



ROADWAY DESIGN

Response to Request for Letter of Interest

TERRA Engineering, Ltd. (TERRA), is submitting our Letter of Interest to Missouri Highways and Transportation Commission (MoDOT) for the Missouri Local Program on-call services for Roadway Design. TERRA has experienced staff with the availability and expertise to complete any on-call project on time and on budget and can be available to mobilize quickly to assist local agencies throughout the state. Our roadway design engineering services – including the numerous types of work requested in the RFLOI, such as widening, resurfacing, pavement reconstruction, utility design and coordination, right-of-way, environmental clearance, traffic signals and lighting, general lighting, surveying, sidewalks and trails (as part of a roadway design contract), and parking lot design. Our team has been working with other firms on roadway design projects throughout the state, including in the Old Monroe and University City areas, and throughout the state of Illinois. Our approach to every roadway engineering project is to meet with local agency staff to determine the overall needs for each project and to assign the appropriate staff and resources to meet the timeline and budget for the project. TERRA has worked on federal-funded projects, including TIGER grant projects and MoDOT LPA projects, and is familiar with the requirements and laws that govern the implementation of these projects.

General Experience of Firm

TERRA's roadway design experience includes working as the prime consultant on numerous roadway projects throughout the Midwest and internationally. TERRA's team has worked with numerous municipalities throughout the Midwest, on various roadway design projects ranging from pedestrian and bicycle facilities to widening, as well as resurfacing, improving a streetscape, and total reconstruction. These projects require our team to assemble a team whose experience matches the specific, tailored needs of each, individual project, which we do by utilizing members from our St. Louis office with additional project specific expertise from our other offices. For every roadway design project that we complete, TERRA's team performs the necessary due diligence to ensure that everything is done to the client's satisfaction as well as the various procedural requirements set forth by MoDOT, ADA, AASHTO, and/or the various agencies in which each project is located. Our team will go out and inspect the project location, after discussing the project details, specifications and wants of the clients. We'll take photos, analyze/measure ADA ramps and curbs, observe pavement conditions and, when necessary, go out during the elements to see how the street/sewers handle an influx of rain and stormwater. Our team then sits down to discuss the most cost-efficient and sustainable manner to redesign the roadway, incorporating public input should public involvement meetings be necessary. TERRA strives to ensure that not only are our designs what the client and community want, but that they meet the standards set forth by MoDOT and the local agency, are as sustainable as possible, and are designed in such a manner so as to prevent the need to redesign this roadway.

Past Performance

TERRA understands that the best way for you to evaluate our team and our record of past performance on projects is to contact our references and discuss how they feel about our services. We have provided some examples of TERRA's recent roadway design related project experience include the following:

Knoxville Avenue Reconstruction - Peoria, Illinois

TERRA is providing Phase I and II engineering services for the reconstruction of Knoxville Avenue (Illinois Route 40) between Pennsylvania Avenue and Lake Street in the City of Peoria. Our team's concept design responsibilities include CSS public involvement, roadway and intersection studies, storm sewer design, ADA/PROWAG improvements, bicycle and pedestrian accommodations for Complete Streets compliance, crash analysis, utility design, and traffic management studies. Final design responsibilities include preparation of plans, specifications and estimates; right-of-way plats; route and land surveys, traffic control details, and preparation of lighting and signal plans.

- **Key Personnel:** Colin Coad, PE, PTOE, VMA | **Reference:** Nicole Fayant, IDOT, 309.671.3473, nicole.fayant@illinois.gov

Downtown Streetscape - Elmwood, Illinois

TERRA worked with the City of Elmwood to design improvements to the downtown area streetscape as part of the city's continued redevelopment following a devastating tornado in 2010. The project consisted of an entirely new streetscape, extending from the face of curb to the property line, for six primary streets within the

downtown business district. The improvements provide more efficient, comfortable and attractive transportation routes for pedestrians, as well as beautifying the downtown area with unit paver sidewalks and ramps designed to meet current Public Right-of-Way Accessibility Guidelines, new decorative streetlights and raised landscape planters. Challenged with an existing two-level sidewalk system, TERRA's design proposed raised landscape planters to resolve some of the existing accessibility issues by making up grade differences between the street level and finish floor elevations of the existing buildings. Stairs and ADA ramps were provided within the raised landscape planter module to provide convenient access to downtown businesses from the existing street parking. Ornamental guardrail fencing and handrails were used between the raised landscape planters in areas where grade differences would create safety hazards. The project will improve pedestrian safety and mobility for visitors and shoppers in the business district while increasing the attractiveness of both local streets and state routes running through downtown Elmwood.

- **Key Personnel:** Julie Schmidt, PE | **Reference:** Richard Taylor, City of Elmwood, 309.742.2351, rwaylor455@gmail.com

Western Avenue Reconstruction - Peoria, Illinois

TERRA was selected by the City of Peoria to reconstruct Western Avenue from Adams Street to Howett Street, transforming the corridor from a wide 4-lane roadway to a 3-lane (road diet) section with a two-way cycle track and a bioswale median. TERRA is providing concept and final design engineering services for the project, including extensive public involvement, alternative analysis, and pursuing federal funding. Key challenges have included the implementation of green infrastructure in a tight urban corridor, while accommodating the needs of all users of the right-of-way. Colin managed the design team, guiding the project through the Phase I process. He will also be a key team member for the Phase II design and plan development, with a focus on roadway geometry and traffic signal design.

- **Key Personnel:** Colin Coad, PE, PTOE, VMA, M. Chris Hutchinson, PE, PTOE | **Reference:** Andrea Klopfenstein, PE, City of Peoria, Illinois, 309.494.8800, aklopfenstein@peoriagov.org

Folkers Avenue Reconstruction – Peoria, Illinois

TERRA was retained to design two blocks of Folkers Avenue in front of Peoria's Trewyn School. The project was meant to increase pedestrian safety in front of the school, where previously there was no barrier between sidewalk and roadway. Improvements included an added curb and gutter, new curb bump outs at intersections, added tabletop (speed table) to existing intersection, and the pavement structure. The project also reconstructed and re-plumbed an existing storm sewer to reduce load on CSO (combined sewage overflow). This was accomplished using permeable paver parking lanes and drywells. Also, parking lanes sit on 4-foot deep stone layer to store stormwater of 10-year flood, and below the stone layer is sandy soil to drain. Additionally, landscaping elements were added to the sidewalk in front of the school, and increased sidewalk area, which include sidewalk planters, curb planters, ornamental trees, shade trees; ornamental lights to sidewalk; trash cans, park benches in school colors (red); and a seat wall with planters at school's main entrance. Also, the public voted on furniture style and color, and paver color. TERRA coordinated design with the City of Peoria and Trewyn School.

- **Key Personnel:** Julie Schmidt, PE | M. Chris Hutchinson, PE, PTOE | Colin Coad, PE, PTOE, VMA | **Reference:** Andrea Klopfenstein PE, City of Peoria, 309.494.8800, aklopfenstein@peoriagov.org

Qualifications of Personnel

Project Manager | Chris Hutchinson, PE, PTOE – Mr. Hutchinson has acquired more than 20 years of experience in providing traffic and transportation engineering services for a variety of projects and clients. Chris specializes in traffic modeling and traffic impact studies for TERRA. Chris has completed multiple large-scale modeling projects throughout the Midwest. Chris also has completed numerous traffic and speed studies for public and private clients, as it pertains to a new roadway design. His experience includes traffic modeling and analysis, traffic signal design, signal optimization, roadway design, and traffic studies. Chris has worked on various roadway design projects including Folkers Avenue Reconstruction and the Washington Street TIGER II Complete Streets project.

Project Manager | Julie Schmidt, PE – Ms. Schmidt has acquired more than 20 years of experience in roadway design and site development for a variety of projects and clients. She has served as the project manager or design engineer on numerous roadway and site development projects from planning through construction for both public and private clients. Her varied experience includes roadway design, drainage studies, field inspections, material testing, and traffic analysis. She is also experienced in multiple design

and modeling software including MicroStation, GeoPAK, Corridor Modeling, AutoCAD, Civil 3D, EaglePoint, HEC-HMS, HEC-RAS, and Syncro. Julie played an integral role in the design and traffic modeling on various projects, such as Elmwood Downtown Streetscape, Main & University Intersection Improvements, and Farnham Street over the BNSF Railroad projects.

Senior Planning Engineer | Colin Coad, PE, PTOE, VMA – Colin has 15 years of experience in roadway geometrics, traffic analysis, traffic signal design, roadway design environmental processes/documentation and preparing Project Development Reports on State, County and Municipal transportation projects with both local and federal funding. He has mastered various software programs including Highway Capacity Software, Synchro/SimTraffic, MicroStation, and GeoPAK. Colin is spearheading the Western Avenue Reconstruction project, in Peoria, Illinois, and also led the Crueger Road Trail Extension, in Washington, Illinois, which focused on the extension of an existing bike trail for another 1.3-miles. Colin has also assisted the City of Peoria, Illinois, with various on-call project, including the development preliminary traffic analysis and roadway geometry for a new intersection on US Route 150 at Parish Avenue in the City of Peoria as well as ongoing work, which includes the development of an Intersection Design Study in accordance with IDOT requirements.

Senior Project Engineer | Jason Heinekamp, PE - Mr. Heinekamp is a project engineer who has been with TERRA for five years. He has designed or overseen the construction of a wide array of roadway projects in various rural and urban environments. Throughout his career in the field, he has managed complex roadway design projects and accelerated schedules. Coupled with his technical training, Jason now incorporates his field experience into planning and design and offers key insights towards constructability. Jason has participated in technical training courses relating to construction materials, erosion and sediment control, bridge construction, Phase 1 design and CAD modeling.

Familiarity and Capability

Our design team utilizes GeoPak, AutoCAD, Microstation for creating 3D design models, which can be used for creating and revising roadway designs, in real time, based on the team's site finding as well as the client's input. Our team also uses these same programs when developing a roadway plan set for implementation. Our team uses our unique "linear method" for creating 3D design models which allows us to streamline the design and complete plans more efficiently than traditional design methods, saving the client time and money. While TERRA has primarily worked on roadway design projects within Illinois, our team is familiar with the MoDOT standards and preferred processes to keep projects on-time and on-budget. Our ability to quickly mobilize our team and our attention to detail on our roadway design projects have led to us being a provider of choice for roadway projects for multiple clients. We take pride in our quality of work and have created our own QA/QC processes to ensure our work is accurate before submitting to the local agency and MoDOT for review.

Accessibility

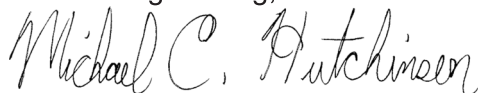
TERRA Engineering has worked throughout the Midwest on roadway design projects and will make our team accessible easily accessible to work with local agencies and their staff as well as MoDOT district review staff. Our design team is based out of our office in St. Louis office, and can travel, as required, to meet with any local agency as required.

Workforce Diversity

TERRA Engineering is a woman (WBE) owned company, which believes in promoting workforce diversity. Our engineering and support staff employ many minorities and women. A diversified staff will be assigned to work on any on call traffic engineering projects based on the skills and knowledge needed for each task, including the need to bring on any DBE firms, depending on the nature and needs of the project.

TERRA is proud to submit this LOI and looks forward to partnering with MoDOT and local agencies throughout the State to provide quality, economical, and sustainable design engineering services for a wide variety of roadway design related projects.

Sincerely,
TERRA Engineering, Ltd.



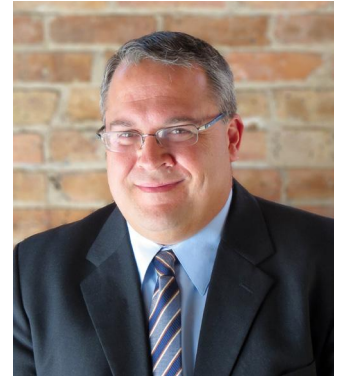
M. Chris Hutchinson, PE, PTOE
Project Manager

ROADWAY DESIGN



BROCHURE

TERRA Engineering, Ltd. (TERRA), has experience with roadway design projects and streetscapes of all sizes, ranging from small local projects to larger projects of regional importance. Highlights include work for federal, state, county, and local governments in both rural and complex urban environments. TERRA provides professional roadway design engineering services to public and private clients. Attention to cost, historical significance, public input, and aesthetics have been important factors in reducing environmental objections and obtaining public acceptance and approval. TERRA uses nationally recognized Context Sensitive Solutions (CSS) processes that are also used by the Illinois Department of Transportation (IDOT). TERRA conducts a wide array of traffic engineering and safety studies to assist our clients in determining the potential impact of a project on the surrounding roadway network. Our traffic engineering staff is well versed in the procedures, standards, and technology required to determine the appropriate solutions for each project.



Point of Contact

Chris Hutchinson, PE, PTOE

chutchinson@terraengineering.com

O: 314.395.9899 | M: 314.614.2410

1804 Borman Circle Drive, Ste 200

St. Louis, MO 63146

EXPERIENCE

- Main Street Streetscape - Old Monroe, Missouri
- Folkers Avenue Reconstruction - Peoria, Illinois
- Washington Street Improvements - Peoria, Illinois
- Warehouse District TIGER II Complete Streets - Peoria, Illinois
- Eastern Bypass Study Metropolitan - Peoria, Illinois
- South Marion Streetscape - Oak Park, Illinois
- Main & University Intersection Improvements - Peoria, Illinois
- Interstate 74 Reconstruction - Peoria, Illinois
- Oak Park Streets & Alleys - Oak Park, Illinois
- Roosevelt Road Streetscape Improvements - Berwyn/Cicero/Oak Park, Illinois
- Elmhurst Road Intersection Improvements - Chicago, Illinois
- Downtown Streetscape Revitalization - Elmwood, Illinois
- Milwaukee Streetscape Design Guidelines - Milwaukee, Wisconsin
- South Boulevard TCSP Program - Oak Park, Illinois
- Western Avenue Reconstruction - Peoria, Illinois
- University & Glen Improvements - Peoria, Illinois
- West Vliet Street Reconstruction - Milwaukee, Wisconsin
- University of Chicago 58th Street Streetscape - Chicago, Illinois
- University City ADA Ramps - University City, MO

SERVICES

- Roadway Planning & Design
- Feasibility Studies
- Roadway Drainage
- Urban & Rural Interstate/Freeway Design
- Simple & Complex Interchange Planning & Design
- Traffic Data Collection
- Corridor Studies
- Intersection / Roadway Capacity Analysis
- Intersection Design Studies (IDS)
- Speed Delay Studies
- Traffic Modeling (utilizing VISSIM, Synchro, HCS, Sidra, TruTraffic, etc.)
- Traffic Impact Analysis
- Traffic Signal and Stop Sign Warrant Analysis
- Traffic Signal Design / Interconnect
- Safety Studies and Economic Analysis
- Cost Estimating & Value Engineering
- Construction Staging & Traffic Maintenance Planning
- Roadside Safety & Barrier Warrant Analysis

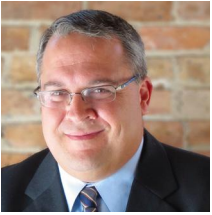
MANAGEMENT

WBE*

Karen Steingraber, PE, President • Jamil Bou-Saab, PE, Executive Vice President

George Ghareeb, PE, F.ASCE, Associate Vice President • Eric Therkildsen, PE, Associate Vice President

MEET THE TEAM



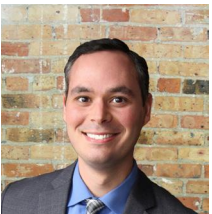
Project Manager | M. Chris Hutchinson, PE, PTOE

Mr. Hutchinson has acquired more than 20 years of experience in providing traffic and transportation engineering services for a variety of projects and clients. Chris specializes in traffic modeling and traffic impact studies for TERRA. Chris has completed multiple large-scale modeling projects throughout the Midwest. Chris also has completed numerous traffic and speed studies for public and private clients, as it pertains to a new roadway design. His experience includes traffic modeling and analysis, traffic signal design, signal optimization, roadway design, and traffic studies. Chris has worked on various roadway design projects including Folkers Avenue Reconstruction and the Washington Street TIGER II Complete Streets project.



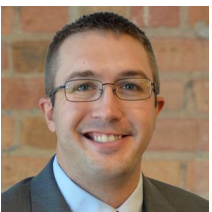
Project Manager | Julie Schmidt, PE

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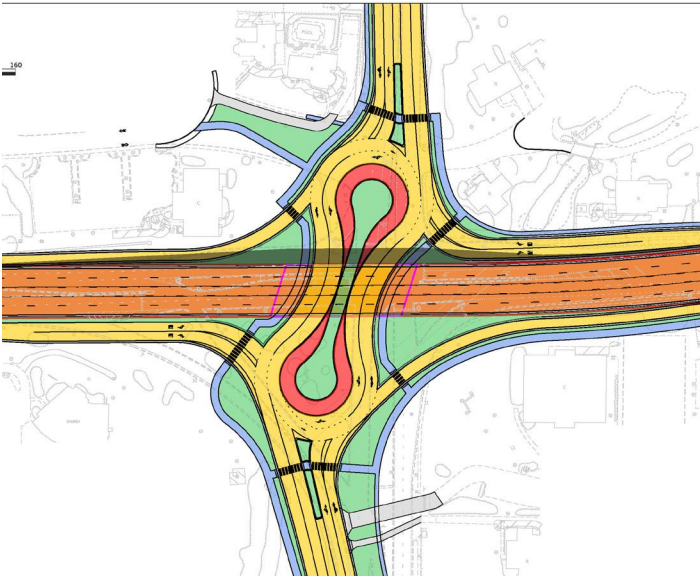
Senior Planning Engineer | Colin Coad, PE, PTOE, VMA

Colin has 12 years of experience in roadway geometrics, traffic analysis, traffic signal design, roadway design environmental processes/documentation and preparing Project Development Reports on State, County and Municipal transportation projects with both local and federal funding. He has mastered various software programs including Highway Capacity Software, Synchro/SimTraffic, MicroStation, and GeoPAK. Colin is spearheading the Western Avenue Reconstruction project, in Peoria, Illinois, and also led the Crueger Road Trail Extension, in Washington, Illinois, which focused on the extension of an existing bike trail for another 1.3-miles. Colin has also assisted the City of Peoria, Illinois, with various on-call project, including the development preliminary traffic analysis and roadway geometry for a new intersection on US Route 150 at Parish Avenue in the City of Peoria as well as ongoing work, which includes the development of an Intersection Design Study in accordance with IDOT requirements.



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IDOT KNOXVILLE AVENUE RECONSTRUCTION

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As part of the ongoing traffic and alternative analysis effort, TERRA prepared traffic signal warrant studies for 31 intersections along the corridor in accordance with the ILMUTCD. The results of the warrant studies are being utilized in the development of a projected future year 2045 Synchro traffic model.

- Key Personnel: Colin Coad, PE, PTOE, M.
Chris Hutchinson, PE, PTOE
- Reference: Nicole Fayant, IDOT,
309.671.3473, nicole.fayant@illinois.gov



ELMWOOD STREETScape

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WESTERN AVENUE STREETScape

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FOLKERS AVENUE RECONSTRUCTION

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