

November 15, 2013

MaryAnn Jacobs  
Intermediate Planning Technician  
MoDOT-Design  
105 West Capitol Avenue  
Jefferson City, MO 65102

Re: Missouri LPA On-Call Professional Services: Structures

Selection Committee:

Bridge design, analysis and inspection are core disciplines at Alfred Benesch & Company. Founded over 60 years ago, we are a transportation design firm that has developed a reputation for quality, responsiveness, innovation and safety with thousands of clients. Benesch is a nationally recognized leader in bridge design, currently serving 24 state departments of transportation. Our firm is consistently named a Top 50 “Go To” firm for bridge design by Roads and Bridges, and our innovative design solutions are routinely acknowledged at state and national levels.

**500+**  
BENESCH PROFESSIONALS



85+ Structural Engineers  
30+ Technicians

**128**  
2013 RANKING

**ENR**  
Engineering News-Record  
THE TOP 500 DESIGN FIRMS

**ROADS&BRIDGES**

**Go-To  
LIST**

2013 Top 18 Design Firm

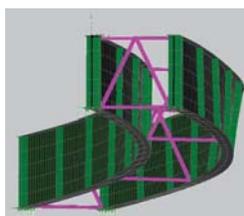
#### GENERAL EXPERIENCE OF FIRM & STAFF

Benesch has provided on-call design services to clients for decades and has a successful track record of meeting compressed schedules and tight budgets, which are inherent to most on-call or emergency design situations. In our on-call relationships, we have designed repairs and replacements for small stream crossings, railroad structures, and major interstate and river bridges. Regarding on-call services, Benesch’s Kansas City, Missouri office will lead any effort for communities across Missouri, but will be supported if needed by additional staff throughout the firm. Our Missouri team has held numerous on-call contracts since 1983, and currently provides similar on-call services to municipalities and DOTs across the country.

Our structural design team has served Missouri communities and the MoDOT Bridge Division for decades. We have provided full replacement designs, as well as rehabilitation and repair plans.

Beyond the development of final design plans and specifications, our team also performs:

- Cost Comparisons
- Bridge Inspections
- Hydraulic Modeling
- High-Order Finite Modeling
- Value Engineering
- Conceptual Layouts
- Bridge Load Ratings
- Scour Susceptibility Analysis
- Non-Linear/Buckling Analysis
- Aesthetic Enhancements



## FAMILIARITY/CAPABILITY

Five fundamental principles are at the core of any successful design project. These principles are essential for successful, on-call relationships: experience, innovation, trusted relationships, safety, and responsiveness. These will be at the core of our approach.

### Experience

Experience is often the best teacher and our team will call upon decades of expertise gained through successful similar projects. Benesch provides on-call design services for city, county, state, and federal clients. We partner with rural cities and counties in numerous states such as Kansas, Iowa and Nebraska; major cities like Chicago, Denver, and Kansas City; state DOTs like the 24 previous mentioned, and federal agencies like the US Forest Service, DOD, US Navy, and US Army Corps of Engineers. We have been continually serving some of the same clients for over 40 years. You can be assured that Benesch is well-versed on the requirements for funding, design preparation, delivery and construction of federally funded projects. Joseph Rishmany, our structural group leader in Missouri, has been working with the BRO program since its inception 30 years ago.

### Innovation

Innovation comes in all sizes and shapes, and is just as important on small bridge repairs as it is on a complex interchange replacement. Whether working within constrained budgets, the abilities of local county maintenance crews, an aggressive project schedule, or confined working areas, Benesch engineers are known for finding a way. Benesch has a resume of award winning projects that highlight innovative solutions.

### Relationships

Relationships matter. In fact, relationships are often the common denominator in successful endeavors. People identify challenges, develop solutions and personally invest to achieve success. Among the most vital established relationships Benesch brings are those with contractors. From decades of bridge construction, our firm has solid connections with dozens of national recognized contractors. Our staff has experience and trusted working relationships with many contractors who routinely work in Missouri, including: Clarkson, Emery Sapp, Fred Weber, APAC, Comanche, LG Barcus and Kiewit.

### Safety

Safety is at the forefront of our efforts. Maintaining traffic access, expediting construction, providing a safe construction zone, minimizing traffic disruptions, and providing advanced warnings are essential to a safe construction zone. Our commitment to safety is best demonstrated by our safety record during construction. Our Missouri office began tracking the construction safety record of our projects in 2007. There have been no injuries to construction workers or motorists on any of our grade separation or interchange projects.

### Responding

One would think responsiveness should be a given, but more often than not our clients tell Benesch that this attribute more than any other is what distinguishes us. Whether we are monitoring levee walls all night during flood warnings, responding to tornado damage, designing emergency repairs for damaged bridges, or inspecting bridges after torrential rains, Benesch responds promptly. With over 500 professionals on staff, we have the resources to respond immediately to project needs.

## EXAMPLE PROJECTS

### Serving the Surrounding State DOTs

The Nebraska Department of Roads and the Iowa DOT have selected Benesch to provide on-call bridge design services. Benesch was awarded an additional two-year on-call contract designated for State projects with services including preliminary bridge engineering services, final bridge design and bridge plan production, independent structural design reviews, and special projects including bridge repair and maintenance.

### PROVIDING ENGINEERING SERVICES FOR 24 STATE DOT'S



### Rolling in a New Truss Bridge 130th Street & Torrence Avenue-Chicago DOT

The new South Shore Bridge over Torrence Avenue at 394 feet is the longest steel truss span for a railroad bridge in Illinois. It was constructed in a staging area near the existing bridge and rolled in over the existing railroad and roadway during a weekend closure. This project required extensive coordination with the City and railroads. The bridge serves an ADT of 38,000 vehicles, with daily railroad traffic below averaging 50 freight trains and 41 passenger trains. Since its completion this bridge has been awarded the NCSEA top award and been recognized as one of Road and Bridge's top 10 projects.



### 2013 Emergency Flood Inspections Colorado Department of Transportation

Following heavy rain events that saturated large portions of Colorado, many of the primary waterways throughout the state quickly reached flood conditions. Fast moving water washed-out and damaged hundreds bridges across the state. The situation made national news early, when several people lost their lives, dozens of communities were cut off and the National Guard was called in to help with rescue efforts. CDOT trusted Benesch to perform emergency inspections on state and local structures. Benesch was called due to our 30+ year bridge inspection relationship with CDOT and our ability to quickly leverage the 30 NHI bridge inspectors throughout the company.



### Waverly Watershed Project

This project involved the following tasks: Reviewing the FEMA flood insurance map revisions, which included a review of hydrologic and hydraulic models, preparing a City-wide storm water drainage map and inventory of all storm water facilities, developing storm water design criteria appropriate for the City and prioritize the study order of the various watershed basins (Benesch performed hydrologic/hydraulic analysis to determine existing conditions and recommended alternative improvement projects.), preparing a Watershed Master Plan, and providing assistance with three public information meetings.

### PAST PERFORMANCE

The frequency of repeat clients is indicative of our steadfast dedication to providing quality services. From previous Consultant Performance Evaluation Forms completed by MoDOT Bridge, our bridge team has consistently received positive reviews. Our firm receives overall scores over 4.0 and normally scores closer to 4.5. Our most recent evaluation included an overall rating of 4.8. The most frequent acknowledgment, regardless of project manager or liaison, compliments our team for meeting commitments, providing responsive service, and keeping project sponsors informed throughout the project.

### QUALIFICATIONS OF PERSONNEL

Our project team will be led by **Carl Reed (Principal-in-Charge)** and **Joseph Rishmany (Project Manager)**. Both Carl and Joe have 40 years experience in bridge design, analysis, inspection and construction. They have developed trusted relationships and reputations with each of the MoDOT Bridge Division Liaisons and many of the District staff. Carl and Joe have managed and been involved in over a hundred on-call engineering projects each over their respective careers. Other key members of Benesch's Missouri structural group include **Christopher Harker, PE** (10 years experience), **Justin Davis** (10 years experience), **Terry Kaiser** (27 years experience), and **Darren Rice** (25 years experience).

### ACCESSIBILITY & MoDOT INITIATIVES

This project will be managed and led by our Kansas City office. The project manager, Joseph Rishmany and the key team members are based out of the Kansas City Office. All team members are available to coordinate with MoDOT in person, through video conferencing, email or phone.

Creativity and innovation results from diversity of thought. To foster innovation and promote MoDOT's diversity initiative, our firm is committed to developing and maintaining a diverse workforce through hiring and retention programs.

### CONCLUSION

Benesch is a national leader in bridge design and value engineering. Our firm holds dozens of on-call contracts with local, state, and federal clients. We currently serve 24 state DOTs and have the resources to meet your needs. With over 500 Benesch engineers on staff, we can deliver what you need; when you need it.

Respectfully,

Joseph L. Rishmany, PE  
Senior Project Manager/Bridge Group Leader

## Alfred Benesch & Company

specializes in quality civil and structural engineering services to clients in transportation and infrastructure development.

# Benesch

### ROADWAY



Hundreds of interstate miles have been designed by Benesch engineers.

**Since 1946**, Benesch has successfully completed thousands of design and engineering projects throughout the United States. We are ranked among the top 500 consulting engineering firms by Engineering News Record and recently received recognition for the third year in a row as one of the nation's Top 20 "Go-To" bridge design firms by *Roads & Bridges* magazine.

Benesch designs and inspects complex highway interchanges, major river bridges, parking structures and structural systems for high- and low-rise buildings. Benesch has an established track record for using value planning and value engineering effectively on both transportation and building projects. Benesch employs approximately 500 professionals including engineers, construction managers, planners, designers and scientists. Benesch has offices in Colorado, Connecticut, Illinois, Kansas, Massachusetts, Michigan, Missouri, Nebraska, Ohio, Pennsylvania, Tennessee, Wisconsin and Washington D.C.

We routinely work with state Departments of Transportation and their FHWA counterparts to rehabilitate, modify or create new roadways that effectively connect people and places. Our road and highway projects traverse farm lands, urban cities and everything in between.

We provide much more than geometric solutions, however. You can consider Benesch a one-stop shop for all civil infrastructure needs. Within our civil division, we have staff experts in MOT, drainage, traffic engineering, electrical engineering, surveying and geotechnical.

Quality is our top priority. We deliver plans that are quality-checked for constructability, enabling clients to use a low-bid system to their advantage. In addition, we go the extra mile to ensure minimal change orders and field issues during construction.

#### Our areas of expertise include:

- Highway and Toll Roads
- Interchanges
- Utility Coordination
- Horizontal and Vertical Alignment
- Drainage
- Maintenance of Traffic
- Agency Coordination and Permitting
- Surveying
- Transportation Project Plats
- Specification Development
- Construction Plans and Estimates
- Geotechnical Services

## STRUCTURES



From road stream crossings to high-profile arch bridges, the structural team at Benesch has designed thousands of bridge structures ranging from 35 to 2,000 feet.

Our engineers are proficient in the study and design of continuous complex structures, including plate girder, tied arch, segmental box girder, continuous/cantilever truss and cable stay bridges. In addition, we specialize in high order finite element analysis associated with various forms of nonlinear and buckling behavior. We are relentless in the pursuit of industry advancements, and pride ourselves on implementing innovative solutions.

Benesch has been awarded several Eminent Conceptor awards from the American Council of Engineering Companies and has consistently been named a top 20 "Go To" firm for bridge design by government subscribers of Roads and Bridges magazine.

### Our areas of expertise include:

- Simple, Typical and Complex Bridges
- Major River Crossings
- Railroad Bridges
- Pedestrian Bridges
- Inspections and Ratings
- Bridge Retrofit and Rehabilitation
- Retaining Walls
- Culverts
- Seismic Analysis
- Bridge Modeling
- Structural Survey
- Value Engineering
- Geotechnical Services

## TRAFFIC ENGINEERING



The Benesch team combines traffic engineering expertise with real world experience to develop innovative, practical, sustainable and cost-effective solutions.

Our team is committed to staying at the forefront of the latest traffic engineering technologies. We use advanced tools like Miovision traffic cameras and sophisticated in-house simulation software such as Synchro, SimTraffic, Vissim and HCS. These tools enable us to better understand design implications and meet project needs. Benesch engineers strive to develop practical, sustainable solutions. Tackling traffic issues from the "demand side" to encourage multi-modal and environmentally friendly solutions is just as important as looking at traditional "supply side" solutions that involve physical improvements.

### Our areas of expertise include:

- Traffic Impact Studies
- Origin and Destination Studies
- New and Modernized Signal Design
- Highway Operational Analysis
- Travel Demand Modeling
- Safety Studies
- Access Management Studies
- Gap Analysis
- Traffic Signal Coordination and Timing (SCAT)
- Signal Timings
- Intersection Analyses
- Corridor Progression Analysis
- Level of Service Analysis
- Traffic Data Collection
- Maintenance of Traffic Plans

## CONSTRUCTION INSPECTION



Benesch brings knowledge of construction and expectations associated with federal aid, and a commitment to excelling that separates us from other consulting engineers.

## GENERAL CIVIL AND STRUCTURAL ENGINEERING



Benesch prides itself on providing a wide array of civil engineering services, quality based engineered solutions and client satisfaction.

Our team has completed hundreds of DOT and LPA federal aid construction engineering projects. We have the experience and background to work successfully with the Federal Highway Administration, DOT Construction staff and Local Public Agencies. We are a full-service provider that brings a proven approach, based on efficient operations and utilizing versatile, knowledgeable, experienced staff who understand the work being performed and the construction engineering services required to satisfy project oversight requirements.

Construction rarely goes exactly as planned. We have experts on staff who are able to provide assistance should major changes or unanticipated situations arise. Besides construction, our staff includes designers and scientists ready to provide support. Their proximity and accessibility to our team allows for rapid response and accurate advice. This prevents surprises, helps avoid lengthy delays, and ultimately leads to successful projects.

### Our areas of expertise include:

- Construction Observation
- Design-Build
- Shoring Tower Design
- Schedule Management
- Earthwork Quantities
- Temporary Earth Retention Systems
- Cost Management
- Pavement Quantities
- Demolition Plans
- Structural Engineering
- Value Engineering

Our expertise lies in most all areas of civil and structural engineering including geotechnical engineering, environmental assessments, sustainable design and value engineering. Our responsiveness to short term, long term and emergency needs is well known among our clients. In addition, our clients will tell you that attention to detail in our engineering documents sets the standard for quality.

The Benesch team resume includes a variety of civil/structural studies and designs for many clients across the United States. Our experience in municipal engineering provides a solid knowledge base that will be a valuable resource. Additionally, our work with numerous small and large scale commercial developments is particularly important. Many of our projects have involved public involvement and environmental permitting efforts that required specialists within Benesch. Further, managing and improving infrastructure facilities requires knowledge not only of pertinent design standards but also sustainability. Our engineers are well versed in designs that accommodate all types of users including complying with the Americans with Disabilities Act and the pursuit of LEED certified projects.

Benesch has been named one of the nation's Top 20 Go-To Bridge Design Firms by Road and Bridges Magazine for three years in a row. Our nationally recognized expertise in structural design will be at your disposal.

# MECHANICAL ELECTRICAL PLUMBING



Benesch offers a full spectrum of MEP services to our clients.

Professionals in our Kansas City office provide design, consulting and sustainable solutions for mechanical, electrical and plumbing systems. Our services include design drawing preparation, specifications, and cost estimates. We bring a strong foundation of industrial and commercial engineering experience, including both new construction and renovation of existing facilities. Over the past twenty years we have completed projects in wastewater treatment plants, hospitals, schools, military facilities, vehicle maintenance buildings, telecommunication facilities, correctional institutions and various commercial buildings.

## Mechanical Practice Areas

- Heating, Ventilating, and Air Conditioning Systems
- Exhaust Systems
- Chilled Water Systems
- Heating Water Systems
- Facility Assessment & Energy Audits
- Life Cycle Cost Analysis
- Industrial Ventilations
- Energy Recovery
- Temperature Controls
- Solar Thermal Systems
- Direct Digital Control (DDC) Systems
- Odor Control Systems

## Electrical Practice Areas

- Power Distribution
- System Analysis, Assessment and Planning
- Interior and Exterior Lighting Design and Controls
- Energy Code and LEED Compliance
- Fire Alarm Systems
- Paging, Public Address, and Sound Systems
- Uninterruptible Power Supply
- Programmable Logic Controls
- Facility System Controls
- SCADA Systems
- Emergency Power Systems

## Plumbing Practice Areas

- Facility Plumbing Systems Design
- Process Systems Piping
- Site Utilities and Yard Piping Systems
- Distribution Systems
- Grey Water Storage Systems
- Low-Flow Fixture Installation
- Water Usage Audits
- Storm Water Systems
- Fuel Piping Systems
- Chemical Piping