B Brochure

Traffic Engineering

Missouri's Local Program On-Call

TERRA Engineering, Ltd. (TERRA), 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 more than 50 Miovision video collection units, over 250 Hi-Star magnetic Counters and more than 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.

Point of Contact

Chris Hutchinson, PE, PTOE

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Experience

- National Geospatial Agency - St. Louis, MO
- Great Rivers Greenway Bicycle Master Plan - St. Louis, MO
- MoDOT Route 21 Signal Timing Coordination - St. Louis, MO
- Riyadh Traffic Monitoring & Analysis - Riyadh, Saudi Arabia
- Various Traffic Counts - Wildwood, MO
- MoDOT Traffic Counts & Signal Optimization of Route 141- St. Louis, MO
- On-Call Traffic Services - Champaign, IL
- Modified High-Intensity Activated Crosswalk ("HAWK") Signal Installation - Oak Park, IL
- Freedom Parkway - Washington, IL
- Main & University Intersection Improvements - Peoria, IL
- 2017 World Rowing Championship Traffic Management Study - Sarasota & Bradenton, FL
- Area 6 Neighborhood Traffic Study - Downers Grove, IL
- Chicago Park District Headquarters - Chicago, IL
- MPEA Event Center & Hotel Traffic Signals - Chicago, IL
- Downtown Traffic & Parking Study - Clarendon Hills, IL

Services

- Traffic Data Collection
- Corridor Studies
- Speed Studies
- Intersection / Roadway Capacity Analysis
- Intersection Design Studies (IDS)
- Parking Lot Analysis / 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 / Interconnect
- Transit Studies
- Vehicle / Pedestrian Inventories
- Highway Safety Manual
- Safety Studies and Economic Analysis

Meet Your Key Team

Project Manager | M. Chris Hutchinson, PE, PTOE – Mr. Hutchinson has acquired more than 25 years of experience in providing civil and traffic engineering services for a variety of projects and clients. Chris is an expert on data collection processes for temporary traffic counts and long-term count stations. His experience includes traffic modeling and analysis, traffic signal design, lighting design, safety studies, signal optimization, conformance to MUTCD standards, traffic studies, geometric design, safety analysis and development of design plans. Chris and his team have completed a similar on call traffic services project for the Cities of Weldon Spring, MO; Cottleville, MO; Champaign, Illinois, and Peoria, IL and numerous other traffic impact studies throughout the Midwest. Chris has worked 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 will lead any on-call projects from our office in St. Louis.

Project Manager | Colin Coad, PE, PTOE – Colin has over 15 years of experience in roadway geometrics, traffic analysis, traffic signal 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 has completed TERRA's neighborhood traffic Study for the Village of Downers Grove, signal designs for the MPEA Event Center, and assisted on the Traffic Monitoring and Analysis project in Riyadh, Saudi Arabia. Colin has also assisted Cook County, IL with an on-call project, performing tasks including conducting speed studies, analysis of intersection operations, traffic signal and stop sign warrants.

Traffic Engineer II | Sanders Ong, EI – Sanders has been working with the St. Louis office for seven years. During this time, Sanders has led the Miovision data collection team efforts from the St. Louis office and has personally overseen several hundred traffic count locations. Sanders also performs QA/QC on TERRA's work on the IDOT Traffic Data collection project ensuring the accuracy of the count data, GPS location and other pertinent information. In addition, Sanders assists with traffic modeling in Synchro and HCS and the preparation of numerous traffic impact studies for various public and private clients.

Traffic Engineer I | Wendy Boncik, EI – Wendy joined the St. Louis office in March 2025 to assist the traffic engineering team. During this time, Wendy has been involved in traffic data collection on numerous projects throughout Missouri and Illinois. When not in the field, Wendy has been assisting on the Illinois Tollway's MUTCD Sign Audit and Lane Closure Guide as well as assisting on traffic impact study analysis and preparation.

Relevant Projects

MODOT Traffic Counts + Signal Optimization of MO Route 21

TERRA Engineering was selected as part of a team to provide traffic data collection services and traffic modelingfor the signal coordination and timing project to be completed along Missouri Route 21. TERRA's staff performed the video data collection at all of the intersections through the corridor. Chris Hutchinson from TERRA's staff then created and updated a Synchro model to evaluate the existing signal timing and to optimize proposed timing plans.

TERRA's team evaluated multiple timing scenarios which included AM, PM, Weekend and off-peak timings andworked to improve the overall network performance TERRA also assisted with the before and after travel time runs utilizing Tru-Traffic software which were used to help measure the actual improvements realized by drivers. TERRA used the Tru-traffic data in conjunction with the Synchro model to fine-tune the signal green bands in conjunction with the travel time and speed data and improve the traffic model performance.

- Key Personnel: M. Chris Hutchinson, PE, PTOE
- Reference: Brad Loomis, PE, PTOE, Tepa, LLC, 816.506.9284,Brad.loomis@tepa.com / Chris Hohowski, MoDOT, 314.275.1577, christopher hohowski@modot.mo.gov

Freedom Parkway

TERRA provided traffic engineering services in conjunction with transportation, site/civil engineering, landscape architecture, and surveying services for the extension of Freedom Parkway from Menards to Cummings Lane. The City is looking to develop the adjacent agricultural land into industrial and "urban village" land uses. The traffic study portion of the project was to analyze the change in traffic patterns and project the potential new traffic to be generated by the extension of Freedom Parkway and Lakeshore Drive for the City of Washington IL. TERRA's team used ADT data from prior to the COVID pandemic to estimate the trips created by the existing uses to establish the base condition. TERRA was then responsible for developing estimated future trips to the area based on the proposed land uses and zoning designations of the area around the new roadways to be developed. TERRA's team created traffic models and evaluated the operation of several different traffic control methods including stop controlled, signalized intersection and roundabouts to help the City evaluate available options. TERRA provided the traffic study to the Illinois Department of Transportation to get concurrence on the analysis and then moved the project forward into the roadway design phase where our team developed the roadway sections, roadway geometry, traffic signals, and drainage design for the City.

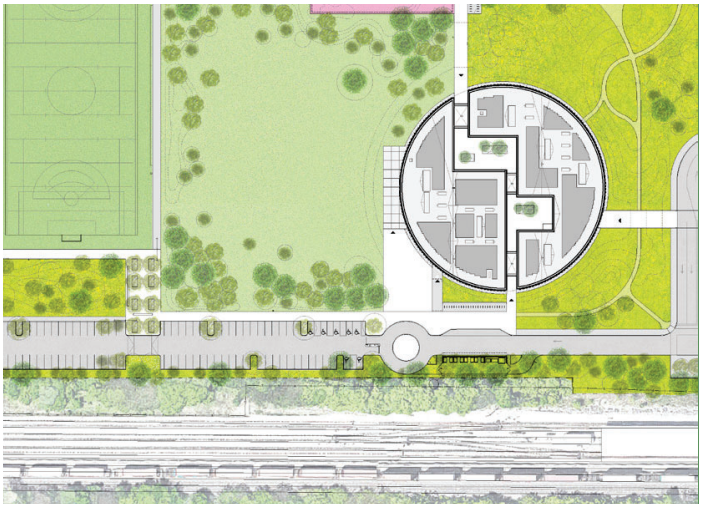
- Key Personnel: M. Chris Hutchinson, PE, PTOE, Sanders Ong, EIT, Colin Coad, PE, PTOE, VMA
- Reference: Dennis Carr, PE, City Engineer,, City of Washington, IL, 309.441.1136, dcarr@ ci.washington.il.us

Relevant Projects

Traffic Data Collection + Study - IDOT Districts 3, 4, 5, 6, 7, 8 + 9

TERRA, provided 24-hour machine traffic counts for on- and off-system routes throughoutmultiple IDOT Districts, which includes municipalities such as Peoria, Quincy, Carbondale, Effingham, and Springfield and the Illinois portion of the St. Louis Metro Area. Counts were administered using our inventory of over 500 portable traffic data collection devices such as NuMetrics Hi-Star magnetic traffic lane sensors, road tube counters and MioVision Automated Traffic Data collection cameras. 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.

- Key Personnel: Colin Coad, PE, PTOE; Sanders Ong, EIT;
- Reference: William Morgan, IDOT, 217.782.0378, William.Morgan@illinois.gov



Chicago Park District Headquarters

TERRA is responsible for the site/civil engineering, traffic engineering and surveying services associated with developing a 17-acre property near 48th Street and Western Avenue will be developed with the new Chicago Park District Headquarters building, new fieldhouse and new park amenities. TERRA was responsible for authoring the traffic study which evaluated the impacts of the new headquarters on Western Avenue and the adjacent CTA Orange Line Station. TERRA used video to collect vehicle and pedestrian data along both Western Avenue and Western Boulevard throughout the study area. During the analysis, TERRA noted numerous pedestrian crossings away from the marked crosswalks, including many two-stage crossings where pedestrians waited in the center of the roadway in unprotected areas for gaps to appear in oncoming traffic to finish crossing the street. TERRA made recommendations to improve pedestrian safety and provide a safe pedestrian crossing from the transit station and an existing senior home to the new park and headquarters building.

- Key Personnel: M. Chris Hutchinson, PE, PTOE, Julie Schmidt, PE, Colin Coad, PE, PTOE, VMA, Sanders Ong, EIT
- Reference: John Ronan, Principal, John Ronan Architects., 312.951.6600x21, ronan@jarch@.com