

TASK ORDER 30
Signal Timing 2017

This is Task Order
No. 30, consisting of
5 pages.

Task Order

In accordance with paragraph 1.01 of the Standard Form of Agreement Between Owner and Engineer for Professional Services – Task Order Edition, dated September 4, 2014 ("Agreement"), Owner and Engineer agree as follows:

1. Specific Project Data

A. Title: Project Hall of Fame & Duck Signal Timing

B. Description: Task Order is for the Signal Timing Optimization of various intersections along Hall of Fame Avenue and Duck Street while school is in session.

1. Element #1: Data Collection
2. Element #2: Signal Timing Plan Development (Corridor A and B)
3. Element #3: Signal Timing Comparison

2. Services of Engineer

1. Data Collection

Olsson will coordinate turning movement counts at ten (10) existing intersections listed below for a 12-hour period. Counts will be processed for the AM (7:30-9:30), Midday (11:30-1:30), and PM (4:30-6:30) peak conditions during typical peak hour traffic using MioVision cameras.

Additional Intersections along Hall of Fame Avenue:

- Hall of Fame and Western Road
- Hall of Fame and Willis Street (have counts)
- Hall of Fame and Walnut Street (have counts)

Additional Intersections along Duck:

- Duck and Main/Eskridge (have counts)
- Duck and McElroy (have counts)
- Duck and Hall of Fame (have counts)
- Duck and Miller
- Duck and Elm
- Duck and 3rd Street
- Duck and 6th Street

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Task 2 – Signal Timing Plan Development

The Signal Timing Plan Development task will be divided into 2 parts. The scope of the work will be the same for each part

Part 1:

Corridor A: Hall of Fame: Western Road to Walnut Street signals (3 signalized intersections).

Part 2:

Corridor B: Duck Street: Main Street to 6th Street (6 signalized intersections)

The goal of signal optimization is to maximize arterial (mainline) progression while minimizing intersection delays. Obtaining the proper balance is an iterative task consisting of several steps that follow.

The Consultant will perform the following tasks in order to provide complete signal coordination plans for each corridor:

Task 2.1 – Update Synchro Model: The Consultant will collect field data where not already collected by the CLIENT to include intersection link distances, lane configurations, storage bay lengths, and approach grades, etc. The Consultant will then update the existing Synchro model for the corridor with the geometric data, phasing, and aerial background graphics with basic existing timings for the additional signals. A Synchro file for each of the coordination plans to represent “existing” timing conditions. These files, when finalized, will be submitted to CLIENT for their review. These files will be considered a “base” for the following task. It should be noted that this task does not take into account the development of a micro-simulation model. Should it be deemed necessary to develop a model for this corridor, a separate work order would be required. Before conditions fuel consumption usage & vehicle emissions will be calculated using the Synchro base condition files.

Task 2.2 – Signal Timing Optimization: The Consultant complete preliminary analysis to determine if signal coordination is appropriate for the corridor or if any of the intersections works better in free operation. If feasible the Consultant will prepare signal coordination plans utilizing Synchro Software Version 9. The signals will be mitigated into the recent timing plans developed for the weekday morning, midday, and afternoon peak periods.

Optimized timing parameters including minimum green, passage and Max 1 green times will be developed for free mode operation. It should also be noted that this task does not take into account the development of a micro-simulation model.

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Task 2.2.1 – Protected-Permissive Lead-Lag Phasing: Such phasing in general is to be avoided in accordance with the Federal Highway Administration’s “Manual on Uniform Traffic Control Devices” (MUTCD) requirements. Care must be taken to avoid signal phasing sequencing that would result in a “yellow trap” condition. Any variations are subject to CLIENT approval.

Task 2.2.2 – Clearance Intervals: Clearance interval analysis may be required. Yellow and Red (if necessary) intervals may be evaluated for accuracy and sufficiency using ITE standards.

Task 2.2.3 – Pedestrian Timings: Pedestrian timings are to be evaluated for locations with pedestrian crossings based on current MUTCD requirements. In locations where side street timings cannot accommodate the amount of pedestrian timing needed, evaluations must be made as to whether to allow the signal to be “kicked out of step”, if the number of pedestrians is small enough, or to increase side street timing to accommodate pedestrians within the normal Cycle length/split times. Pedestrian manual counts or observation of controller alarms during plan run time may be necessary. Signal timing plans which are significantly subject to coordination correction over a lengthy period of time cannot be considered “optimized timing” and are not permitted.

Task 2.3– Preliminary Report: Prepare an amendment to the Final Hall of Fame Report for CLIENT’s review that summarizes the traffic count data, and presents the proposed signal coordination plans along with a recommended time of day schedule. Synchro’s Arterial MOE’s and Network MOE’s for existing & proposed plans will be included in report This report will also include existing and proposed Synchro reports (with associated time-space diagrams) and count summaries (with time-volume graphs to illustrate the hourly fluctuations in flow each day of the week).

Task 2.4 – Field Implementation: Following CLIENT’s approval, the Consultant will field implement the proposed coordination plans. If available downloading of the new timing plans will be done by CLIENT or performed by the Consultant and overseen by CLIENT. The Consultant will hand enter the timing plans in the field controller if downloading capabilities via the internet is not available. Individual movement splits and intersection offsets will be monitored in order to fine-tune progression through the corridor. This process will be performed for each peak period.

Task 2.5 – Pre and Post MOE: Synchro’s Arterial MOE’s and Network MOE’s for existing Synchro MOE results will be compared the post implementation MOE results for major directions of traffic along each corridor major during the morning, midday, and afternoon peak periods in order to establish post travel conditions given the new coordination schemes.

Task 2.6– Final Report: The preliminary memorandum will be updated to include the final field documentation including the Synchro timing outputs and field observation reports from implementation.

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Task 3 – Signal Timing Comparison

Signal Timings will be checked with the BlueTOAD data that has been collected by the City to use to check conditions before and after signal timing plans that have been implemented.

3. Owner's Responsibilities

Owner shall have those responsibilities set forth in Article 2 and in Exhibit B, subject to the following: None

4. Times for Rendering Services

Description Completion Date (Calendar Days from NTP)
Task Order #30 (150 days)

5. Payments to Engineer

A. Owner shall pay Engineer for services rendered as follows:

	Category & Loaded Rate (\$/HR)									
	Sr. Proj. Manager	Project Manager	Project Engineer	Associate Engineer	Assistant Engineer	Technician	Admin.	Total Hours	Direct Cost	FEE
	\$ 208.32	\$ 165.26	\$ 132.82	\$ 117.27	\$ 104.60	\$ 87.28	\$ 91.05			
Data Collection	0	4	0	0	4	0	4	12	\$5,000.00	\$ 6,443.64
Signal Timing Plan Development (HOF Corridor A)	8	31	42	6	78	8	4	177	\$1,065.00	\$ 23,357.92
Signal Timing Plan Development (Duck Corridor B)	0	4	9	4	30	0	0	47	\$0.00	\$ 5,463.50
Timing Comparisons	0	8	16	0	16	0	0	40	0	\$ 5,120.80
Total Hours	8	47	67	10	128	8	8	276		
Total Fee	\$ 1,666.56	\$ 7,767.22	\$ 8,898.94	\$ 1,172.70	\$ 13,388.80	\$ 698.24	\$ 728.40	\$ 34,320.86	\$6,065.00	\$ 40,385.86

B. The terms of payment are set forth in Article 4 of the Agreement and in Exhibit C.

6. Consultants:

Fees for consultants utilized by Engineer are included in compensation listed in Item No. 5.

7. Other Modifications to Agreement:

None Included

8. Attachments:

None Included

9. Documents Incorporated By Reference:

None Included

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Terms and Conditions: Execution of this Task Order by Owner and Engineer shall make it subject to the terms and conditions of the Agreement (as modified above), which Agreement is incorporated by this reference. Engineer is authorized to begin performance upon its receipt of a copy of this Task Order signed by Owner.

The Effective Date of this Task Order is _____, _____.

OWNER:

ENGINEER:

By: _____

By: Alan A. Soltani

Name: _____

Name: Alan A. Soltani

Title: _____

Title: Vice President

Engineer License or Firm's Certificate No. 14487
State of: Oklahoma

DESIGNATED REPRESENTATIVE FOR TASK ORDER:

DESIGNATED REPRESENTATIVE FOR TASK ORDER:

Name: Sharla Lovern

Name: Russell Beaty

Title: Department Manager

Title: Transportation Team Leader

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