each project includes a named PM responsible for communication, coordination, and quick response to inquiries.
- Proximity and Regional Presence: Headquartered here in Missouri, MCE routinely delivers services across multiple states and maintains rapid responsiveness via digital tools, scheduled coordination calls, and field visits as needed.

MCE has earned a reputation for on-time deliverables, availability, and clear communication, and we appreciate the opportunity to provide our engineering services to the Local Public Agencies here in Missouri.

Very truly yours,

**Master Consulting Engineers, Inc**



Brad Loomis, PE, PTOE  
Senior Principal



# STATEMENT OF QUALIFICATIONS

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# FIRM OVERVIEW

**Master Consulting Engineers, Inc. (MCE)** has been providing engineering services **since 1999**, with offices in St. Louis, Tampa, Orlando, Fort Lauderdale and Fort Walton Beach. MCE is a licensed firm with **over 30 employees**, including **8 licensed professional engineers** who bring **over 200 years of combined experience**. MCE is also licensed to perform engineering services in **22 states** across the United States of America.

## CORE VALUES

### EFFICIENCY

Our approach focuses on smart, practical solutions that keep traffic and commerce moving. By optimizing traffic operations, improving signal coordination, and applying proven design strategies, we reduce congestion and enhance safety. Every project is delivered on time, within budget, and in full compliance with MoDOT standards.

### SAFETY

All of the projects that we take on are completed with the prioritization of public safety. By utilizing cutting-edge technology and our strategic analysis, we effectively minimize potential risks and efficiently improve roadway conditions.

### INNOVATION

By leveraging advanced modeling and simulation tools, we deliver innovative engineering solutions tailored to the unique challenges of each project, ensuring forward-thinking, sustainable, and cutting-edge outcomes.

## OUR VISION

*"The vision of MCE is to encourage the advancement of engineering by using innovative design methods in an environment of ingenuity, leadership and excitement; which result in designing dynamic high performance structures that enhance the human experience."*



# MASTER CONSULTING ENGINEERS CIVIL ENGINEERING CAPABILITIES



Master Consulting Engineers, Inc. (MCE) brings continued excellence to each project. Our experience spans both urban and suburban environments, addressing diverse planning and engineering requirements. Overall, we prioritize timely solutions with our practical approaches for every project at hand.



## TRAFFIC ENGINEERING AND PLANNING

- Roundabout Analysis
- Traffic Signal and Pedestrian Signal Design
- Signal Timing and Phasing
- Intersection Capacity Analysis
- Data Collection
- Traffic Studies
- Traffic Impact Analysis
- Traffic Safety Studies and Assessments
- Crash Analysis



## HIGHWAY AND ROADWAY DESIGN

- Geometric Design
- Location Design Studies
- Mill and Overlay and Resurfacing Design
- Utility Coordination and Relocation Design
- Sidewalk, Bicycle, and ADA Improvements
- Overland Sheet Flow and Stormwater System Design



## CIVIL SITE AND UTILITY DESIGN

- Site Feasibility and Layout for New Structures
- Rehabilitations and additions Site Grading Stormwater Quality
- Permeable Pavement
- Earthwork Analysis Parking, Sidewalks, and Trails
- Erosion Control and Drainage Designs
- Utility Coordination

# PROJECT APPROACH



At MCE, we know the importance of providing quality work that is expected but instead we focus on exceeding that, starting with the delivery of a comprehensive management system and procedure.

## Our approach is categorized into the following general phases:



### Kick- Off Meeting

MCE will begin with a collaborative meeting involving all of the representatives and team members to understand the context and influences on the project and to communicate these for review and discussion.

Prior to commencement of work our team will perform a brief site analysis to address any possible program/permitting issues. This task could entail site visits, review of existing utility and property data and/ or aerial photo analysis.



### Setting Goals and Timelines

Management-level planning maps out an overall management plan from which resources, acquisitions and sub-contracts can be identified, costed and put in place.

Quality requirements and approaches will be defined and agreed during the project start-up. Contingency plans and avoiding action will be defined as appropriate. MCE will have an effective team nurtured through appropriate initiation, training, and communications.



### Budget for Surprises

MCE creates a detailed and accurate forecast of the total anticipated costs. The cost control begins with defining the clients program requirements, analyzing the project budget, and aligning both.

MCE takes every aspect of a project into consideration and consults with others who will be involved, and calculates the figures down to the last penny to create a timely budget.



### Design Reviews "QA/QC"

Review of our Design Documentation is conducted at each 50, 75, 95, and 100% status point by the Principal in Charge. This involves comparing the existing documentation with the requirements and expectations articulated in our Project Performance Checklist.

All of MCE's submittals will undergo a rigorous QC review by an independent principal before leaving the building. Quality Control is a daily process, where engineering analyses, designs and plans are checked as the work progresses.