



November 14, 2014

Mr. Kenny Voss, P.E.
Local Program Administrator
Missouri Department of Transportation
105 W. Capital Avenue
Jefferson City, MO 65102

RE: Letter of Interest – On-Call Professional Services - Structures

Dear Selection Committee:

Tetra Tech appreciates this opportunity to express its sincere interest in providing on-call structure design services to Missouri's Local Program (LPA). Local Tetra Tech staff that will be working on your assignments bring over 75 years of experience in bridge design, construction, field assessment, and bridge rehabilitation plan preparation.

GENERAL EXPERIENCE OF FIRM

Tetra Tech is a leading provider of consulting, engineering, and technical services worldwide. We are a diverse company, including individuals with expertise in science, research, engineering, construction, and information technology. Tetra Tech provides a full range of services to the transportation sector. Our experience includes bridge and roadway design, urban street improvements, major interchanges, environmental assessments, and corridor studies.

CAPABILITY / FAMILIARITY

Tetra Tech bridge staff has extensive experience in both the design of new structures and the rehabilitation of older existing bridges. Examples of recent projects for new construction include Interstate 40 over US-64 Interchange in Sequoyah County, Oklahoma and State Highway 79 over the Red River between Texas and Oklahoma. The Interstate 40 over US 64 Interchange includes replacement of five bridges, the addition of a new ramp bridge, and rehabilitation and widening of two bridges. Of the six new bridges, four will be constructed with prestressed concrete beams and two will be constructed with steel girders. The five bridges on Interstate 40 have approximately 45 degrees of skew with two of the bridges in a horizontal curve.

The 2,200 foot long State Highway 79 Bridge across the Red River will replace a structurally deficient bridge consisting of 21 spans of steel pony trusses. The bridge is on the Texas Register of Historic Structures and is eligible in Oklahoma for their historic register. The new bridge will be constructed on a slight horizontal curve with long span prestressed concrete beams supported on two column bents with deep drilled shafts for foundations.

The Tetra Tech staff has won several awards for their work including the KCMO APWA Award for projects less than \$2 million for the Vermont Avenue Bridge over Rock Creek in Independence, MO. This award is for projects completed on time, under budget with no safety incidences. The scope of work for this single span structure included hydraulics, geotechnical investigations, utility coordination, public involvement, and right-of-way documents.

Coordination with railroads has been part of the services provided by Tetra Tech staff for many of our clients. Mr. John W. (Bill) Barker is an AREMA Member and serves on Committee 8 which is responsible for the concrete specifications for the design of railroad structures. Through this association he is familiar with the key staff at the major railroads along with their policies and procedures.

Assistance from Tetra Tech bridge staff with the environmental process is a common request by our clients. Staff members have completed 404 permits, assisted with the Section 4(f) process and prepared exhibits as necessary or requested as part of the National Environmental Policy Act.

Tetra Tech staff is uniquely qualified and has extensive experience in bridge assessment for rehabilitation strategies and design. Notable projects include the 175 year old Canton Viaduct southwest of Boston, MA, which was rehabilitated for the high speed Northwest Corridor. Staff members Lance Nelson and Bill Barker led the design team while working for the Engineer of Record. Rehabilitation of this historic structure included installation of micro-piles through the stone masonry buttresses, prestressed concrete deck beams, masonry restoration and high speed rail electrification.

Local rehabilitation projects include Wornall Road Bridge over Brush Creek on the Country Club Plaza in Kansas City, MO. Public input was sought and special attention paid to maintain the aesthetic enhancements during the structural updates to current code requirements. Structure improvements included superstructure repair with pneumatic mortar and epoxy injection, substructure repair and expansion joint replacement.

Our experience with traffic control extends the full spectrum from complete closure with detour on low traffic volume projects to rolling road blocks during off hours for high traffic volume urban interstates. Other methods utilized by Tetra Tech staff include shoo-fly construction, phased construction with detour to the on-off ramps, and temporary stop lights for one lane of traffic operation.

PAST PERFORMANCE

We have an established record of responsiveness to our client's needs, which is highlighted below. We are diligent about meeting project milestones. We value a strong line of communication where we take great care to quickly respond to client communications and where we timely convey any project issues or consequential information to our client.

- **City of Independence, MO, Vermont Avenue over Rock Creek.** Won 2007 KC Metro APWA Project of the Year award for construction projects under \$2 million. Mr. Barker, Mr. Castor, and Mr. Nelson delivered this project which included hydraulics, 404/401 permitting, environmental considerations, roadway design, bridge design, geotechnical investigations, sanitary sewers, storm sewers, water lines, erosion control, landscaping, and public involvement. Part of the award criteria for selection was that the project was to be on time and under budget.
- **SH-7 over Clear Boggy and Dry Boggy Creeks, Oklahoma DOT.** Mr. Barker, Mr. Castor, and Mr. Nelson delivered this \$7 million project that included two bridges totaling over 1,000 feet in length and over one mile of new roadway built on an offset alignment. Included hydraulic analysis of the bridges and geotechnical investigations. This project was one of the largest projects in the program with the shortest duration, with final plans delivered in less than four months from Notice to Proceed. Construction costs came in \$500,000 under budget.
- **City of Independence, MO, Bundschu Road over the Little Blue River.** The three-span structure includes integral abutments, aesthetic enhancement to the river piers supporting the prestressed concrete beams. The bridge deck included prestressed concrete deck panels and cast-in-place concrete. Ancillary design work included bike paths, hydraulic analyses, and geotechnical for the bridge foundations. MoDOT policies and standards were followed for this project as well as for three other bridge projects in Independence.

QUALIFICATIONS OF PERSONNEL

John W. (Bill) Barker, PE, will serve as Tetra Tech’s point of contact for on-call structure services. He has over 35 years of experience in bridge design and managing transportation projects across the U.S. His work has resulted in awards from the Precast Concrete Institute and the Kansas City APWA. Prior to Tetra Tech, Mr. Barker served as Structural Department Manager for HNTB in Tulsa, HDR in Boston, and TranSystems in Kansas City. His LPA experience includes R.D. Mize Road in Independence, the Vermont Avenue Bridge over Rock Creek in Independence, and the Wornall Road Bridge over Brush Creek on the Country Club Plaza in Kansas City.

Joshua Castor, PE, will be responsible for hydraulic studies, approach roadway improvements and traffic control. He has over 14 years of transportation experience including 6 ½ years of experience with MoDOT in the Northwest District’s Design Department. His MoDOT experience has included the roadway design, from concept to final PS&E, of Route 116 over the Platte River and Castile Creek in Buchanan County and Route T over the East Fork of the Grand River in Worth County. Since his departure from MoDOT, the majority of his experience has been providing roadway design for bridge rehabilitation and bridge replacement projects. His LPA experience has included Vermont Avenue Bridge over Rock Creek in Independence and R.D. Mize Road in Independence.

Lance Nelson, PE, will be responsible for bridge and rehabilitation design. Mr. Nelson is Tetra Tech’s Central Region Structural Group Manager and is currently responsible for the design and plan preparation for the replacement of eight bridges on the I-40 and US-64 interchange for the Oklahoma DOT in Sequoyah County, Oklahoma. Recent rehabilitation experience includes two steel bridges on U.S. 412 over U.S. 64 in Garfield County Oklahoma, and four concrete slab bridges over Interstate 40 west of Oklahoma City, Oklahoma. He is experienced in embankment slide remediation and retrofit of pier foundations for stream scour.

Mr. Hammond, EI, is a bridge design engineer for Tetra Tech. Recent projects include Indian Hills Road over Interstate 35 in Norman, Oklahoma, Banner Road over Interstate 40 in Canadian County, Oklahoma and US-270 over Vacated Railroad in Hughes County, Oklahoma. Prior to joining Tetra Tech he was employed by the contractor for construction of the Christopher S. Bond Bridge in Kansas City, the Mississippi River Bridge in Saint Louis, as well as the demolition of the old Paseo Bridge in Kansas City. He is well-versed in AASHTO LRFD bridge design and MoDOT specifications.

COMMITMENT TO WORKFORCE DIVERSITY

Tetra Tech has a long history of meeting and exceeding diversity goals within our workforce and on our projects. Our DBE participation is not just to check a box – DBE firms working with Tetra Tech play a key role in the planning and implementation of the project. In addition to meeting project DBE commitments, Tetra Tech is also a strong believer in workforce diversity. Tetra Tech’s overall staffing includes 21% minorities and 29% women, and we receive high marks and awards for our disadvantaged and small business programs.

ACCESSIBILITY OF FIRM & STAFF

The Tetra Tech team members listed above are accessible and available to immediately begin work on any assignment requested through the LPA on-call services contract. Tetra Tech has local offices in the Kansas City and St Louis Metro Areas and employees 65 engineers, environmental scientists and professionals in Missouri.

We look forward to hearing from you and the opportunity to serve Missouri’s Local Program.

Sincerely,



John W. (Bill) Barker, P.E.
Vice President



TETRA TECH



Bridge Design & Rehabilitation Services

Tetra Tech has the capabilities to perform field assessment, structural analysis, design, hydraulic modeling, and investigations on all types of bridge structures. We are trained in, and use, a multitude of design software packages and are capable of performing any type of design or rehabilitation. Our experience includes, but is not limited to, post-tensioned segmental bridges, prestressed concrete beam structures, multiple-span continuous-steel girders, and bridges with architectural treatments that meet the expectations of the owners by providing special attention to blending with the surrounding architecture.

Tetra Tech staff has completed nearly 50 field assessments and rehabilitation plans for 29 bridges; many have been completed under an accelerated schedule. Tetra Tech staff have drawn upon their vast experience in addressing unique challenges discovered during the field reconnaissance. Some examples of critical elements that require retrofit included scour protection of piers, repair of field splices on steel beams, partial replacement of the flange and web of steel beams, and repairing ends of prestressed concrete beams with composite strengthening. Other more typical repairs have included deck replacement, deck and joint repairs, bearing and diaphragm replacement, approach slab and guardrail replacement. Traffic control for these projects has ranged from complete road closure to phased construction maintaining a single lane with temporary traffic lights and construction of median crossovers. Several of our most recent projects have involved maintenance of traffic on I-35 and I-40.

Bridge Related Services

- Pre-Stressed Concrete Beam
- Multi-Span Steel Girders
- Cast-in-Place Concrete Box Culverts
- Architectural Concrete Bridges
- Scour Analysis & Reports
- Seismic Design
- Fracture Critical Analysis & Reports
- Bridge Rehabilitation/Widening



Bridge Design & Rehabilitation Services

Project Experience



**Vermont Avenue Bridge over Rock Creek
Independence, MO**

The new single-span, 75-foot-long bridge replaced an existing box culvert that frequently overtopped. The new bridge consists of prestressed concrete beams supported on integral abutments to provide a jointless bridge deck. Channel improvements consisted of realignment and widening to withstand the 100-year storm. Winner of the Kansas City Metro Chapter 2007 Public Works Project of the Year Award for projects less than \$2 million.



**Wornall Road Bridge over Brush Creek
Kansas City, MO**

Rehabilitation of the award-winning Wornall Road Bridge over Brush Creek on the Country Club Plaza. Design work included updating to new code requirements for ADA and pedestrian railing while maintaining the original aesthetics and beauty. Rehabilitation work included sidewalk and paver replacement, superstructure repair with pneumatic mortar and epoxy injection, substructure repair, and expansion joint replacement.



**Bundschu Road over Little Blue River
Independence, MO**

The new 234-foot-long, three-span bridge consists of seven pre-stressed concrete beams per span. The concrete piers, supported by steel piling, received an architectural finish as well as the concrete traffic rails. The project included constructing 1,150 feet of bikeway/pedestrian trail passing under the bridge and 1,040 feet of roadway improvements.



**State Bridge Rehabilitation Program
Statewide, OK**

Tetra Tech is one of five consultants that provide 'on-call' services for the State Bridge Rehabilitation Program. In the past 2 years, Tetra Tech has received 10 task orders to prepare field assessment reports, cost estimates, and PS&E documents. Projects have included major rehabilitation of bridges over I-35 and I-40 requiring multiple phases of traffic control. Typical projects include replacement of the deck, bearings, diaphragms, approach slabs, and guard-rail, and repair of the structural steel and substructure.

Bridge Design & Rehabilitation Services

Project Experience



**SH-76 over Simon Creek
Love County, OK**

Rehabilitation of this three-span bridge structure includes pier substructure remediation due to street scour and degradation. Since original construction, Simon Creek has scoured approximately seven feet with calculations indicating additional scour potentially occurring. Retrofit measures included concrete encasement of the piles and rip rap revetment of the streambed. Other rehabilitation work includes bridge deck replacement, beam and diaphragm replacement, and guardrail upgrade.



**North Utica Avenue over BNSF Railroad
Tulsa, OK**

The new five-span bridge, consisting of pre-stressed concrete deck beams, replaced a structurally deficient seven-span structure with improvements to the horizontal and vertical clearances for the BNSF Railroad. The superstructure includes pedestrian sidewalks on each side of the bridge deck. Design and construction of crash walls were required at both bends on either side of BNSF's tracks.



**Indian Hills Road over I-35
Norman, OK**

The two-lane bridge structure spans six lanes of traffic over I-35 as well as the off-ramps for northbound and southbound I-35 traffic onto Indian Hills Road. In addition to the bridge deck repairs and placement of high-density concrete overlay on the deck, superstructure repairs included bearing assembly replacement, removal of and installation of new expansion joints, and diaphragm replacement. Substructure repairs included abutment wing-wall and beam seat concrete repairs with pneumatic mortar and encapsulation of pier columns and cap beams.



**SH-62 Embankment Repair
Chickasha, OK**

Repair of the embankment on the south side of US-62 was required due to the landslide of approximately 150 feet of slope fill. Thorough geotechnical analysis was performed resulting in recommending lowering the slope of the embankment. Various solutions were proposed with a sheet piling wall ultimately being designed and constructed 18 feet behind the edge of road without impacting the adjacent subdivision. Additional work consisted of removing and replacing guardrail and concrete sidewalks in front of the sheet piling and relocating light poles.

Bridge Design & Rehabilitation Services

Project Experience



SH-79 over Red River Jefferson County, OK

Tetra Tech is currently designing a replacement bridge for this 2,255-foot-long structurally deficient truss bridge consisting of 21 spans. Services include: hydraulic modeling, cost comparisons of three bridge alternatives, and roadway design. The three alternatives include: utilizing Bulb T prestressed concrete beams with 135-foot spans, utilizing Type IV pre-stressed concrete beams with spans of 102 feet to match the existing spans, and a combination of Bulb T and Type IV beams.



SH-7 over Clear and Dry Boggy Creeks Atoka, OK

This project was part of ODOT's second program to replace load posted bridges in the state. The existing bridge consisted of two 50-foot-long steel I-beam approach spans and a 100-foot-long truss supporting a narrow roadway width of 24 feet. Once the hydraulic analysis and proposed bridge structures were approved, a geotechnical investigation was undertaken for design of the deep foundations for the new bridges. Early preparation and submittal of the 404 permits was instrumental in meeting the schedule.

Tetra Tech Facts

LEAWOOD, KANSAS OFFICE

4901 W. 136th St.
Leawood, KS 66224
Phone: (913) 956-3998

Visit our website:

www.tetrattech.com

- Annual Revenue: \$2.6B (FY2013)
- NASDAQ Symbol: TEK
- 14,000 employees worldwide
- 330 offices worldwide



TETRA TECH