

EXHIBIT "A" (Scope of Work)

Non-Project Specific Traffic Engineering and intelligent Transportation (ITS) Scope of Services

- Collect traffic data.
- Perform traffic studies or analyses.
- Perform Access Management studies and analyses, including but not limited to preparing traffic impact studies as well as the review of major and minor traffic impact studies from developers and other consultants. Provide technical support.
- Local Agency project plan review and structural review. Comments and recommendations as needed.
- Perform, review, train and provide technical support on various travel demand and traffic operations models including, but not limited to VISSIM, CORSIM, SYNCHRO, and Dynasmart.
- Perform corridor signal timing progression plans, optimization plans, may include ramp metering studies.
- Perform field inventories of traffic control, ITS, Travel Time and GIS mapping devices. This task may include all pertinent data entry in our databases.
- Design and Prepare preliminary and final plans and specifications for all types of Traffic and ITS Projects to meet CDOT, City, or County requirements, including but not limited to:
 - traffic signals (LED displays, mast arm designs, etc)
 - vehicle detection system (video, loop microwave, radar, ultrasonic, etc)
 - interconnect systems (hardware, phone, cellular phone, spread spectrum, radio etc)
 - pavement markings (tape, thermoplastic water based etc)
 - sign and sign support systems (wood, metal and composite systems)
 - and other intelligent transportation systems devices (variable message boards, closed circuit television, fiber optics and other communications media etc)
- intersection designs
- sign layouts

- roadway re-stripping and roadway design
 - calculate quantities and estimates for plans
 - Fiber Optic Networking Drawings and Fiber Optics Splicing Plans
 - ITS Network plans for interconnection to the Colorado Traffic Management Center (CTMC), Nodes/Regions and Tunnels
 - ITS Network Support Plans
-
- Prepare construction and maintenance related signing plans and schedules. Develop conceptual phased construction plans considering geometric design, capacity analysis, construction signing, temporary guide signing, temporary pavement markings and temporary signal design.
 - Prepare freeway guide signing plans consistent with MUTCD and CDOT's practices and policies. Prepare sign bridge plans, MLOS sign plans and sign layouts using current CDOT programs.
 - Furnish detailing and drafting services.
 - Perform construction traffic control management and coordination activities.
 - Attend meetings as instructed. Prepare visual aids for meetings as needed.
 - Construction management, inspection and completion of appropriate CDOT paperwork as required, including ITS construction and field management
 - Roadway surveying with a PLS Stamp as required, traffic control and permits will be required.
 - Prepare and update existing Incident Management plans and Lane Closure Strategies as requested. This includes development of actual plans or strategies, manuals and meeting documents.
 - Train CDOT personnel on use of specialized traffic, transportation engineering and telecommunications/network related software in addition to any training requested.
 - Review, attend meetings and provide technical assistance on traffic impact studies, NEPA, 1601's, Interchange Access Request (IAR), Environmental Assessments and Environmental Impact Studies as requested.
 - Provide technical assistance with traffic engineering and ITS issues as requested and create white paper write-ups.
 - Provide technical support in the area of planning and design of Toll roads.
 - Conduct accident analyses needed for consideration of safety measures in the designs and planning of transportation projects. Accident history will be provided by CDOT in most cases.

- Prepare letters of correspondence and meeting minutes.
- Provide expert testimony regarding traffic operations.
- Develop plans and specifications for CDOT ITS and telecommunications/network related projects or tasks. This includes, developing network, software and hardware design and procurement, fiber assignments, fiber design and all pertinent studies, reports, drawings, diagrams, specifications, and manuals both in hard and electronic formats.
- Develop transportation specific software and source code where specific Intelligent Transportation System priority requirements are defined.
- Assist CDOT in procuring ITS telecommunications/network related hardware, software and pertinent materials.
- Review and/or designs structural shop drawings for Traffic signals, ITS structures (cantilevers, butterfly, two posts, bridge attachments for conduit, light poles and others as requested). Provide a Professional Engineers (PE) Stamp from Colorado to certify designs and/or changes to designs.
- Provide structural inspection and report of Traffic Signal poles and mastarms, ITS structures and sign structures.
- Provide miscellaneous services regarding traffic operations and ITS to help with the Region's and the CTMC's day to day operations.
- Provide staff to assist in special projects like corridor incident management/traffic mitigation strategies (e.g. courtesy patrol, other). Provide staff to work with the engineer on traffic studies regarding, speed, progression, congestion, incidents, etc. and lastly provide staff as needed to compliment the Region operations offices in all capacities.
- Provide Geotechnical recommendations and reports with regard to test hole boring, classifications analyses, concrete and asphalt testing.
- Provide underground fiber optic, power cable, and all other utility locating services for Traffic and ITS communications backbone and devices :
 - Attend field locate meets at the appointed time.
 - Mark underground utilities with appropriate markings and color.
 - Respond to emergency locate requests within a 4 hour time period.
 - Provide a sketch or as-built drawing to the contractor when requested.