B Brochure
Roadway Design

Missouri's Local Program On-Call

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.

Our roadway designers have worked on projects including miles of mainline pavement reconstruction or overlays, horizontal and vertical alignment modifications, new curbs, pavement drainage and all types of intersections including typical layouts, roundabouts and alternative intersection designs. TERRA's experts can help your organization determine the right design to meet the needs of any location in need of improvements.

Point of Contact

Chris Hutchinson, PE, PTOE

chutchinson@terraengineering.com

O: 314.395.9899 | M: 314.614.2410

Experience

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

Services

- Roadway Planning & Design
- Feasibility Studies
- Roadway Drainage
- Urban & Rural Interstate/Freeway Design
- Simple & Complex Interchnage 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

Meet Your Key Team

Chris Hutchinson, PE, PTOE
Project Manager

Project Manager | Chris Hutchinson, PE, PTOE – Chris 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 has completed MoDOT's LPA training and has managed several LPA roadway projects for municipalities in Missouri including geometric, stormwater and sidewalk design.

Kelley Davis, PE
Project Manager

Project Manager | Kelley Davis, PE — Kelley is a Senior Project Manager with more than 26 years of experience in roadway, multi-modal infrastructure and stormwater design. She serves as Project Manager or Roadway Design Lead on high visibility muncipal projects, coordinating directly with local agencies and utility providers. Kelley manages federally funded LPA projects from concept through PS&E, including scope and fee development, budget control and coordination of survey, utilities and ROW clearance.

Colin Coad, PE, PTOE, VMA
Project Manager

Project Manager | Colin Coad, PE, PTOE, VMA – Colin has over 19 years of experience in roadway geometrics, traffic analysis, traffic signal design, roadway design environmental processes/documentation and preparing Project Reports on State, County and Municipal transportation projects with local, state, and federal funding. He pulls from his value engineering training to bring a high level of value to every project he touches.

Jason Heinekamp, PE
Project Manager

Project Manager | Jason Heinekamp, PE – With over 16 years of experience, Jason spent the start of his career overseeing the construction of a wide array of roadway projects in various rural and urban environments. He transitioned to design and project management and has consistently demonstrated sound judgment and technical expertise. He has become an expert in PROWAG and drainage design, and he brings his pragmatic nature to each project.

Travis Wallenfang, PE
Project Engineer

Project Engineer | Travis Wallenfang, PE – Travis brings a wealth of knowledge and expertise to TERRA, acquired working as a CADD manager and squad leader for nearly 9 years with IDOT. His leadership skills, coupled with his conscientious nature and enviable problem-solving skills, afforded him the opportunity to advance quickly through his roles, providing him with exposure to a variety of project types, sizes and services. Travis is an expert in OpenRoads Designer and has become the go-to for all our staff's questions. Coupled with his roadway design experience, this makes him a powerhouse engineer.

Relevant Projects

We understand 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.

Curb Ramp Replacements (2019 + 2020 Program) | City of University City MO

TERRA assisted the City of University City with its 2019-2020 ADA curb ramp replacement program. This project evaluated 38 intersections throughout several neighborhoods within the City which had deficient curb ramps at intersection crossings. TERRA's team collected field data at each existing location which included existing longitudinal and cross slope data, PROWAG-compliant paths, location of adjacent obstructions or utilities and other data to better understand the challenges on each corner.

TERRA utilized a classification system to determine the complexity of each curb ramp design and the level of detail required for the plans. TERRA provided full bid documents to the City for this project, which was combined with the City's annual sidewalk replacement program and bid.

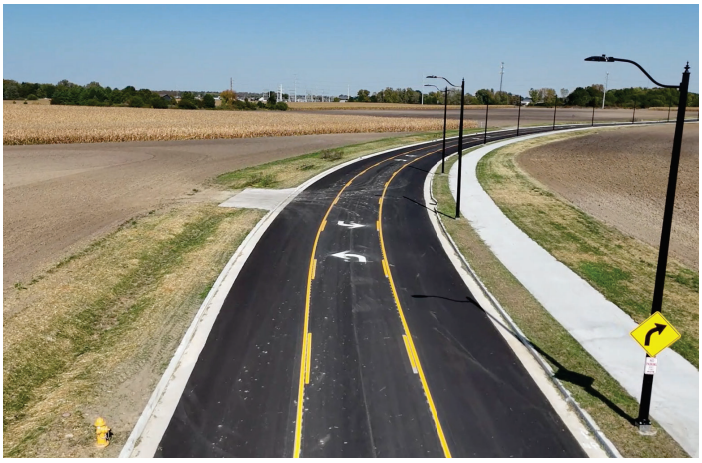
- Key Personnel: Chris Hutchinson, PE, PTOE; Colin Coad, PE, PTOE, VMA; Jason Heinekamp, PE
- Reference: Errol Tate, PE, former Sr. Public Works Manager for the City of University, etate@mancestermo.gov

MacArthur Highway Improvement | Peoria IL

TERRA was selected by the City of Peoria to design the rehabilitation of MacArthur Highway from Howett Street to north of John Gwynn Avenue. This project utilized state funding to modify the cross section of the roadway, removing a two-way on-street bike lane and installing a new shared-use path. Design concepts were presented at a public meeting, and the public input was utilized to determine the preferred design. With limited funds, TERRA massaged the design to fit the project to the budget. This resulted in a project that will resurface the roadway, reconstructing patches only where necessary, but will reconstruct the curb lines and pedestrian/bicyclist facilities without compromising on critical improvements to traffic operations and vulnerable user safety. The result is a form-fitted improvement that gets a lot of bang for the buck, including a new raised intersection and three reconstructed traffic signals. The project involved extensive storm sewer and green infrastructure design, contributing to the City's goal of offloading their combined sewer system. The project is currently under construction and is scheduled for completion in 2026.

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

Relevant Projects



Freedom Parkway Extension -
City of Washington | Washington IL

TERRA provided transportation engineering services in conjunction with traffic, landscape architecture, and surveying services for the extension of Freedom Parkway from Menards to Cummings Lane in the City of Washington, IL. The preliminary engineering portion of the project coordinated the design and environmental documentation of the extension of Freedom Parkway and Lakeshore Drive, two roadways that will enable the City to develop the adjacent agricultural land into industrial and "urban village" land uses. The project followed the NEPA process and was a Categorical Exclusion. TERRA developed a traffic study, roadway geometry, traffic signals, and drainage design for the City and IDOT-jurisdiction roadways affected by the project. This effort included developing and coordinating Intersection Design Studies, a Location Drainage Study, and a Project Development Report, with public involvement. The resulting plan provides the framework for the advancement of the City's roadway network and development.

TERRA developed the final design, the plans, specifications and estimates for the Freedom Parkway extension. This includes the construction of a new roadway, approximately 3,500-foot long, with a new signalized intersection at Freedom Parkway and Cummings Lane. The design includes a bioswale, a shared-use path, lighting and traffic signals, a new storm sewer system with detention, and landscaping. The project was constructed in 2024.

- Key Personnel: Chris Hutchinson, PE, PTOE; Colin Coad, PE, PTOE, VMA; Jason Heinekamp, PE
- Reference: Dennis Carr, PE, City Engineer, City of Washington, IL, 309.441.1136, dcarr@ci.washington.il.us

"Back" Wolfrum Road Safety Study
City of Weldon Spring | Weldon Spring MO

TERRA performed a safety study to evaluate the overall safety of the "back" stretch of Wolfrum Road in the City of Weldon Spring, Missouri. This included evaluating the traffic volumes, speeds, horizontal and vertical geometry, roadway width, edge drop-off, curve treatments, and signing along the route. The analysis showed that the roadway geometry is deficient in several locations due to the horizontal and vertical geometry. This includes tight horizontal curves including a near 90° turn along the roadway and numerous vertical grades in the range of 10 to 15% which can be treacherous in wet or icy conditions. Roadway widths were measured to be around 20 to 21 ft in width in most locations which equates to 10 ft lanes. A review of the volumes and speeds show that over 75% of vehicles were measured to be traveling above the speed limit, with some recorded as high as 70+ mph. These increased speeds with the geometric deficiencies create potential for higher crash rates along the corridor. The effort also included a review of the signage and a detailed crash analysis over the previous 10 years of available data. The analysis indicated that a majority of crashes involved vehicles leaving the roadway surface and striking fixed objects and 78% of the crashes occurred at curves. Numerous factors were identified as contributing to the crashes including speeds, pavement conditions, inattentiveness and inability to recover control when leaving the pavement surface.

TERRA is working with the City to developed detailed design and contract documents for the construction of crash countermeasures, including rumble strips, "safety edge", and improved signage. The design will also look into shielding roadside hazards and alignment improvements.

- Key Personnel: Chris Hutchinson, PE, PTOE; Colin Coad, PE, PTOE, VMA; Jason Heinekamp, PE
- Reference: Bill J. Schnell, PE, City Engineer, Weldon Spring, 636.441.2110x110