CJW
Providing Transportation and Engineering Solutions

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March 9, 2022

Dakota Rusk,
City of Joplin
602 S Main Street
Joplin, Missouri 64801

RE: Request for Proposal, Joplin Signal System Assessment

Dear Mr. Rusk,

CJW Transportation Consultants, LLC has thoroughly reviewed your request to provide signal system assessment, signal timing, lighting review, and operational analysis services for the Joplin Signal System. Please see attached proposal for your review and approval.

If you have questions and need additional information, let me know.

Sincerely,

Dane Seiler, P.E., PTOE
President
CJW Transportation Consultants, LLC

This is **Attachment A**, consisting of 6 pages, referred to in and part of the **Agreement between Owner and Engineer for Professional Services**

Engineer's Services

The Joplin Signal System Review project will consist of the review of all signals within the city of Joplin. That review will include a documenting and assessing the current signal equipment in the field. In addition signal timing will be reviewed for each intersection as a part of the project. New signal timing plans will also be developed and implemented throughout the city. Additional work items include providing an analysis of the current duties of the signal technician, evaluating staffing signal maintenance staffing levels, and a benefit cost analysis of the streetlights. The Engineer will serve as an extension of City staff to provide assistance in the delivery of the project designated as "Joplin Signal System Review" hereinafter referred to as the PROJECT.

Engineer shall provide Basic and Additional Services as set forth below.

PART 1 – BASIC SERVICES

1. Engineer will provide project management for engineering tasks, including development of a detailed milestone schedule all phases of the PROEJCT including meeting dates, deliverable dates and procurement milestones for inclusion in RFQ/RFP documents with post-proposal and construction administration management

2. Engineer will provide monthly project updates describing completed and upcoming tasks, including distribution of a regular look ahead calendar of tasks.

3. Engineer will prepare monthly reporting on budget, status, pending changes, and schedule.

Project Records & Administration

1. Engineer will maintain a record of project documents, meetings, correspondence, comments, and other pertinent material throughout the course of the project. The materials shall be assimilated into an electronic Project Record at the completion of the project. The Project Record will include editable copies of raw material, such as AutoCAD and Word files for the project deliverables

Quality Management

1. Engineer will provide quality assurance to develop and evaluate project delivery process and discipline collaboration throughout all phases of the PROJECT.

Project Scheduling

1. Engineer will provide and maintain scheduling for all phases of the PROJECT.

Project Coordination

1. The Engineer's Project Manager or designee will coordinate work activities with the City's Project Manager and others.

2. The Engineer's Project Manager or designee will coordinate daily work activities of the subcontractors and provide oversight and overall project management.

3. The Engineer's Project Manager or designee will participate in a biweekly teleconference or video conference to keep the City's Project Manager abreast of the progress. The meeting should last 30 minutes to an hour on average. The frequency of the meeting will be expected for the first four (4) months of this PROJECT. Meeting frequencies may be adjusted at any time as the City's Project Manager deems necessary.

TASK 1.0 Signal System Data Collection

1.1. Kick off Meeting

The Consultant shall organize and conduct a kick off meeting for the project. The meeting will involve all necessary City and Engineer personnel for the completion of the project. The Engineer shall provide an agenda for the meeting.

1.2. Coordination with City GIS Personnel

The Consultant will coordinate with City GIS personnel on the type of data required for input into the city of Joplin's GIS system. IT is anticipated that the Engineer will proved the data, and the city will input the data into the cities GIS system.

1.3. Establishment of Data to Collect

The Consultant shall establish a working list of items to be collected at each signalized intersection. This list shall include pertinent signal related items for the city. The list will be collaboration between the consultant, city staff, and standard practices. Data may include the following:

Signal controllers, supports, indications, detection, pedestrian facilities, all field data, signs, back plates, signal plans, timing plans.

1.4. Field Data Collection

The Consultant will provide data collection and field evaluation of each of the 55 traffic signals within the city of Joplin. The consultant will provide detailed information on each signal, and evaluate the signal based upon condition, ADA standards, and overall need. A field inspection should be conducted to identify any detectors, pushbuttons or other appurtenances that are not operational that could affect system operation. Included shall be a confirmation that internal controller clocks are synchronized (system parent and local clocks). A list of deficiencies will be provided to the maintaining agency identifying any problems. The consultant shall report to the maintaining agency, systems that show excessive clock drift during the inspection. The maintaining agency will consider this information to determine if physical system changes are required to prevent future clock drifting from affecting system operation.

1.5. Summarization of Data

All Data will be summarized for City use. Data will be summarized in spreadsheet format and coordinated with the use of the Cities GIS system.

1.6. Technical Report

1.7. Meeting updates

The Consultant will conduct periodic meetings throughout the project to update and coordinate with City Staff.

TASK 2.0 Signal Timing

2.1. Review of Timing

The consultant will utilize traffic modeling to provide a cursory review of the existing signal timing, reviewing the splits, and coordination factors for the timing.

2.2. Clearance Interval Review

The Consultant will review existing clearance intervals for consistency and comparison to the existing standards.

2.3. Traffic Modeling

The initial model shall include the correct minimum initials, vehicular clearance, pedestrian intervals, and aerial background image. With the model shall be an "Existing Geometrics and Signal Layout" diagrams including intersection phasing. This is a one page per intersection diagram with an aerial of the intersection showing the signal layout (and phase diagram).

The time of day models should use the highest volume hour. The time of day models should be complete with the various applicable local timing parameters including:

a. Min Initials;
b. Min Splits;
c. Pedestrian Intervals;
d. Yellow Time;
e. Red Time;
f. Vehicle Extension/Min Gaps

The specific tasks related to modeling are:

Field Work - shall be performed, if necessary, to gather necessary model parameters, including basic geometrics, lane use, turn lane storage length, intersection widths (red calculation), pedestrian crossing widths, lane widths, intersection spacing, signal phasing, etc.

Model Creation - Shall consist of the physical creation of the Synchro 10 timing model using already gathered volume information and field work information. A base model should be created and submitted to for review/approval as described above. The consultant may at his/her discretion create the other timing plan models; however, they shall be revised accordingly based upon any comments received on the submitted base model. Models shall be created for each of the following timing plans with checkmarks:

- ☐ Weekday AM peak
- ☐ Weekday MID peak
- ☐ Weekday PM peak
- ☐ Weekday Off peak

Model Check/Calibration - shall consist, when necessary, of making vehicle and driver parameter changes to ensure the model accurately represents real-world conditions.

Timing Table Creation- shall consist of making easily readable timing tables for use in the field (or via download) to program controllers with optimized timing plans. Existing controller timings will be provided at each intersection, if requested, such timings should then be summarized into the spreadsheet for ease of reviews and to compare existing to proposed timing. Included shall be cycle lengths, splits, offsets, local timing parameters (min, max, recalls, yellow, red, ped timing, memory settings, etc). Also included shall be plan transition times (time when a plan is scheduled to begin).

Note: The implementation of a new timing plan (plan transition time) should normally occur at least a half hour prior to when it is needed. The implementation of a new timing plan can cause a lack of coordination for 2-4 cycle lengths, so this disruption should be completed prior to the onset of peak hours.

2.4. Field Implementation

The maintaining agency or an equipment vendor will install the new timing plans. Consultant should review installed timings via database print outs and/or field checks to insure they are correct in the controller.

2.5. Field Refinement

The consultant shall make field observations of implemented, optimized signal timings. The recommended timing adjustments shall be submitted to the maintaining agency for approval. The maintaining agency or an equipment vendor will install the recommended timing adjustments.

TASK 3.0 Future Needs Analysis

The Consultant will look and the overall needs of the city signal system and evaluate any capital projects to improve the signal system including evaluating central software, interconnect, and operational needs. In addition the consultant will review the need for upgrades to additional signals providing the city with a list of anticipated projects with budgets for inclusion on the CIP project list. The consultant will provide a detail report that will include a summer of Task 4.0 and Task 5.0.

TASK 4.0 Review of Signal Technician Duties

The Consultant will provide an analysis of Signal Technician duties. In addition to identifying any needed duties, the consultant will also provide a staffing level analysis for maintenance of the city signal system.

TASK 5.0 Streetlight Analysis

The Consultant will analyze the current ownership and operation of the streetlights within the city of Joplin. The Consultant will coordinate the data for their analyses with the city of Joplin, and Liberty utilities. With the assistance of the city, the consultant will analyze various ownership scenarios of the street lights

PART 2 – ADDITIONAL SERVICES

A2.01 *Additional Services Requiring Owner's Written Authorization*

If authorized in writing by Owner, Engineer shall provide Additional Services of the types listed below. These services are not included as part of Basic Services and will be paid for by Owner.

Preparation of applications and supporting documents (in addition to those furnished under Basic Services) for private or governmental grants, loans, or advances in connection with the Project; preparation or review of environmental assessments and impact statements; review and evaluation of the effects on the design requirements for the Project of any such statements and documents prepared by others; and assistance in obtaining approvals of authorities having jurisdiction over the anticipated environmental impact of the Project.

Services to make measured drawings of existing conditions or facilities, to conduct tests or investigations of existing conditions or facilities, or to verify the accuracy of drawings or other information furnished by Owner or others.

Services resulting from significant changes in the scope, extent, or character of the portions of the Project designed or specified by Engineer, or the Project's design requirements, including, but not limited to, changes in size, complexity, Owner's schedule, character of construction, or method of financing; and revising previously accepted studies, reports, Drawings, Specifications, or Construction Contract Documents when such revisions are required by changes in Laws and Regulations enacted subsequent to the Effective Date or are due to any other causes beyond Engineer's control.

Services resulting from Owner's request to evaluate additional Study and Report Phase alternative solutions beyond those agreed to in Paragraph A1.01.A.1 and 2.

Services required as a result of Owner's providing incomplete or incorrect Project information to Engineer.

Furnishing services of Consultants for other than Basic Services.

Other additional services performed or furnished by Engineer not otherwise provided for in this Agreement.

A3.01 *Exclusions and Assumptions*

Exclusions:

Assumptions:

City of Joplin will provide existing signal timing plans

Traffic Count Data will be provided by the City of Joplin

Subject:	Engineering Design Fee Estimate City of Joplin, Missouri Joplin, Missouri Signal System Review			
By:	CJW	Date:	3/9/2022	Sheet:
CJW No.	21100			1 of 2

MAN-HOURS and FEE ESTIMATE

		Project Principal	Senior Engineer	Project Engineer	Engineer Intern	Senior Designer	Signal Tech	Field Inspector	Office Administrator	Hours	Cost
	Hourly rate =	$170.00	$150.00	$108.00	$79.00	$83.00	$100.00	$65.00	$32.00	Total	total
Joplin Signal System Review											
Task 1.0 Signal System Data Collection											
Task 1.1	Kick off Meeting		2		2					4	$458
Task 1.2	Coordination with City GIS Personnel		2		32					34	$2,828
Task 1.3	Establishment of Data & Worksheet		2		12					14	$1,248
Task 1.4	Field Data Collection at 55 Locations		8		110					118	$9,890
Task 1.5	Summarization of Data		2		40					42	$3,460
Task 1.6	Technical Report and Findings		8		32					40	$3,728
Task 1.7	Meeting Updates		10		10					20	$2,290
Subtotal		**0**	**34**	**0**	**238**	**0**	**0**	**0**	**0**	**272**	**$23,902**
Task 2.0 Signal Timing											
Task 2.1	Cursory Review of Timing		60		40					100	$12,160
Task 2.2	Clearance Interval Analysis		8		40					48	$4,360
Task 2.3	Traffic Modeling		16		80					96	$8,720
Task 2.4	Field Implementation		60		60					120	$13,740
Task 2.5	Field Refinement		40		40					80	$9,160
Task 2.6	Signal Timing Development		16		60					76	$7,140
Subtotal		**0**	**200**	**0**	**320**	**0**	**0**	**0**	**0**	**520**	**$55,280**
Task 3.0 Future Needs Analysis											
Task 3.1	Evaluate Existing Conditions		16							16	$2,400
Task 3.2	Evaluate System Approach		16							16	$2,400
Task 3.3	Determine Signal Related CIP Projects		32							32	$4,800
Task 3.4	Provide a Cost for projects		8		24					32	$3,096
Task 3.5	Provide a detailed report on recommended		24		24					48	$5,496
Task 3.12	QA/QC		8							8	$1,200
Subtotal		**0**	**104**	**0**	**48**	**0**	**0**	**0**	**0**	**152**	**$19,392**
Task 4.0 Review Duties of Signal Technician											
Task 4.1	Review Current Duties of Signal tech		4				16			20	$2,200
Task 4.2	Review Staffing Need based upon workload		2				8			10	$1,100
Subtotal		**0**	**6**	**0**	**0**	**0**	**24**	**0**	**0**	**30**	**$3,300**
Task 5.0 Streetlight Analysis											
Task 5.1	Analyze Current Street Light Conditions		8		12					20	$2,148
Task 5.2	Review Future Streetlight scenarios		8		12					20	$2,148
Task 5.3	Develop a benefit cost analysis of scenarios		8		12					20	$2,148
Subtotal		**0**	**24**	**0**	**36**	**0**	**0**	**0**	**0**	**60**	**$6,444**

Subject:	**Engineering Design Fee Estimate** **#REF!** **#REF!** **#REF!**			
By:	#REF!	Date:	3/9/2022	Sheet:
CJW No.	21100			2 of 2

SUMMARY OF MAN-HOURS and FEE ESTIMATE

CJW Transportation Consultants, LLC

Task #		Hours	Cost
Task 1.0	Signal System Data Collection	272	$ 23,902
Task 2.0	Signal Timing	520	$ 55,280
Task 3.0	Future Needs Analysis	152	$ 19,392
Task 4.0	Review Duties of Signal Technician	30	$ 3,300
Task 5.0	Streetlight Analysis	60	$ 6,444
	Σ Hours =	1034	Σ Labor = **$ 108,318**

Direct Cost

Prints/ Copies						$250
Travel	2,800	Miles @	$0.566	/Mile		$1,583
					Reimbursable Total =	**$1,833**
					Total Estimated Fee =	**$110,151**

TOTAL FEE =	**$110,151**
TOTAL NOT TO EXCEED FEE =	**$110,151**



CJW
2022 Fee Schedule

Personnel Hourly Rates:	
Principal	$170.00
Senior Engineer	$150.00
Project Engineer	$108.00
Engineer Intern	$79.00
Inspector	$74.00
Senior Designer	$83.00
Senior Designer II	$78.00
Survey Manager / PLS	$88.00
Survey Crew Chief	$72.00
Survey Crew Member	$60.00
2 Person Survey Crew	$132.00
Traffic Data Collector	$30.00
Engineering Technician	$62.00
Administrator	$34.00
Clerical	$30.00

Expenses and Equipment Charges:	
Vehicle (3/4 ton or less)	$0.535/mile
Copies	$0.10/each
Blueprints	$0.50/sq. ft.
Real Time GPS Equipment	$250.00/day
Robotic Prism-Less Instrument	$195.00/day

Reimbursables: Travel Expenses, Outside Printing, Sub-Contractor Expenses

Overtime (Over 8 hours a day, 40 hours a week, Saturdays, Sundays, and Holidays):
1.5 times the hourly rate

CJWTRAN-01 KMCTAGGART

CERTIFICATE OF LIABILITY INSURANCE

DATE (MM/DD/YYYY) 3/9/2022

THIS CERTIFICATE IS ISSUED AS A MATTER OF INFORMATION ONLY AND CONFERS NO RIGHTS UPON THE CERTIFICATE HOLDER. THIS CERTIFICATE DOES NOT AFFIRMATIVELY OR NEGATIVELY AMEND, EXTEND OR ALTER THE COVERAGE AFFORDED BY THE POLICIES BELOW. THIS CERTIFICATE OF INSURANCE DOES NOT CONSTITUTE A CONTRACT BETWEEN THE ISSUING INSURER(S), AUTHORIZED REPRESENTATIVE OR PRODUCER, AND THE CERTIFICATE HOLDER.

IMPORTANT: If the certificate holder is an ADDITIONAL INSURED, the policy(ies) must have ADDITIONAL INSURED provisions or be endorsed. If SUBROGATION IS WAIVED, subject to the terms and conditions of the policy, certain policies may require an endorsement. A statement on this certificate does not confer rights to the certificate holder in lieu of such endorsement(s).

PRODUCER The Insurancenter 2901 Arizona Ave Joplin, MO 64804	CONTACT NAME: Kathleen McTaggart PHONE (A/C, No, Ext): (417) 623-7500 FAX (A/C, No): E-MAIL ADDRESS: kmctaggart@theinsurancenter.com
INSURED CJW Transportation Consultants, LLC 5051 S National, Ste 7A & 7B Springfield, MO 65810	INSURER A : CINCINNATI INSURANCE COMPANY 10677 INSURER B : Cincinnati Casualty Company 28665 INSURER C : Everest National Insurance Company 10120 INSURER D : INSURER E : INSURER F :

COVERAGES **CERTIFICATE NUMBER:** **REVISION NUMBER:**

THIS IS TO CERTIFY THAT THE POLICIES OF INSURANCE LISTED BELOW HAVE BEEN ISSUED TO THE INSURED NAMED ABOVE FOR THE POLICY PERIOD INDICATED. NOTWITHSTANDING ANY REQUIREMENT, TERM OR CONDITION OF ANY CONTRACT OR OTHER DOCUMENT WITH RESPECT TO WHICH THIS CERTIFICATE MAY BE ISSUED OR MAY PERTAIN, THE INSURANCE AFFORDED BY THE POLICIES DESCRIBED HEREIN IS SUBJECT TO ALL THE TERMS, EXCLUSIONS AND CONDITIONS OF SUCH POLICIES. LIMITS SHOWN MAY HAVE BEEN REDUCED BY PAID CLAIMS.

INSR LTR	TYPE OF INSURANCE	ADDL INSD	SUBR WVD	POLICY NUMBER	POLICY EFF (MM/DD/YYYY)	POLICY EXP (MM/DD/YYYY)	LIMITS	
A	X COMMERCIAL GENERAL LIABILITY			ECP0383831	4/22/2021	4/22/2022	EACH OCCURRENCE	$ 1,000,000
	CLAIMS-MADE X OCCUR						DAMAGE TO RENTED PREMISES (Ea occurrence)	$ 1,000,000
							MED EXP (Any one person)	$ 5,000
							PERSONAL & ADV INJURY	$ 1,000,000
	GEN'L AGGREGATE LIMIT APPLIES PER:						GENERAL AGGREGATE	$ 2,000,000
	POLICY X PRO-JECT LOC						PRODUCTS - COMP/OP AGG	$ 2,000,000
	OTHER:							$
A	AUTOMOBILE LIABILITY			ECP0383831	4/22/2021	4/22/2022	COMBINED SINGLE LIMIT (Ea accident)	$ 1,000,000
	X ANY AUTO						BODILY INJURY (Per person)	$
	OWNED AUTOS ONLY / SCHEDULED AUTOS						BODILY INJURY (Per accident)	$
	HIRED AUTOS ONLY / NON-OWNED AUTOS ONLY						PROPERTY DAMAGE (Per accident)	$
								$
A	X UMBRELLA LIAB X OCCUR			ECP0383831	4/22/2021	4/22/2022	EACH OCCURRENCE	$ 3,000,000
	EXCESS LIAB CLAIMS-MADE						AGGREGATE	$ 3,000,000
	DED X RETENTION $ 0							$
B	WORKERS COMPENSATION AND EMPLOYERS' LIABILITY ANY PROPRIETOR/PARTNER/EXECUTIVE OFFICER/MEMBER EXCLUDED? (Mandatory in NH) Y / N: N If yes, describe under DESCRIPTION OF OPERATIONS below	N / A		EWC0383832	4/22/2021	4/22/2022	X PER STATUTE / OTH-ER	
							E.L. EACH ACCIDENT	$ 1,000,000
							E.L. DISEASE - EA EMPLOYEE	$ 1,000,000
							E.L. DISEASE - POLICY LIMIT	$ 1,000,000
C	Prof Liability			AAEP000081211	4/22/2021	4/22/2022	Occurrence	1,000,000
C	Prof Liability			AAEP000081211	4/22/2021	4/22/2022	Aggregate	2,000,000

DESCRIPTION OF OPERATIONS / LOCATIONS / VEHICLES (ACORD 101, Additional Remarks Schedule, may be attached if more space is required)

CERTIFICATE HOLDER

City of Joplin
602 S Main St
Joplin, MO 64801

CANCELLATION

SHOULD ANY OF THE ABOVE DESCRIBED POLICIES BE CANCELLED BEFORE THE EXPIRATION DATE THEREOF, NOTICE WILL BE DELIVERED IN ACCORDANCE WITH THE POLICY PROVISIONS.

AUTHORIZED REPRESENTATIVE

Kathy McTaggart

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