

December 23, 2024

Mr. Tim Begley, Director of Engineering
City of Crossville
392 N. Main Street
Crossville, TN 38555

**Re: *Traffic Signal Design – Crossville, TN
Main St. Intersections at First Street and Fourth Street
CT Engineering Proposal***

Dear Tim:

CT Consultants (CT) is pleased to submit this proposal for engineering services to design mast arm new traffic signal installation at the intersections of First Street at Main Street (US127/SR28) and Fourth Street at Main Street (US127/SR28) to replace the existing span wire installation, traffic control cabinets and equipment. As discussed, we recognize that the city anticipates utilizing local funds and no state or federal funding in anticipated to fund this project.

It is our understanding that the Downtown Pedestrian Improvement Project is currently under construction, which includes the installation of new pedestrian traffic signals (for the Main Street intersections at both First Street and Fourth Street), a conduit system for a future traffic signal interconnect between the traffic signals along Main Street at Lantana Road, First Street and Fourth Street and new ADA sidewalks, crosswalks and street lighting along Main Street between Lantana Road and Neecham Street. We further understand that the city is field locating the underground conduits being installed and can provide CT with this information. Based on our understanding of the project, we propose the following scope of services.

Field Survey

Recognizing that the project area is currently under construction, CT will utilize the previously prepared topographic survey, current AutoCAD construction documents and city provide conduit locations to prepare a base drawing for this project. However, we anticipate that up to three (3) field visits may be required by a surveyor to verify the as-built locations and elevations for the aforementioned improvements that are currently under construction, specifically for the Main Street intersections at First Street and Fourth Street. This survey information will be incorporated into the base drawing that will be utilized for the Concept Plan and Construction Drawings.



Concept Plans

CT will utilize the existing AutoCAD drawings and the city provided conduit locations to prepare a Concept Plan for review and approval by the city. This plan will show the proposed locations of the traffic signal mast arm poles and traffic signal control cabinet in relation to the improvements currently under construction. Upon receiving comments from the city, CT will update the Concept Plan as needed and coordinate with the surveyor to collect updated field data of the improvements currently installed to date. Upon review of that information, CT will also determine if all the proposed improvements can be installed within the existing right-of-way and/or existing easements. CT will review the updated information with the city.

Construction Plans

Upon receiving owner approval for the Site Concept Plan, CT will prepare the traffic signal design plans in conformance with the requirements for the City of Crossville, Tennessee and TDOT. The plan sheets will be 34" x 22" in size and be at a 1" = 20' scale or some other convenient scale. The civil engineering / site plan drawings shall be provided in AutoCAD 2022. The Construction Plans will address the following Traffic Signal Design Components:

- Traffic Signal equipment will be specified as required by the City of Crossville ***Signal Specifications (Revised June 28, 2019)*** which is attached for reference.
- Traffic signal mast arms will match the design for the ones recently installed at the intersection of Main Street and Lantana Road.
- Traffic signal design will be in accordance with the TDOT Traffic Design Manual.
- Existing signal phasing and timing will be utilized and shall be provided by the city.
- All conduits under the roadway surface are assumed to be jacked or drilled with the construction of the signal if possible.
- The pedestrian actuated signals (currently under construction) are intended to be utilized for both intersections.
- The signal supports will be designed to incorporate standard reflective overhead street name signs as what was recently installed at the intersection of Lantana Rd. and Main St.
- The traffic signal design will incorporate maintaining operation of the existing installation. New controller cabinet equipment and battery backup systems will be specified.
- Prepare traffic signal specifications
- Calculation of Quantities and provide an Opinion of Construction Cost
- Incorporate provisions for connection to the conduit system that is currently being installed with the Downtown Pedestrian Improvement Project for the future interconnect.

Deliverables – CT will provide the city with Traffic signal plans and specifications in PDF format for review and comment. The City of Crossville will develop front end bid documents



and bidding services and is not included with this proposal. Final plans will be provided to the City in PDF format.

Permitting Assistance

CT will assist the city in obtaining a permit and/or a Memorandum of Understanding (MOU) from TDOT for construction of the new traffic signal. CT will also provide coordination with utility companies and will send a copy of the construction plans for review and comment. Permitting Assistance (including design revisions and/or plan changes required by local governing agencies) will be provided on a time and expense basis.

Construction Administration

If requested, CT will provide construction administration assistance consisting of the following:

- Answer RFI's and interpretation of the plans
- Shop drawing review
- Attend preconstruction meeting
- Site visits to confirm project progress and/or resolution of conflicts.
- Construction plan revisions
- Final punch list and report

These services will be provided on a time and expense basis. The actual scope of services and corresponding fee to be determined with the owner prior to beginning work.

Fee Summary

CT's fees for the above scope of services are as follows:

Field Survey		\$ 7,500.00 (\$2,500/Site Visit)
Concept Plans		\$20,000.00 Lump
Main Street and First Street	\$10,000.00	
Main Street and Fourth Street	\$10,000.00	
Construction Plans		\$50,000.00 Lump
Main Street and First Street	\$25,000.00	
Main Street and Fourth Street	\$25,000.00	
Permitting Assistance (Budget)		\$ 7,500.00 (T&E)
Construction Administration (Budget)		\$10,000.00 (T&E)
Reimbursables (Budget)		\$ 2,500.00 (Cost + 10%)
TOTAL		\$97,500.00

Please note that our professional service fee does not include any permits, submittals, review fees or reimbursable expenses such as prints, postage and mileage. Reimbursable expenses will be billed at cost plus 10%.

December 23, 2024

Mr. Tim Begley

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Schedule

CT can begin services upon receipt of the executed professional services agreement. CT anticipates preparing the initial Concept Plan within 2 – 3 weeks of receiving the signed agreement. Upon receiving comments from the city, CT anticipates updating the existing conditions with current construction improvements affecting the design and providing an updated Concept Plan to the city within 2 – 4 weeks. Upon receiving final Concept Plan approval from the city, CT will prepare a 90% set of Construction Plans for city review within 3 – 4 weeks. Upon receiving any final comments, the Construction Plans will be finalized for permitting within 2 – 3 weeks.

The following items are not included in this proposal but can be provided as an additional service when requested:

- Surveying Services beyond what is included above
- Geotechnical Services / Subsurface exploration
- Attendance at public meetings
- Structural plans including retaining walls
- Site lighting or photometric plans
- Utility or drainage improvements
- Traffic Impact Study and/or Traffic Counts
- Traffic Signal Interconnect Plans
- Traffic Signal Coordination and/or Fiber Optic Interconnection
- Environmental reviews or studies
- Record Drawings

Again, CT is very pleased about the possibility of working with you on this project. Please review the proposal and call me at 615-349-4025 or by email at jgolias@ctconsultants.com to discuss any questions you may have. If acceptable, we can provide a professional services agreement for authorization. Thank you for considering CT Consultants as your design consultant.

Respectfully,

CT CONSULTANTS, INC.

James G. Golias II, P.E.

Senior Project Manager

Attachments: Signal Specifications (Revised June 28, 2019)

Hourly Rates

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CITY OF CROSSVILLE

SIGNAL SPECIFICATIONS (Revised June 28, 2019)

- **Controller Equipment Cabinet:** Controller equipment cabinets shall be eight phase, weatherproof aluminum and shall be installed in accordance with the TDOT Standard Specifications for Road and Bridge Construction Manual January 1, 2015, Section 730.26 (Latest Revision) and TDOT Standard Drawing T-SG-5 (Latest Revision). Cabinets shall be concrete pad mounted. An additional concrete pad is required to be placed in front of the cabinet doors which shall be a minimum 64 inches wide by 36 inches long and a minimum thickness of 6 inches. The concrete pad shall be utilized for maintenance and servicing of the cabinets and components.
- **Battery Back-Ups:** Battery back-ups are required for signal installations and shall be Myers MP 2000 (uninterrupted power supply). Battery backups shall be installed in a separate weatherproof aluminum cabinet, adjacent to the controller equipment cabinet. Battery Backups shall be installed in accordance to TDOT Standard Specifications for Road and Bridge Construction Manual January 1, 2015, Section 730.27 (Latest Revision).
- **Cantilever Signal Supports:** Cantilever signal supports shall be installed in accordance with the TDOT Standard Specifications for Road and Bridge Construction Manual January 1, 2015, Section 730.32 (Latest Revision) and TDOT Standard Drawings T-SG-9 and T-SG-10 (Latest Revisions). Span wiring signal supports may be allowed in certain intersections if cantilever signal supports cannot be utilized, all proposed span wiring must be reviewed and accepted by the City of Crossville Engineering Department prior to installation. Aluminum or steel poles are required on traffic signals for the City of Crossville.
- **Signal Controllers:** Signal controllers are required to be PEEK ATC-1000 controllers with NEMA TS2 Type 2 I/O Module and GreenWave ATC Software. PEEK Double Diamond Monitors shall be used. Traffic Signal Controllers and Monitors shall be installed in accordance to TDOT Standard Specifications for Road and Bridge Construction Manual January 1, 2015, Section 730.25 (Latest Revision).
- **Vehicle Detection:** Vehicle detection shall be microwave Wavetronix Smartsensor Matrix for stop bar detection and Wavetronix Smartsensor Advance for advanced detection with a CLICK 650 SDLC Cabinet Interface Device. Traffic Signal Radar Detection Systems shall be installed in accordance to TDOT Standard Specifications for Road and Bridge Construction Manual January 1, 2015, Section 730.29 (Latest Revision).

- **Signal Heads:** Signal heads shall be black aluminum with L.E.D. lighting, installed in accordance with TDOT Standard Specifications for Road and Bridge Construction Manual January 1, 2015, Section 730.24 (Latest Revision) and TDOT Standard Drawings T-SG-7 through T-SG-7S (Latest Revision) as per the number of approaches.
- **Pedestrian Signals:** Pedestrian signals shall be countdown pedestrian signals installed in accordance to TDOT Standard Specifications for Road and Bridge Construction Manual January 1, 2015, Section 730.29 (E) (Latest Revision) and TDOT Standard Drawing T-SG-6 (Latest Revision).
- **Coordination Equipment:** Coordination equipment is required to be PEEK M3000 Master Controller where inter-connect is necessary, where time based coordination is utilized without inter-connect, ELTEC GPS 1000 equipment shall be required. Coordination Equipment shall be installed in accordance to TDOT Standard Specifications for Road and Bridge Construction Manual January 1, 2015, Section 730.27 (Latest Revision). Fiber optics cable shall be utilized for most inter-connects. Where fiber optics cable cannot be utilized, ENCOM 5200 radios shall be installed. Said radios must be reviewed and accepted by the City of Crossville Engineering Department prior to installation.
- **Pull Boxes:** Pull boxes shall be TDOT Type B with traffic rated lids and shall be installed in accordance with TDOT Standard Specifications for Road and Bridge Construction Manual January 1, 2015, Section 730.12 (Latest Revision) and TDOT Standard Drawing T-SG-2 (Latest Revision).
- **Wiring:** Wiring shall be 14 gauge or larger and installed in accordance with TDOT Standard Specifications for Road and Bridge Construction Manual January 1, 2015, Section 730.17 (Latest Revision).



**VERDANTAS MIDWEST AREA
2025 STANDARD BILLING RATE SCHEDULE**

<u>Professional Services</u>	<u>Hourly Rate</u>	<u>Survey</u>	<u>Hourly Rate</u>
Senior Consultant I	\$250.00	Staff Surveyor I	\$120.00
Senior Consultant II	\$280.00	Staff Surveyor II	\$140.00
Senior Consultant III, AVP, Principal	\$310.00	Staff Surveyor III	\$155.00
Senior Consultant IV, VP, Sr. Principal	\$340.00	Surveyor	\$175.00
Senior Project Manager	\$235.00	Senior Surveyor	\$210.00
Project Manager	\$210.00	Survey Crew Member	\$90.00
		Survey Crew Chief	\$120.00
Staff Engineer/Architect I	\$125.00	Survey Crew	\$210.00
Staff Engineer/Architect II	\$140.00		
Staff Engineer/Architect III	\$165.00	<u>CAD/GIS/Data Management</u>	<u>Hourly Rate</u>
Engineer/Architect	\$190.00	Senior Project Designer	\$155.00
Senior Engineer/Architect, Principal, Sr. Principal	\$225.00	Project Designer	\$140.00
		CAD Designer I	\$120.00
Staff Scientist/Geologist I	\$120.00	CAD Designer II	\$135.00
Staff Scientist/Geologist II	\$135.00	CAD Technician I	\$105.00
Staff Scientist/Geologist III	\$150.00	CAD Technician II	\$120.00
Scientist/Geologist	\$165.00	CAD Technician III	\$130.00
Senior Scientist/Geologist, Principal, Sr. Principal	\$210.00		
		Senior GIS Analyst	\$155.00
<u>Support</u>	<u>Hourly Rate</u>	GIS Analyst I	\$125.00
Administrative//Technical Editor/Project Coordinator I	\$90.00	GIS Analyst II	\$135.00
Administrative//Technical Editor/Project Coordinator II	\$125.00	GIS Technician I	\$105.00
Technician I	\$95.00	GIS Technician II	\$120.00
Technician II	\$100.00		
Technician III	\$115.00	Senior Data Manager	\$155.00
Senior Technician	\$130.00	Data Manager	\$140.00
Construction Representative II	\$115.00		
Senior Construction Representative	\$130.00		

NOTES:

1. Standard Billing Rates: Our standard billing rates are reviewed no less than annually and may be adjusted at those times.
2. Expert Testimony: Litigation, expert witness, and all other legal and court related appearances will be billed at twice the standard fee schedule rate. There is a minimum eight-hour charge per day and a minimum overall fee of \$2,000.00 per case.
3. Higher Hourly Rates: Certain services, such as emergency/rapid response consulting, may be subject to higher hourly billing rates as agreed upon on a project-specific basis.
4. Overtime: Overtime for time worked on a project exceeding 8 hours per day, Holidays, and/or Sundays will be billed at 1.5 times the standard rate or as agreed upon on a project-specific basis.
5. Field Equipment and Supplies: Field equipment and in-house supplies will be billed at fixed unit prices, subject to periodic updates.
6. Subcontractors and Project Expenses: All project-related expenses are chargeable at cost plus 10% or in accordance with the specific project agreement. Subcontractor charges, costs of rental of specialized equipment, and any other costs not associated with normal overhead are billed at cost plus 15% or in accordance with the specific project agreement.
7. Mileage: The mileage for personal vehicles will be billed at the current United States Internal Revenue Service reimbursement rate.
8. General Terms and Conditions: Please refer to the General Terms and Conditions for further details.