

January 25, 2024

Mr. Reuben Lopez
City of Glendale
5970 W. Brown St, Suite 200
Glendale, AZ 85302



Mr. Lopez:

Kimley-Horn and Associates, Inc. (Kimley-Horn) is pleased to submit this scope of services and fee proposal to perform professional consulting engineering services for the development of structural calculations and traffic signal pole standards for the City of Glendale (City).

The scope of work includes development of structural calculations and traffic signal pole standards. Based on the initial scoping meeting held with City staff on November 9, 2023 and subsequent follow-up meetings on November 15, 2023 and January 9, 2024, we understand the following:

- The City would like to update its signal pole standards to match closely to the recently updated City of Peoria standard details.
- Pole heights will be 22', 30', and 35'
- Luminaire arms will be 12' long with a 5' rise
- Luminaire should be shown as a fixed double luminaire with an option to put a cover plate over one of the attachment points if a single luminaire is desired.
- After the initial scoping meeting, a draft redlined set of the standards was created by Kimley-Horn for the City to review. The City reviewed and provided comments to the redlined set.
- Kimley-Horn met with Scott Clark and Valmont to discuss the City's intent. Valmont confirmed that they would produce calculations and details for Kimley-Horn and the City to review.
- Kimley-Horn will communicate the above decisions to Valmont. Valmont will produce calculations and details.
- Kimley-Horn will design the poles, mast arms, luminaires, and other miscellaneous items
- Kimley-Horn will provide a signed and sealed calculation package to the City of Glendale for their records
- If Kimley-Horn's analysis produces results that differ from Valmont's, Kimley-Horn will coordinate with Valmont to resolve any differences.
- The standards will match the format and style of the City of Peoria details, formatted to fit the City's portrait style details versus the City of Peoria's landscape style details.
- The pole foundations shall be 3-foot or 4-foot diameter.

Kimley-Horn's scope of work and fee estimate are provided in the pages that follows. We very much appreciate the opportunity to work with the City of Glendale on this project. Should you have any questions please do not hesitate to contact me at (602) 371-4572 or charlie.golek@kimley-horn.com.

Sincerely,
Kimley-Horn and Associates, Inc.

Charlie Golek, P.E.

Project Manager

CITY OF GLENDALE, ARIZONA
TRAFFIC SIGNAL POLE STANDARD DETAILS UPDATE
SCOPE OF SERVICES

Kimley-Horn will provide the services specifically set forth below.

TASK NO. 1 – PROJECT MANAGEMENT & MEETINGS

1.A. Coordination & Meetings

Kimley-Horn will establish a project management system which will provide adequate schedule and budget control and will be responsive to input from the City. We will coordinate with the City on a regular basis to discuss project issues and project status. Project management also includes managing project schedule and QA/QC.

Kimley-Horn will attend up to three (3) general meetings as part of this project. The meetings will be held virtually using Microsoft Teams and will include one (1) Kimley-Horn staff. The meetings will be scheduled on an as needed basis.

Kimley-Horn will provide meeting notes via email after each meeting.

Kimley-Horn will coordinate with Valmont as needed to communicate the City's desired geometry and configuration for the traffic signal poles. Valmont will perform designs and produce details for the poles. Kimley-Horn will perform a separate design of the poles and compare with Valmont's results. Kimley-Horn will coordinate and come to resolution with Valmont on any differences.

TASK NO. 2 – TRAFFIC SIGNAL POLE DESIGN & STANDARD DETAIL PRODUCTION

2.A. Traffic Signal Pole Design

Kimley-Horn will provide signed and sealed calculations for the pole configurations below. Note that the pole names will be updated during final design per the City's direction.

- Q114, arm span = 20-ft
- Q114, arm span = 25-ft
- Q114, arm span = 30-ft
- Q114, arm span = 35-ft
- Q114, arm span = 40-ft
- Q114, arm span = 45-ft
- Q114, arm span = 50-ft
- Q114, arm span = 55-ft
- Q116, arm span = 60-ft
- Q116, arm span = 65-ft

- Type G Pole

Design shall be per 2013 AASHTO “Standard Specifications for Structural Supports for Highway Signs, Luminaires, and Traffic Signals, Sixth Edition with interims.”

Design shall use the following parameters:

- Basic wind velocity with a recurrence interval of 50 years = 90 mph.
- Fatigue category of 2.
- Include truck-induced gust loads.
- Resist natural wind gusts based on a yearly mean wind velocity of 11.2 mph.
- Exclude galloping through the use of a vibration mitigation device.

Calculations will include foundation designs for the traffic signal poles. Foundations are assumed to be circular drilled shafts, either 3-foot or 4-foot in diameter. The following soil profiles are assumed for the designs:

- Soil Profile 1
 - Angle of Internal Friction = 25 degrees.
 - Unit Weight = 110 pcf
 - N-Value (SPT, blows/ft) = 7
- Soil Profile 2
 - Angle of Internal Friction = 29 degrees.
 - Unit Weight = 115 pcf
 - N-Value (SPT, blows/ft) = 10
- Soil Profile 3
 - Angle of Internal Friction = 32 degrees.
 - Unit Weight = 120 pcf
 - N-Value (SPT, blows/ft) = 15

2.B. Traffic Signal Pole Standard Detail Production

Kimley-Horn will provide standard details for the pole configurations listed above and their foundations. See below for an assumed sheet list:

Sheet Number	Detail Title
1-2	Type Q114 Signal Pole and Mast Arm (2 Sheets)
3-4	Type Q116 Signal Pole and Mast Arm (2 Sheets)
5-6	Type G Pole (2 Sheets)
7	Traffic Signal General Notes (1 Sheet)
8-10	Signal Appurtenances (3 Sheets)
11-12	Signal Pole Details (2 Sheets)
13	Hand Hole Detail (1 Sheet)
14-15	Foundation Detail (2 Sheets)

Kimley-Horn will modify existing City traffic signal pole standard details to separate the updated Q114 and Q116 from the other details.

Fee and Expenses

Kimley-Horn will perform the services in Tasks 1-2 for the total lump sum fee below and in **Attachment A**.

Total Project Cost: **\$66,470.00**

Attachment A
Kimley-Horn Estimate

**Contract C23-0058
Transportation Systems Support**

Task Order No. 8
Update ITS Standards



COST PROPOSAL SUMMARY

Task	Hours									Total Estimated Cost	
	SR Civil Professional II	SR Civil Professional I	Civil Professional	Civil Analyst	Senior Software Professional	Software Professional	Software Analyst	Admin Assistant	Total Hours		
Fully Loaded Rate	\$295.00	\$235.00	\$185.00	\$155.00	\$310.00	\$250.00	\$190.00	\$105.00			
COORDINATION & MEETINGS											
Meetings (3 Total)		3							3	\$ 705.00	
Valmont Coordination		4	4	4					12	\$ 2,300.00	
General Coordination		4	8						12	\$ 2,420.00	
POLE DESIGN & STANDARD DETAIL PRODUCTION											
Pole Design (Q114 - 20 ft Mast Arm)	1	2	3	8					14	\$ 2,560.00	
Pole Design (Q114 - 25 ft Mast Arm)	1	2	3	8					14	\$ 2,560.00	
Pole Design (Q114 - 30 ft Mast Arm)	1	2	3	8					14	\$ 2,560.00	
Pole Design (Q114 - 35 ft Mast Arm)	1	2	3	8					14	\$ 2,560.00	
Pole Design (Q114 - 40 ft Mast Arm)	1	2	3	8					14	\$ 2,560.00	
Pole Design (Q114 - 45 ft Mast Arm)	1	2	3	8					14	\$ 2,560.00	
Pole Design (Q114 - 50 ft Mast Arm)	1	2	3	8					14	\$ 2,560.00	
Pole Design (Q114 - 55 ft Mast Arm)	1	2	3	8					14	\$ 2,560.00	
Pole Design (Q116 - 60 ft Mast Arm)	1	2	3	8					14	\$ 2,560.00	
Pole Design (Q116 - 65 ft Mast Arm)	1	2	3	8					14	\$ 2,560.00	
Pole Design (Type G Pole)	1	2	3	8					14	\$ 2,560.00	
Foundation Design (3 Soil Types)	2	4	6	14					26	\$ 4,810.00	
Assemble Calculation Package			2	4					6	\$ 990.00	
QC Calculation Package		16		4					20	\$ 4,380.00	
STANDARD DETAIL PRODUCTION											
TYPE Q114 SIGNAL POLE AND MAST ARM (2 Sheets)		2	8	3					13	\$ 2,415.00	
TYPE Q116 SIGNAL POLE AND MAST ARM (2 Sheets)		2	8	3					13	\$ 2,415.00	
TYPE G POLE (2 Sheets)		2	8	3					13	\$ 2,415.00	
GENERAL NOTES (1 Sheet)		2	4	2					8	\$ 1,520.00	
SIGNAL APPURTENANCES (3 Sheets)		2	12	4					18	\$ 3,310.00	
SIGNAL POLE DETAILS (2 Sheets)		2	8	3					13	\$ 2,415.00	
HAND HOLE DETAIL (1 Sheet)		2	4	6					12	\$ 2,140.00	
DOUBLE LUMINAIRE DETAIL (1 Sheet)		2	4	6					12	\$ 2,140.00	
FOUNDATION DETAIL (2 Sheets)		2	8	3					13	\$ 2,415.00	
UPDATE MISC EXISTING STANDARD DETAILS		2	4	2					8	\$ 1,520.00	
Subtotal - Weekly Estimate of Effort and Cost	13	73	121	149	0	0	0	0	356	\$ 66,470.00	
TOTAL ESTIMATED LABOR COST	\$3,835.00	\$17,155.00	\$22,385.00	\$23,095.00	\$0.00	\$0.00	\$0.00	\$0.00		\$ 66,470.00	
SR Civil Professional II - Dave Leistiko	Direct Cost of Mileage (\$0.655 / Mile)						Estimated Miles	0		\$	-
SR Civil Professional I - Charlie Golek	Internal Reimbursable Expenses (0% Assumed)									\$	-
Civil Professional - Caleb Furse	Other Direct Expenses (Traffic Counts) at cost. No mark up.									\$	-
Civil Analyst - Jacob Tunnah										Total Proposed Fee	\$ 66,470.00