



November 15, 2013

Mr. Kenny Voss, P.E.
105 West Capitol Avenue
Jefferson City, Missouri 65101

RE: Letter of Interest for LPA On-Call – Traffic Engineering and TEAP

Prime Consultant: TERRA Engineering, Ltd.
Prime Contact: M. Chris Hutchinson, P.E., PTOE Senior Transportation Engineer
314/395-9899 (Phone) 314/432-8630 (Fax)
1804 Borman Circle Dr, Suite 2, St. Louis, MO 63146
E-mail: chutchinson@terraengineering.com

Response to Request for Statement of Interest: TERRA Engineering, Inc. (TERRA) is submitting our Letter of Interest to MoDOT for the Missouri Local Program on-call services for **Traffic Engineering and TEAP**.

The TERRA team has helped numerous local agencies including counties, cities and other entities with their traffic engineering needs. TERRA Engineering has completed all of the types of work requested in this category including traffic signal design, signing plans, lighting design, pavement marking design and traffic studies and modeling. TERRA has over 20 years of experience with projects assisting local agencies of all sizes from Chicago to small rural towns. TERRA has an experienced staff and the availability to complete the project on time and on budget and can be available to mobilize quickly to meet each community's needs. It is our goal to provide economical and efficient traffic services that provide a thorough evaluation and design for each of our clients. TERRA has worked on federal funded projects including TIGER grant projects and is familiar with the requirements and laws which govern the implementation of these projects.

TERRA utilizes the methods in the Highway Safety Manual (HSM) when evaluating roadway safety analysis. The HSM process provides quantitative information to allow for decision making when evaluating locations from a safety standpoint. By utilizing this process TERRA will be using a scientific based technical approach which removes the guesswork from safety analysis. This method is used to diagnose issues, evaluate countermeasures and compare economic benefits of alternatives.

TERRA's traffic modeling experience includes utilizing Synchro, VISSIM and Tru-traffic for creating micro-simulation models which can be used for evaluating new traffic signals to retiming of existing signals. Our team also uses these programs when completing traffic engineering studies to determine impacts of changes to the roadway network including the addition or reduction of driving lanes as well as bicycle lanes and pedestrian activity centers. These programs help in determining the operational effectiveness in both existing and future proposed conditions for comparison when helping communities make decisions on how to modify their roadway system.

TERRA's team has performed numerous traffic studies which have evaluated things such as parking inventory and turnover, pedestrian, bicycle and transit Levels of Service per the HCM2010. TERRA is a leader in using video data collection technology to count users by mode, but also to evaluate system user behavior as a way to recreate real world field conditions in our traffic models and analysis. For more information about TERRA's work in this area see: <http://miovision.com/case-studies-testimonials/terra-engineering-multi-modal-traffic-data/>

TERRA has helped small communities like Elmwood, IL with sign inventories and streetscape lighting design. TERRA inventoried every sign in the City complete with photos and GIS locator data then prioritized the locations based on need with cost estimates to help create an implementation plan that met with the City's need and budget.

TERRA's experience on all types of traffic related projects including data collection, safety studies, traffic analysis, signal and lighting design as well as incorporation of MUTCD standards provide a well-rounded team which can provide an array of services to meet whatever the needs of each local agency might be. Some examples of TERRA's traffic related project experience with references provided for verifying the quality of our performance are provided below:

1804 BORMAN CIRCLE DRIVE SUITE 2 ST. LOUIS MO 63146 (T) 314.395.9899 (F) 314.432.8630

Client

City of Champaign, IL

Client Contact

Chris Sokolowski, PE

Civil Engineer III

City of Champaign

Engineering Division

702 Edgebrook Drive

Champaign, IL 61820

(217) 403-4710

chris.sokolowski@ci.champaign.il.us

Date of Services

2013-Present

Staff Involved and Role

George Ghareeb, P.E.

Principal

Chris Hutchinson, P.E., PTOE

Project Manager

Scott Presslak, Planner

Lynn Moe, GIS Analyst

On Call Traffic Services - Champaign, IL

TERRA Engineering is completing a three year on-call services project for the City of Champaign to provide traffic engineering services throughout the City. One work order for this project includes traffic data collection and signal coordination and timing at 11 traffic signals in a heavily commercial area including analysis of Flashing Yellow Arrow treatments and signal clearance times to improve safety. The signals are currently not well coordinated and result in numerous stops in the corridor and excess traffic queues.

TERRA is utilizing their MioVision Automated traffic data collection units to collect traffic data during the AM, Midday, PM and Weekend peak times at all of the intersections within the study area. TERRA is also completing travel time runs of the before condition to measure travel time through the corridor and delay. This data is then being used to develop a Synchro traffic model of the study area with existing traffic signal timing data from the City of Champaign. Once the existing model has been calibrated and verified with the City, TERRA will be utilizing Tru-Traffic software to maximize green times throughout the corridor and to help achieve the right offsets to facilitate traffic movement.

This project includes other on-call services provided to the City including two separate pavement marking projects which required TERRA to create plan drawings to replace and update striping on several corridors throughout the City of Champaign. The 2013 pavement marking project has been completed and TERRA is currently working on the 2014 project. TERRA has also been asked to evaluate the Market Street and Bradley Avenue corridors as part of a corridor study. This project includes evaluating traffic patterns in the area to improve safety and to evaluate the possibility of replacing some stop controlled intersections with roundabouts or traffic signals. The corridor study also is considering improvements to increase pedestrian safety and modifications to the roadway layout to incorporate new bicycle lanes throughout the corridors.

Client

Illinois Department of Transportation

Client Contact

Rob Robinson

IDOT

2300 South Dirksen Pkwy

Springfield, IL 62764

(217) 785-2353

Date of Services

April 2006- Present

Staff Involved and Role

Jamil Bou-Saab, P.E., Principal

George Ghareeb, P.E.,

Project Manager

M. Chris Hutchinson, P.E., PTOE,

Traffic Engineer

Scott Presslak, Planner

Lynn Moe, GIS Analyst

Traffic Data Collection and Study – IDOT Districts 4,6,7,8, and 9

TERRA Engineering, Ltd. (TERRA), provided 24-hour machine traffic counts for on- and off-system routes throughout IDOT Districts 4, 6, 7, 8 and 9, which includes municipalities such as Peoria, Quincy, Carbondale, Effingham, and Springfield as well as the Illinois portion of the St. Louis Metropolitan Area.

Counts were administered using portable traffic data collectors such as NuMetrics Hi-Star magnetic traffic lane sensors, road tube counters and MioVision Automated Traffic Data collection cameras. TERRA has an inventory of over 500 traffic counting devices for data collection.

Data was compiled into weekly submittal spreadsheets including volume and classification, where applicable. Raw count data from the magnetic counters was submitted to IDOT weekly. Count data was verified against historic trends before submitting to IDOT. Field technicians also used on-board laptop computers to collect and compile GPS data, which was then integrated into ArcGIS and sent to IDOT in the weekly submittals.

Client

City of Peoria, IL

Client Contact

Scott Reese, P.E.

City Engineer

3505 N. Dries Lane

Peoria, IL 61604

309-494-8808

Date of Services

2010-2013

Staff Involved and Role

George Ghareeb, P.E., Principal

M. Chris Hutchinson, P.E., PTOE,

Project Manager

TIGER II Warehouse District/Washington Street, City of Peoria, Illinois

This project in downtown Peoria involved redesign and reconstruction of the streets, intersections, utilities and sidewalks within the Warehouse District in order to create a livable and walkable public infrastructure that is appropriate for the development of a mixed-use neighborhood. Chris served as TERRA's Project Manager on this project and was responsible for the traffic data collection throughout the neighborhood and the traffic modeling of the streets throughout the district including preparation of a 3-dimensional traffic model using VISSIM software. Chris' work also included authoring a Traffic Impact Study for the project and an Origin Destination study for heavy truck movement, roadway design of three streets within the district including sidewalk modifications to bring the sidewalks into compliance with ADA and PROWAG standards and improve crossing safety.

Client

Bernardin, Lochmueller and Associates

Client Contact

Dustin Reichmann, PE, PTOE
Traffic Engineering Manager
3 Oak Drive
Maryville, IL 62062
(618) 288-4665

Date of Services

2013-Present

Staff Involved and Role

Chris Hutchinson, P.E., PTOE
Project Manager
Scott Presslak, Planner
James O'Neal, Video Data Specialist

MoDOT Traffic Counts and Signal Optimization of Route 141 (28.4 miles)

TERRA Engineering was selected as part of a team to provide traffic data collection services for the signal coordination and timing project to be completed along Missouri Route 141. The project involved data collection and analysis of 64 signalized locations along a 28.4 mile corridor to improve coordination through adjacent sections and reduce congestion and emissions throughout the region. MoDOT provided traffic count data at 20 of the locations to the prime consultant, and TERRA was responsible for collecting data for an additional 36 intersections along the route. Intersection turning movement counts were collected at each intersection for a duration of 88 hours over the course of 5 day period using Miovision video data collection cameras. The videos were then uploaded and processed to develop traffic volume counts and vehicle classifications along the corridor and the raw data and videos were provided to the prime contractor for analysis in developing new signal timing plans for the corridor.

Proposed Personnel:

- M. Chris Hutchinson P.E., PTOE – Project Manager
- George Ghareeb, P.E. – Project Principal
- Julie Schmidt, P.E. – Roadway Engineer
- Scott Presslak – Planner, Traffic Data Collection Supervisor
- James O'Neal – Video Data Collection Specialist

M. Chris Hutchinson, P.E., PTOE will be the Project Manager for any on-call traffic or TEAP project. TERRA's lead Traffic Engineer, Chris is based in our St. Louis office and has:

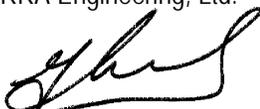
- Over 15 years of experience as a traffic engineer, project manager, and geometrics engineer on transportation projects including traffic signal design, traffic modeling, lighting, pavement marking and signage.
- Chris was recently the featured speaker for an international webinar discussing multi-modal data collection and innovative traffic engineering utilizing video data.

As one of only 2,687 Professional Traffic Operations Engineers worldwide, Chris has certification in the specialized application of traffic operations engineering. His experience includes serving as the design engineer on numerous roadway projects from planning through construction for both public and private clients. His design duties have included the traffic modeling and analysis, traffic signal design, lighting design, conformance to MUTCD Standards and development of plans and specifications for major roadway projects.

Chris and his team are currently working on a similar on call traffic services project for the City of Champaign, Illinois and numerous traffic impact studies throughout the Midwest. Chris has past experience working on MoDOT's Route N (Florissant Road) Corridor and the North Vandeventer corridor for the City of St. Louis completing signal timing modifications while with another firm. Chris has over 15 years of experience working on projects throughout Missouri and Illinois and has completed numerous traffic models using VISSIM, Synchro, Tru-Traffic and HCS+ for projects from small new developments to large corridor and neighborhood wide traffic models. Chris is currently leading TERRA's traffic data collection efforts for MoDOT on the SL District's CMAQ project to retime the signals along MO Route 141.

TERRA is proud to submit this LOI and looks forward to partnering with MoDOT and local agencies throughout the State of Missouri on providing quality and economical traffic engineering services

Sincerely,
TERRA Engineering, Ltd.



George Ghareeb, P.E.
Vice President



QUICK FACTS:

Mission Statement

Our mission is to become the professional service firm of choice by empowering our employees to be innovative and socially responsible while achieving sustainable and profitable growth.

Principals

Karen Steingraber, P.E.

President
B.S. and M.S. in Civil Engineering
Active Registrations: IL, WI, IA, OH
Inactive Registrations: TX, MN, CO

Jamil Bou-Saab, P.E.

Executive Vice President
B.S. and M.S. in Civil Engineering
Active Registrations: IL, WI

George Ghareeb, P.E.

Vice President
B.S. and M.S. in Civil Engineering
Active Registrations: IL, MO

WBE Certifications

- City of Chicago
- Illinois Department of Transportation Capital Development Board
- Chicago Transit Authority (CTA)
- Metra
- Metropolitan Water Reclamation District of Greater Chicago (MWRD)
- Cook County
- State of Missouri
- Illinois State Toll Highway Authority

TERRA Engineering, Ltd. (TERRA) is a woman-owned, full-service, multi-disciplinary firm that brings over 40 years of professional experience to its projects. Since 1992, TERRA has endeavored to fully understand our clients' needs on each project to achieve desired results. TERRA's primary goals are to serve the client and to provide a quality product within the project scope, budget and schedule. TERRA possesses extensive project experience, with a portfolio including local, national, and international projects ranging in both type and scale. Working with architects, other engineering disciplines, developers, and local and state governments, TERRA is well versed in code requirements for site development, transportation and utility construction. The firm provides its clients with an accomplished group of experienced and innovative professionals. The various practices within TERRA Engineering collaborate to complement each other's expertise in order to achieve all of the project objectives in a streamlined, socially responsible and aesthetically pleasing manner.

Service Sectors

-  Site Development
-  Municipal Engineering
-  Landscape Architecture
-  Structural Engineering/Bridge Inspections
-  Geographic Information Systems (GIS)
-  Surveying
-  Traffic Engineering/Studies
-  Land Acquisition
-  Construction Engineering
-  Land Use Planning
-  Transportation Engineering

Staff Breakdown

TERRA is an Equal Opportunity Employer with a staff of over 60 employees of diverse ethnicities and backgrounds, including Professional Engineers, licensed in Illinois, Wisconsin, and/or Missouri, a Professional Traffic Operations Engineer, Structural Engineers, Professional Land Surveyors, and Landscape Architects.



TERRA ENGINEERING, LTD. provides structural engineering services for steel and concrete structures including bridges, buildings, earth-retaining structures and various structural components. TERRA's experts have knowledge in highway and railroad structures, buildings, pedestrian bridges and utility towers.

The TERRA structural team has more than 40 years of experience in designing and inspecting various types and sizes of bridges. Inspections are completed using National Bridge Inspection Standards (NBIS) certified program managers and team leaders. Bridge inspections include condition ratings, reports and options for maintenance and rehabilitation. Illinois Structure Information Systems (ISIS) reports are prepared for every structure inspected to ensure all critical information is recorded.

Services

- Feasibility studies
- Hydraulic reports
- Bridge design
- Bridge condition reports
- Geotechnical analysis
- Bridge inspections

Project Experience

The previous project experiences listed below further demonstrate why TERRA Engineering is qualified to help you achieve your project goals.

QUICK FACTS:

Principals

Karen Steingraber, P.E.
 President
 B.S. and M.S. in Civil Engineering
 Registrations: IL, WI, MI, IA, TX, OH

Jamil Bou-Saab, P.E.
 Executive Vice President
 B.S. and M.S. in Civil Engineering
 Registrations: IL, WI

George Ghareeb, P.E.
 Vice President
 B.S. and M.S. in Civil Engineering
 Registrations: IL, MO

Contact

Don Bell
 Structural Engineering Department
 Phone: 312.467.0123
 Email: dbell@terraengineering.com

- Ten Mile Creek Bridge Tazewell County, Illinois
- Mud Creek Bridge Tazewell County, Illinois
- Gately Stadium Oak Park, Illinois
- Retaining Walls for the Park District of Oak Park Oak Park, Illinois
- Adams Street Bridge Chicago, Illinois
- Downtown Bike Path Matteson, Illinois
- Wildlife Bridge Chicago, Illinois
- Light Fixture Footings, Marion Street Oak Park, Illinois
- I-355 Tollway Bridge Inspection Veterans Memorial Highway, Illinois
- Mills Park Fence Restoration Oak Park, Illinois
- Water Street Bridge Chicago, Illinois
- Broadway Bridge Chicago, Illinois
- Longfellow Park Oak Park, Illinois
- Brookfield Zoo ADA Ramps Brookfield, Illinois
- Preservation Path Matteson, Illinois
- 2350 W Ogden Avenue Chicago, Illinois
- Northwestern University Recreational Facilities Master Plan Evanston, Illinois
- Marsh School Chicago, Illinois
- University of Chicago 58th Street Chicago, Illinois
- Fox Park Oak Park, Illinois



TERRA ENGINEERING, LTD. has experience with traffic engineering projects and studies 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 traffic survey and data collection to public and private clients. With an inventory of twenty Miovision video collection units, over 250 Hi-Star magnetic Counters and over 200 road tube counters, in addition to numerous handheld counting devices and GPS equipment, our team of qualified technicians is prepared to collect traffic count data on projects of all sizes.

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.

TERRA provides a wide array of traffic signal services from traffic signal warrant studies to signal coordination and timing for existing signal corridors. Our traffic engineers have experience designing a wide array of traffic signals including emergency preemption, railroad coordination and Flashing Yellow Arrow (FYA) treatments.

Services

Our traffic engineering services and comprehensive traffic studies typically include

- Traffic data collection
- Corridor studies
- Intersection and roadway capacity analysis
- Intersection design studies (IDS)
- Parking lot analysis and studies, including site circulation
- 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 and interconnect
- Transit studies
- Vehicle and pedestrian inventories
- Highway Safety Manual - Safety studies and economic analysis

Project Experience

Previous project experience includes:

- IDOT Traffic Data Collection Central and Southern Illinois
- Great Rivers Greenway Bicycle Masterplan St. Louis, Missouri
- I-74/I-155 Interchange Morton, Illinois
- Warehouse District Tiger II Complete Streets Peoria, Illinois
- Eastern Bypass Study Metropolitan Peoria, Illinois
- ISTHA Speed Delay Studies Various Locations, Illinois
- City of Champaign On-Call Traffic Services Champaign, Illinois
- 330 North Wabash Chicago, Illinois
- Washington Street Improvements Peoria, Illinois
- Intrinsic Charter School Study Chicago, Illinois

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Executive Vice President

B.S. and M.S. in Civil Engineering
Registrations: IL, WI

George Ghareeb, P.E.

Vice President

B.S. and M.S. in Civil Engineering
Registrations: IL, MO

Contact

Chris Hutchinson, P.E., PTOE

Senior Transportation Engineer

Phone: 314.395.9899

Email: chutchinson@terraengineering.com

Registrations: MO, IL, WI, KS



TERRA ENGINEERING, LTD. has experience with transportation engineering projects 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.

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 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 best solution for each project.

Services

- Traffic data collection and traffic studies
- Roadway planning and design
- Feasibility studies
- Roadway drainage
- Urban and rural interstate/freeway design
- Simple and complex interchange planning and design
- Roadside safety and barrier warrant analysis
- Preparation of grant applications
- Construction staging and traffic maintenance planning
- Cost estimating and value engineering
- Corridor studies
- Vehicle and pedestrian inventories
- Traffic signal and stop sign warrant analysis

Project Experience

The previous project experiences listed below further demonstrate why TERRA Engineering is qualified to help you achieve your project goals.

- Milwaukee Streetcar Milwaukee, Wisconsin
- Eastern Bypass Study Metropolitan Peoria, Illinois
- Downtown Streetscape Revitalization Elmwood, Illinois
- South Marion Streetscape Oak Park, Illinois
- Roosevelt Road Streetscape Improvements Berwyn/Cicero/Oak Park, Illinois
- Washington Street Improvements Peoria, Illinois
- IL Route 6/29 Extension Mossville, Illinois
- Mud Creek Morton, Illinois
- Oak Park Streets and Alleys Oak Park, Illinois
- Warehouse District TIGER II Complete Streets Peoria, Illinois
- IDOT Traffic Data Collection Central and Southern Illinois
- Elmhurst Road Intersection Improvements Chicago, Illinois
- Interstate 74 Reconstruction Peoria and East Peoria, Illinois

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Principals

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President

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Registrations: IL, WI

George Ghareeb, P.E.

Vice President

B.S. and M.S. in Civil Engineering

Registrations: IL, MO

Contact

Lou Arrigoni, P.E.

Transportation Department Manager

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Email: larrigoni@terraengineering.com