

Qualifications/Proposal For:

Professional Engineering Design Services for:

## Traffic Signal Design at Cathedral Canyon Drive and Canyon Shores

City of Cathedral City | January 3, 2025

Submitted By:

**STC Traffic, Inc**

**Mailing and Business Address:**

5973 Avenida Encinas, Suite 218

Carlsbad, CA 92008

Principal Contact: Jason Stack, President

P: (760) 602-4290



**Cathedral City**

January 3, 2025

Attn: Andrew Lee, E.I.T.  
Assistant Engineer  
City of Cathedral City  
68-700 Avenida Lalo Guerrero  
Cathedral City, CA 92234

**RE: Task Order Proposal – Traffic Signal Design at Cathedral Canyon Drive & Canyon Shores**

STC Traffic, Inc. (STC) is pleased to submit our qualifications to the City of Cathedral City for Traffic Signal Design at Cathedral Canyon Drive & Canyon Shores.

## **Project Understanding**

The City is seeking design services for a new traffic signal located at Cathedral Canyon Drive & Canyon Shores to improve pedestrian access to the CV link path.

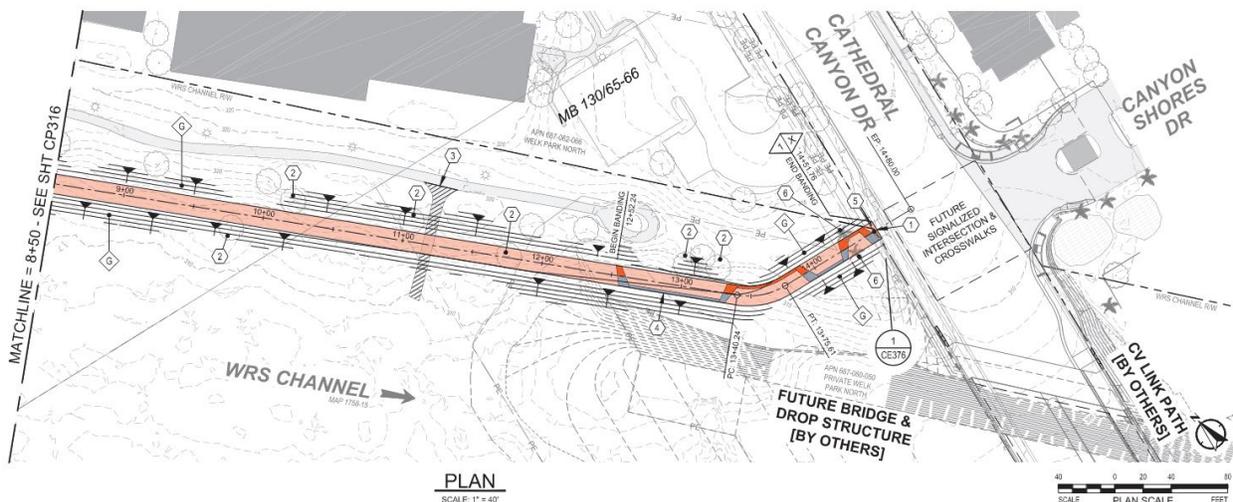
The City has requested a Task Order Proposal to design a new traffic signal at this intersection to provide for a safe crossing of Cathedral Canyon Drive to link the existing pedestrian/bicycle path on the bridge to a new CV path on the western side of this intersection. A draft traffic signal warrant study was prepared in 2023 at this intersection that evaluated both a traffic signal and pedestrian hybrid beacon based on existing traffic and pedestrian counts. With the construction of the CV Link path on the west side, it is anticipated that the pedestrian and bicycle volumes will likely exceed minimum requirements for a pedestrian hybrid beacon and possibly a traffic signal. This proposal is for either the design of a hybrid pedestrian beacon or a traffic signal should the City determine that a traffic signal is warranted at the intersection.

The intersection of Cathedral Canyon Drive & Canyon Shores, shown on the next page, is presently controlled with a STOP sign on Canyon Shores, a private street with access to a small residential neighborhood. Cathedral Canyon Drive is 64 feet wide curb-to-curb and is striped with four vehicle lanes, bike lanes, and a center two-way left turn lane. Cathedral Canyon Drive is posted at 45 mph and carries 16,000 vehicles per day. With the combination of volume and speed, pedestrians and cyclists will benefit from the safety of a traffic control device at this intersection.

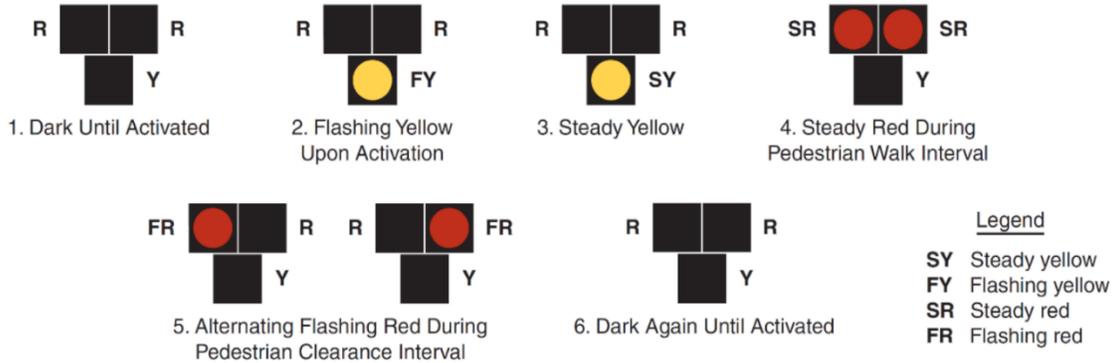
**Figure 1.** The intersection of Cathedral Canyon Drive and Canyon Shores is a T-Intersection with the primary objective to provide a safe pedestrian access across Cathedral Canyon Drive, which has a posted speed of 45 mph. With the construction of the new CV Link on the western side, there will be a significant amount of both pedestrian and bicycle traffic that should be controlled. Due to limited right-of-way, the signal pole and underground conduit locations will be evaluated to attempt to keep all within the existing right-of-way. An easement or additional right-of-way for traffic signal equipment may be required and will be reviewed closely. Pedestrian and bicycle crossing of Cathedral Canyon will be on the north side to provide a direct connection to the new CV Link path. A pedestrian scramble phase could be installed to connect the crosswalk diagonally to the southeast pedestrian ramp.



**Figure 2.** The new CV Link path will be constructed on the west side of the intersection and will be connected to the CV Link sidewalk/bridge on the west side of the intersection. There will be a traffic signal or pedestrian hybrid beacon installed at the intersection and a crosswalk will be located on the north side of the intersection and possibly diagonally with a pedestrian scramble phase.



**Figure 3. Sequence for a Pedestrian Hybrid Beacon**



STC has designed several pedestrian hybrid beacons. The pedestrian hybrid beacon is a traffic control device designed to help pedestrians safely cross higher-speed roadways at midblock crossings and uncontrolled intersections. The beacon head consists of two red lenses above a single yellow lens. The lenses remain “dark” until a pedestrian desiring to cross the street pushes the pedestrian button to activate the beacon, which then initiates a yellow to red lighting sequence consisting of flashing and steady lights that directs motorists to slow and come to a stop, providing the right-of-way to the pedestrian to safely cross the roadway before going dark again.

A traffic signal can also be installed at the intersection if the City determines that it is warranted. STC can design the traffic signal and provide a safe crossing for pedestrians and cyclists. It may be desirable to install a diagonal crosswalk to create a more direct connection to the CV Link path. STC has prepared several traffic signal designs with pedestrian scrambles and diagonal crosswalks and understands how to create a safe design. Due to the 45-mph speed limit and heavy volume of traffic on Cathedral Canyon Drive, protected left turn phasing would likely be proposed.

The signal can be timed so that Cathedral Canyon Drive traffic will receive a higher amount of green time and longer passage time can be used to keep the signal green longer to prevent congestion on Cathedral Canyon Dr.

The existing vehicle access driveway located on the west side of the intersection will need to be modified to provide for an ADA pedestrian ramp. Due to right-of-way constraints, STC will evaluate the appropriate ramp design to connect the CV Link path to the NE corner pedestrian ramp with an enhanced diagonal crosswalk. The STC Team has worked on very similar projects in multiple jurisdictions. We are excited about the opportunity to continue our relationship with Cathedral City.



**Figure 4.** The existing vehicle access driveway on the west side of the intersection will be reconstructed to provide for a wide ADA pedestrian ramp to accommodate bicycle and pedestrian traffic.



## STC Featured Project

### Menifee Road & La Piedra Road Traffic Signal Design | Menifee, CA

Plans, specifications and estimates (PS&E) for the construction of a new traffic signal at the intersection of Menifee Road & La Piedra Road. The project consisted of installing traffic signals and detection equipment to replace the former stop sign. The project also realigned northbound traffic through lanes on Menifee Road and added a left turn pocket lane. Additional work associated with the project included striping and modifying existing pedestrian curb ramps.

## Representative Projects

### W. Liberty at Miller Avenue Traffic Signal Project | Fontana, CA

Plans, specifications and estimates (PS&E) for the construction of a new traffic signal at the intersection of Miller Avenue and West Liberty Parkway. Project improvements included protected-permissive left-turn (PPLT) phasing, pedestrian scrambles, interconnect, and ADA ramp improvements. STC coordinated with the Cities of Fontana and Rancho Cucamonga to present several options and cost estimates for proving interconnection to the existing traffic signal at East Avenue and Miller Avenue located in the City of Rancho Cucamonga.

### Traffic Signal Improvements for Five Intersections | Temecula, CA

Plans, specifications and estimates (PS&E) for the Traffic Signal Modification Improvements Project – Permissive Left-Turn to Protected/Permissive Left-Turn. The City of Temecula was awarded funds through the Highway Safety Improvement Program (HSIP) to implement protected left turn phasing at five select intersections in the City, with the goal of reducing the number and severity of traffic accidents. Project improvements included the installation of new traffic signal poles, mast arms and equipment, and ADA compliant pedestrian ramps. STC led project delivery, including managing all project delivery requirements for local HSIP projects.

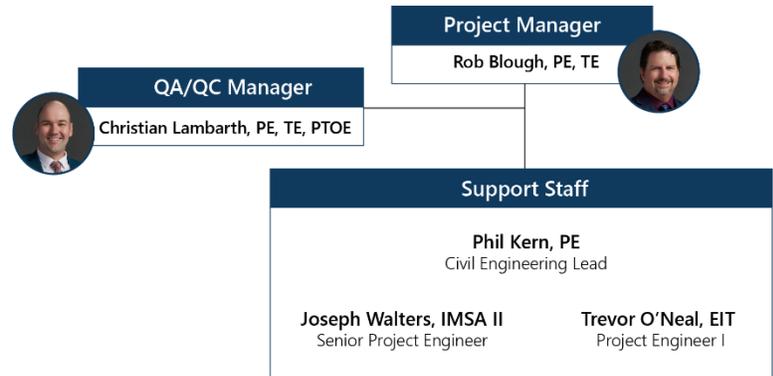
**Traffic signal design and associated improvements are part of STC’s core expertise, and we perform these services on a daily basis.**

Our staff has delivered a variety of traffic signal design and improvement projects for municipal clients, showcasing an extensive history of projects relevant to the Cathedral City. Many of these projects involved developing plans to address minor roadway improvements such as ADA curb ramps, sidewalks, trails, roadway widening, curbs, gutters, drainage facilities, and guard rails. The table below summarizes five recent projects where we delivered similar traffic signal designs in the City of Fontana.

| Representative STC Projects  | Design Elements  |
|--|--|
| N. Cherry Ave. at Live Oak Ave. Traffic Signal Modification Design (2020)              | Pedestrian scramble, PPLT, curb return reduction, storm drain relocation         |
| West Liberty Pkwy. at Miller Ave. New Traffic Signal Design (2020) <i>Previous Pg.</i> | Pedestrian scramble, Rancho interconnect, PPLT, ADA ramp improvements            |
| Baseline Ave. and Palmetto Ave. New Traffic Signal Design (2022)                       | Rialto development coordination, constrained utility/ROW, staggered intersection |
| Cypress Ave. and Arrow Ave. New Traffic Signal Design (2022)                           | Utility relocation, ROW acquisition, constrained utility/ROW, PPLT, CCTV         |
| TS Improvements or Date Elementary School (2023)                                       | Pedestrian access improvements, SRTS, pole relocation, future TSIC conduit       |

## Project Team

The STC Organizational Chart is shown below.



*\*Additional support staff available as needed*

STC personnel have many decades of combined traffic signal systems engineering, management, operations, and maintenance experience. We have worked as municipal employees and extensions of staff in our role as consultants; we operate and maintain TMCs and systems; we have been foreman for electrical contractors in traffic signal construction and maintenance; we have managed the municipal Public Works Electrical Division; and, we have worked for traffic signal system suppliers and manufacturers.

Our Project Manager, Rob Blough, P.E., T.E., understands municipal agency needs from the inside-out. As a former City Traffic Engineer for the Cities of Menifee (2018-2023) and Encinitas (1997-2018), he will be able to serve as a true extension of City staff, capable of rounding out every element of the Scope of Services. Resumes for key staff are included at the end of this proposal.

## Scope of Services

This section summarizes STC's scope of work, technical approach, and key deliverables to provide the engineering services required by the City.

### Task 1. Project Management & Coordination

STC's Project Manager, Mr. Blough, PE, TE, will coordinate the day-to-day activities for the duration of the project and serve as the primary point of contact. Following the Notice to Proceed, Mr. Blough will schedule a project kick-off meeting with City staff and the project team to discuss the objectives, schedule, scope, and City policies and procedures. Mr. Blough will coordinate progress meetings to discuss design development, staff comments on submittals, and action items. STC will prepare and email meeting agendas to City staff in advance of the meetings and email meeting minutes after each meeting.

STC will submit a progress report with invoices to the City in an organized format and with sufficient detail and backup documentation to clearly identify personnel, hours worked, and tasks completed. STC will control all project documents and provide deliverables and final files to the City in both hard-copy and electronic format. STC will maintain project files in an organized, logical fashion, and will be able to promptly retrieve and distribute project information to the City in the event of an audit or PRA request for information.

#### Task 1. Deliverables:

- Schedule and Schedule Updates
- Monthly Progress Reports
- Meeting Agendas and Minutes

### Task 2.1 As-Built Research and Utility Coordination

At the onset of the project, STC will submit a Request for Information (RFI) to obtain record drawings and other available information from the City related to the site area. STC will also submit a request to utility companies, based on contacts provided by the City, to obtain existing record drawings and future planned utility facilities within the project limits.

The utility information will be reviewed to develop a design that minimizes conflicts with existing utilities.

During the design phase of the project, STC will coordinate with affected utility companies by submitting progress plans to conduct conflict reviews and will work with the City and Southern California Edison (SCE) to coordinate the location of a service point for the new traffic signal. STC will assist in initiating the service request to obtain an SCE work order for the new service.

#### Task 2.1 Deliverables:

- Utility Records (As Requested)
- Utility Coordination

### Task 2.2 Field Meeting & Field Work

The STC Team and City Project Manager, if available, will walk the project area and collect relevant information to aid in completing location optimization and preliminary plan development.

During the field review, STC will evaluate the project area for compliance with minimum safety standards as provided in the CA-MUTCD, Americans with Disabilities Act (ADA), and City Standards. The project area will be observed, paying special attention to pedestrian activity, vehicle speed, safety concerns, overhead utilities, site constraints, and opportunities. Detailed field notes and photos will record field conditions and be logged for reference.

#### Task 2.2 Deliverables:

- Field Notes and Pictures (As Requested)

### **Task 2.3 Topographic Survey**

A topographic survey will be prepared for the immediate area of the intersection where new surface improvements are proposed. Base mapping for other areas will be developed from record drawings provided by the City, aerial photography and field investigations.

The survey effort will include detailed surveys of the vehicle access driveway on the west side and each curb return for review/design of ADA-compliant sidewalks and curb ramps. Existing right-of-way will be plotted from available mapping and records as provided by the City. Should additional right-of-way or traffic signal equipment easements be required, a plat and legal could be provided as an additional separate task (not included in fee).

#### Task 2.3 Deliverables:

- Field Topography

### **Task 2.4 Traffic Signal & Pedestrian Hybrid Beacon Warrant Analysis**

STC will prepare an update to the Draft Traffic Signal Warrant Analysis for Cathedral Canyon Drive at Canyon Shores Drive, dated May 9, 2023. This analysis will update the existing traffic volumes and existing and future pedestrian, and bicycle volumes anticipated to use the crossing with the completion of the CV Link Path. The 24-hour approach counts and peak hour turning movement counts will be collected at the intersection and used in the warrant study. CA MUTCD Section 4C will be used for traffic signal warrant evaluation and CA MUTCD Section 4F will be used for pedestrian hybrid beacon warrant evaluation. STC will prepare a technical memo to update the previous 2023 draft report and will provide a recommendation to the City as to whether a traffic signal or pedestrian hybrid beacon satisfies Caltrans Warrants.

#### Task 2.4 Deliverables:

- Technical Memorandum Updating the City's 2023 Draft Traffic Signal and Pedestrian Hybrid Beacon Warrant Study
- Vehicle, Pedestrian & Bicycle Traffic Data Collection for 24-Hour Approach and Turning Movement Counts

### **Task 2.5 Preliminary Plans & Basis of Design**

The STC Team will develop a Basis of Design (BOD) document that will evaluate the optimal location of the traffic signal equipment due to the constraints caused by existing utilities and restricted right-of-way.

The 30% Preliminary Plans will be developed showing options for traffic signal pole placement locations, enhanced crosswalks, pedestrian scramble phasing, and roadway striping reconfiguration.

Both the Preliminary Plan and Basis of Design memo will show and discuss any existing deficiencies, utility conflicts, right-of-way constraints, ADA compliance issues, traffic signal phasing, and other proposed civil improvements with anticipated costs.

The result of the BOD will be an accepted preferred design for the traffic signal and associated civil improvements.

The STC Team will develop a preliminary design package which will include plans reflecting a 30% design level of effort for the construction of the traffic signal, signing and striping, and ADA pedestrian ramps.

#### Task 2.5 Deliverables:

- Basis of Design Document
- 30% Plans

### Plans, Specifications, and Cost Estimate (PS&E)

The STC Team will prepare all drawings, specifications and engineers estimates adequate and sufficient for Cathedral City to solicit bids for the award of the contract and construction. This work is summarized in the subsequent tasks.

#### **Task 3.1 Plans (90%, 100%)**

STC will prepare plans for the new traffic signal or pedestrian hybrid beacon, signing and striping, and new ADA pedestrian ramp and associated civil improvements. Plans shall conform to Cathedral City Standard Plans, AASHTO Greenbook, County of Riverside Standard Plans, and Caltrans Standard Plans as applicable. Plans will be prepared utilizing AutoCAD software. All work identified on the plans will be approved and sealed by a

professional Civil Engineer registered in the State of California. Project plans shall include:

#### Title, General Notes, and Construction Detail Sheets

Civil Design Plans will include removals, existing and proposed surface improvements, and utility locations based on available records and field investigations. Where necessary, the plans shall define the limits of repair to pavement, curb, gutter, sidewalk, and ADA curb ramp upgrades. The plans shall be at a horizontal scale of 1"=10' or 1"=20' as appropriate. The plans will include horizontal and vertical control for new ADA-compliant curb ramps, centerline stationing, and will depict existing utility locations as determined from the survey and available records. If existing curb ramps do not meet current regulations, they will be removed and reconstructed to current standards. Conduit runs to connect the signal poles will be accomplished by pavement saw cuts, with minimal removals and reconstruction, per the signal plans. Civil Design Plans to be prepared will include a Street Improvement Plan, including limits of demolition, and a Detail Sheet with ADA Ramp details.

Signing and Striping Plans at a horizontal scale of 1"=40'. Signing and striping plans shall be prepared to meet the latest edition of the CA-MUCTD. The plans will include full geometry of the roadway and appropriate signing and striping removals and improvements. The plans will incorporate all aspects of existing and proposed signing and striping design.

Traffic Signal or Pedestrian Hybrid Beacon Plan at a horizontal scale of 1"=20'. The design will be developed in accordance with Cathedral City Design Standards, Ordinances and Regulations, Caltrans Standard Plans and Specifications, and the CA-MUTCD. Plans will include general notes, construction notes, phase diagrams, pole and equipment schedules, conduit and conductor schedules, and details for pole locations and foundations, pull boxes, conduits, and splicing. Other elements of design will include Emergency Vehicle Preemption (EVP) systems, pole and mast-arm signage, Accessible Pedestrian Systems (APS) and countdown signal heads, cabinets and controllers, and LED safety lighting.

The STC Team will submit plans to the City for review at the 90% and 100% levels of completion.

#### Task 3.1 Deliverables:

- 90% and 100% Design Plans

#### **Task 3.2 Specifications (90%, 100%)**

STC will prepare project specifications utilizing the City's current boilerplate bid package, special provisions, and the latest editions of the AASHTO Greenbook for Public Works Construction, Caltrans specifications, and City Standards.

The bid package will be prepared via Microsoft Word and remain in the City's boilerplate font and format. All additions or changes to the boilerplate shall be highlighted in yellow for each respective first plan check submittal. The project specifications and bid documents will include the detailed project description, preparation of bid schedules, bid item descriptions, special provisions, technical specifications, and specification detail sheets

or standard plans, as needed. **The STC Team will also provide product specifications for traffic signal equipment, if desired by the City.**

#### Task 3.2 Deliverables:

- 90% and 100% Bid Package in Word Format

#### **Task 3.3 Engineer's Cost Estimate (90%, 100%)**

The STC Team will provide an itemized engineer's cost estimate at the 90% and 100% levels of design for all proposed improvements. The estimates will be detailed with unit prices and quantities for individual line items of work and specified equipment based on the historical cost index. Cost estimate details, including items and descriptions, will be consistent with bid items and specification sections. STC excels in producing accurate cost estimates for construction through our experience with recently completed projects, materials procurement, and changing conditions in the traffic signal construction industry.

#### Task 3.3 Deliverables:

- 90% and 100% Engineer's Cost Estimate in Excel Format

#### **Task 4. Bidding and Construction Support**

The STC Team will provide bidding and construction support. This work will include, but is not limited to, responding to the Contractor's RFIs during project advertisement and construction, responding to questions, preparing addenda, conferring with the City's Construction Manager regarding RFIs as appropriate, reviewing and approving shop drawings, preparing final record drawings, and preparing signal timing sheets.

All communication will be directed to the City for issuance to the Contractor. STC will have no direct contact with the Contractor. This task excludes regularly scheduled construction observation.

Task 4 Deliverables:

- Pre-Bid and Pre-Construction Meeting Attendance, Written RFI Responses, Addenda, Shop Drawing Review and Acceptance, and Final Record Drawings
- Signal Timing Sheets

## Fee Proposal

STC’s fee estimate to perform the scope of work is **\$79,770**. The effort by task and staff designation is shown on the following page.

## Project Schedule

The duration of the work is expected to take six (6) months from Notice to Proceed, including City review, to deliver the PS&E for the Traffic Signal Design at Cathedral Canyon Drive & Canyon Shores. The milestone dates are shown below:

|  | Start   | End           |
|--|---------|---------------|
| <b>NTP/Kick-off Meeting</b>                                      | 2/3/25  | 2/3/25        |
| <b>Task 1.</b> Project Management                                | 2/3/25  | 12/26/25      |
| <b>Task 2.1</b> As Built Research & Utility Coord.               | 2/3/25  | 2/28/25       |
| <b>Task 2.2</b> Field Meeting & Field Work                       | 3/3/25  | 3/14/25       |
| <b>Task 2.3</b> Topographic Survey                               | 3/3/25  | 3/14/25       |
| <b>Task 2.4</b> Traffic Signal & Ped Hybrid Beacon Warrant Study | 2/3/25  | 3/14/25       |
| <b>City Review</b> (Warrant Study)                               | 3/17/25 | 3/28/25       |
| <b>Task 2.5</b> Preliminary Plans & Basis of Design              | 3/31/25 | 4/25/25       |
| <b>City Review</b> (Concept)                                     | 4/28/25 | 5/16/25       |
| <b>Task 3.1</b> Plans (90%)                                      | 5/19/25 | 6/27/25       |
| <b>City Review</b> (90%)   | 6/30/25 | 7/18/25       |
| <b>Task 3.1</b> Plans (100%)                                     | 7/21/25 | <b>8/8/25</b> |
| <b>Task 3.2</b> Specifications (90%, 100%)                       | 5/19/25 | <b>8/8/25</b> |
| <b>Task 3.3</b> Engineer’s Cost Estimate (90%, 100%)             | 5/19/25 | <b>8/8/25</b> |
| <b>Task 4.</b> Bidding and Construction Support                  | 8/11/25 | 12/26/25      |

STC Traffic | Cathedral City - Traffic Signal Design at Cathedral Canyon Drive & Canyon Shores  
Fee Proposal

|                       |  | Employee Name     |                     |                          |                      |                    | Subcontractors     |                                   | Total Hours             | Total Cost   |
|-----------------------|--|-------------------|---------------------|--------------------------|----------------------|--------------------|--------------------|-----------------------------------|-------------------------|--------------|
|                       |  | Blough, Rob       | Lambarth, Christian | Kern, Phil               | Walters, Joseph      | O'Neal, Trevor     | Topographic Survey | 24-Hour & Turning Movement Counts |                         |              |
|                       |  | Principal Manager | Principal Manager   | Senior Principal Manager | Sr. Project Engineer | Associate Engineer | Lump Sum           | Lump Sum                          |                         |              |
| Standard Billing Rate |  | \$230.00          | \$230.00            | \$250.00                 | \$200.00             | \$150.00           |                    |                                   |                         |              |
| Task                  | Task Description   |                   |                     |                          |                      |                    |                    |                                   |                         |              |
| Task 1.0              | Project Management & Coordination                            | 18                | -                   | 4                        | -                    | -                  |                    |                                   | 22                      | \$ 5,140.00  |
| Task 2.1              | As-Built Research and Utility Coordination                   | 2                 | -                   | 2                        | 4                    | 8                  |                    |                                   | 16                      | \$ 2,960.00  |
| Task 2.2              | Field Meeting & Field Work                                   | 8                 | -                   | -                        | 8                    | -                  |                    |                                   | 16                      | \$ 3,440.00  |
| Task 2.3              | Topographic Survey   | -                 | -                   | -                        | -                    | -                  | \$ 12,500.00       |                                   |                         | \$ 12,500.00 |
| Task 2.4              | Traffic Signal & Ped Hybrid Beacon Warrant Study             | 8                 |                     |                          | 24                   | 8                  |                    | \$ 2,000.00                       |                         | \$ 9,840.00  |
| Task 2.5              | Preliminary Plans & Basis of Design                          | 8                 | 1                   | 4                        | 16                   | 32                 |                    |                                   | 61                      | \$ 11,070.00 |
| Task 3.1              | Plans (Traffic Signal, Signing/Striping, Civil at 90%, 100%) | 4                 | 1                   | 8                        | 32                   | 74                 |                    |                                   | 119                     | \$ 20,650.00 |
| Task 3.2              | Specifications (90%, 100%)                                   | 2                 | 1                   | 2                        | 12                   | 12                 |                    |                                   | 29                      | \$ 5,390.00  |
| Task 3.3              | Engineer's Cost Estimate (90%, 100%)                         | 2                 | -                   | -                        | 4                    | 12                 |                    |                                   | 18                      | \$ 3,060.00  |
| Task 4.0              | Bidding and Construction Support                             | 4                 | -                   | -                        | 24                   | -                  |                    |                                   | 28                      | \$ 5,720.00  |
| Total Hours           |  | 56                | 3                   | 20                       | 124                  | 146                |                    |                                   | 309                     |              |
| Subtotal Labor        |  | \$12,880.00       | \$690.00            | \$5,000.00               | \$24,800.00          | \$21,900.00        | \$ 12,500.00       | \$ 2,000.00                       |                         | \$ 79,770.00 |
|                       |  |                   |                     |                          |                      |                    |                    |                                   | ODC: Other Direct Costs | \$ -         |
|                       |  |                   |                     |                          |                      |                    |                    |                                   | Total Cost              | \$ 79,770.00 |