CITY OF COSTA MESA
PROFESSIONAL SERVICES AGREEMENT
WITH
ARCHITECTURAL ENGINEERING TECHNOLOGY INC.

THIS PROFESSIONAL SERVICES AGREEMENT ("Agreement") is made and entered into this 1st day of March, 2022 ("Effective Date"), by and between the CITY OF COSTA MESA, a municipal corporation ("City"), and ARCHITECTURAL ENGINEERING TECHNOLOGY INC., a California corporation ("Contractor").

W I T N E S S E T H :

A. WHEREAS, City proposes to utilize the services of Contractor as an independent contractor to develop and implement traffic signal infrastructure and coordination improvements in connection with the Baker-Placentia-Victoria-19th Regional Traffic Signal Synchronization Project, as more fully described herein; and

B. WHEREAS, Contractor represents that it has that degree of specialized expertise contemplated within California Government Code section 37103, and holds all necessary licenses to practice and perform the services herein contemplated; and

C. WHEREAS, City and Contractor desire to contract for the specific services described in Exhibits "A" and "B" and desire to set forth their rights, duties and liabilities in connection with the services to be performed; and

D. WHEREAS, no official or employee of City has a financial interest, within the provisions of sections 1090-1092 of the California Government Code, in the subject matter of this Agreement.

NOW, THEREFORE, for and in consideration of the mutual covenants and conditions contained herein, the parties hereby agree as follows:

1.0. SERVICES PROVIDED BY CONSULTANT

1.1. Scope of Services. Contractor shall provide the professional services described in the Scope of Services, attached hereto as Exhibit "A," and Contractor's Proposal, attached hereto as Exhibit "B," both incorporated herein.

1.2. Prevailing Wage Requirements. Contractor is aware of the requirements of Chapter 1 (beginning at Section 1720 et seq.) of Part 7 of Division 2 of the California Labor Code, as well as Title 8, Section 16000 et seq. of the California Code of Regulations ("Prevailing Wage Laws"), which require the payment of prevailing wage rates and the performance of other requirements on "public works" and "maintenance" projects. Contractor shall comply with all applicable Prevailing Wage Laws in connection with the services provided pursuant to this Agreement. Contractor shall defend, indemnify and hold the City, its elected officials, officers, employees and agents free and harmless from any claim or liability arising out of any failure or alleged failure to comply with the Prevailing Wage Laws.

1.3. Professional Practices. All professional services to be provided by Contractor pursuant to this Agreement shall be provided by personnel experienced in their respective fields

and in a manner consistent with the standards of care, diligence and skill ordinarily exercised by professional contractors in similar fields and circumstances in accordance with sound professional practices. Contractor also warrants that it is familiar with all laws that may affect its performance of this Agreement and shall advise City of any changes in any laws that may affect Contractor's performance of this Agreement.

1.4. Performance to Satisfaction of City. Contractor agrees to perform all the work to the complete satisfaction of the City. Evaluations of the work will be done by the City Manager or his or her designee. If the quality of work is not satisfactory, City in its discretion has the right to:

(a) Meet with Contractor to review the quality of the work and resolve the matters of concern;

(b) Require Contractor to repeat the work at no additional fee until it is satisfactory; and/or

(c) Terminate the Agreement as hereinafter set forth.

1.5. Warranty. Contractor warrants that it shall perform the services required by this Agreement in compliance with all applicable Federal and California employment laws, including, but not limited to, those laws related to minimum hours and wages; occupational health and safety; fair employment and employment practices; workers' compensation insurance and safety in employment; and all other Federal, State and local laws and ordinances applicable to the services required under this Agreement. Contractor shall indemnify and hold harmless City from and against all claims, demands, payments, suits, actions, proceedings, and judgments of every nature and description including attorneys' fees and costs, presented, brought, or recovered against City for, or on account of any liability under any of the above-mentioned laws, which may be incurred by reason of Contractor's performance under this Agreement.

1.6. Non-Discrimination. In performing this Agreement, Contractor shall not engage in, nor permit its agents to engage in, discrimination in employment of persons because of their race, religious creed, color, national origin, ancestry, physical disability, mental disability, medical condition, genetic information, marital status, sex, gender, gender identity, gender expression, age, sexual orientation, or military or veteran status, except as permitted pursuant to section 12940 of the Government Code.

1.7. Non-Exclusive Agreement. Contractor acknowledges that City may enter into agreements with other contractors for services similar to the services that are subject to this Agreement or may have its own employees perform services similar to those services contemplated by this Agreement.

1.8. Delegation and Assignment. This is a personal service contract, and the duties set forth herein shall not be delegated or assigned to any person or entity without the prior written consent of City. Contractor may engage a subcontractor(s) as permitted by law and may employ other personnel to perform services contemplated by this Agreement at Contractor's sole cost and expense.

1.9. Confidentiality. Employees of Contractor in the course of their duties may have access to financial, accounting, statistical, and personnel data of private individuals and employees of City. Contractor covenants that all data, documents, discussion, or other information developed or received by Contractor or provided for performance of this Agreement are deemed

confidential and shall not be disclosed by Contractor without written authorization by City. City shall grant such authorization if disclosure is required by law. All City data shall be returned to City upon the termination of this Agreement. Contractor's covenant under this Section shall survive the termination of this Agreement.

2.0. COMPENSATION AND BILLING

2.1. Compensation. Contractor shall be paid in accordance with the fee schedule set forth in Exhibit "C," attached hereto and incorporated herein (the "Fee Schedule"). Contractor's total compensation shall not exceed Two Million Two Hundred Eleven Thousand Four Hundred Five Dollars and Twenty-Three Cents ($2,211,405.23).

2.2. Additional Services. Contractor shall not receive compensation for any services provided outside the scope of services specified in the Contractor's Proposal unless the City Manager or designee, prior to Contractor performing the additional services, approves such additional services in writing. It is specifically understood that oral requests and/or approvals of such additional services or additional compensation shall be barred and are unenforceable.

2.3. Method of Billing. Contractor may submit invoices to the City for approval on a progress basis, but no more often than two times a month. Said invoice shall be based on the total of all Contractor's services which have been completed to City's sole satisfaction. City shall pay Contractor's invoice within forty-five (45) days from the date City receives said invoice. Each invoice shall describe in detail, the services performed, the date of performance, and the associated time for completion. Any additional services approved and performed pursuant to this Agreement shall be designated as "Additional Services" and shall identify the number of the authorized change order, where applicable, on all invoices.

2.4. Records and Audits. Records of Contractor's services relating to this Agreement shall be maintained in accordance with generally recognized accounting principles and shall be made available to City or its Project Manager for inspection and/or audit at mutually convenient times from the Effective Date until three (3) years after termination of this Agreement.

3.0. TIME OF PERFORMANCE

3.1. Commencement and Completion of Work. Unless otherwise agreed to in writing by the parties, the professional services to be performed pursuant to this Agreement shall commence within five (5) days from the Effective Date of this Agreement. Said services shall be performed in strict compliance with the project schedule agreed upon by City and Contractor. Failure to commence work in a timely manner and/or diligently pursue work to completion may be grounds for termination of this Agreement.

3.2. Excusable Delays. Neither party shall be responsible for delays or lack of performance resulting from acts beyond the reasonable control of the party or parties. Such acts shall include, but not be limited to, acts of God, fire, strikes, pandemics, material shortages, compliance with laws or regulations, riots, acts of war, or any other conditions beyond the reasonable control of a party (each, a "Force Majeure Event"). If a party experiences a Force Majeure Event, the party shall, within five (5) days of the occurrence of the Force Majeure Event, give written notice to the other party stating the nature of the Force Majeure Event, its anticipated duration and any action being taken to avoid or minimize its effect. Any suspension of performance shall be of no greater scope and of no longer duration than is reasonably required and the party experiencing the Force Majeure Event shall use best efforts without being obligated

to incur any material expenditure to remedy its inability to perform; provided, however, if the suspension of performance continues for sixty (60) days after the date of the occurrence and such failure to perform would constitute a material breach of this Agreement in the absence of such Force Majeure Event, the parties shall meet and discuss in good faith any amendments to this Agreement to permit the other party to exercise its rights under this Agreement. If the parties are not able to agree on such amendments within thirty (30) days and if suspension of performance continues, such other party may terminate this Agreement immediately by written notice to the party experiencing the Force Majeure Event, in which case neither party shall have any liability to the other except for those rights and liabilities that accrued prior to the date of termination.

4.0. TERM AND TERMINATION

4.1. Term. This Agreement shall commence on the Effective Date and continue for a period of three (3) years, ending on February 28, 2025, unless previously terminated as provided herein or as otherwise agreed to in writing by the parties.

4.2. Notice of Termination. The City reserves and has the right and privilege of canceling, suspending or abandoning the execution of all or any part of the work contemplated by this Agreement, with or without cause, at any time, by providing written notice to Contractor. The termination of this Agreement shall be deemed effective upon receipt of the notice of termination. In the event of such termination, Contractor shall immediately stop rendering services under this Agreement unless directed otherwise by the City.

4.3. Compensation. In the event of termination, City shall pay Contractor for reasonable costs incurred and professional services satisfactorily performed up to and including the date of City's written notice of termination. Compensation for work in progress shall be prorated based on the percentage of work completed as of the effective date of termination in accordance with the fees set forth herein. In ascertaining the professional services actually rendered hereunder up to the effective date of termination of this Agreement, consideration shall be given to both completed work and work in progress, to complete and incomplete drawings, and to other documents pertaining to the services contemplated herein whether delivered to the City or in the possession of the Contractor.

4.4. Documents. In the event of termination of this Agreement, all documents prepared by Contractor in its performance of this Agreement including, but not limited to, finished or unfinished design, development and construction documents, data studies, drawings, maps and reports, shall be delivered to the City within ten (10) days of delivery of termination notice to Contractor, at no cost to City. Any use of uncompleted documents without specific written authorization from Contractor shall be at City's sole risk and without liability or legal expense to Contractor.

5.0. INSURANCE

5.1. Minimum Scope and Limits of Insurance. Contractor shall obtain, maintain, and keep in full force and effect during the life of this Agreement all of the following minimum scope of insurance coverages with an insurance company admitted to do business in California, rated "A," Class X, or better in the most recent Best's Key Insurance Rating Guide, and approved by City:

(a) Commercial general liability, including premises-operations, products/completed operations, broad form property damage, blanket

contractual liability, independent contractors, personal injury or bodily injury with a policy limit of not less than One Million Dollars ($1,000,000.00), combined single limits, per occurrence. If such insurance contains a general aggregate limit, it shall apply separately to this Agreement or shall be twice the required occurrence limit.

(b) Business automobile liability for owned vehicles, hired, and non-owned vehicles, with a policy limit of not less than One Million Dollars ($1,000,000.00), combined single limits, per occurrence for bodily injury and property damage.

(c) Workers' compensation insurance as required by the State of California. Contractor agrees to waive, and to obtain endorsements from its workers' compensation insurer waiving subrogation rights under its workers' compensation insurance policy against the City, its officers, agents, employees, and volunteers arising from work performed by Contractor for the City and to require each of its subcontractors, if any, to do likewise under their workers' compensation insurance policies.

(d) Professional errors and omissions ("E&O") liability insurance with policy limits of not less than One Million Dollars ($1,000,000.00), combined single limits, per occurrence and aggregate. Architects' and engineers' coverage shall be endorsed to include contractual liability. If the policy is written as a "claims made" policy, the retro date shall be prior to the start of the contract work. Contractor shall obtain and maintain, said E&O liability insurance during the life of this Agreement and for three years after completion of the work hereunder.

5.2. Endorsements. The commercial general liability insurance policy and business automobile liability policy shall contain or be endorsed to contain the following provisions:

(a) Additional insureds: "The City of Costa Mesa and its elected and appointed boards, officers, officials, agents, employees, and volunteers are additional insureds with respect to: liability arising out of activities performed by or on behalf of the Contractor pursuant to its contract with the City; products and completed operations of the Contractor; premises owned, occupied or used by the Contractor; automobiles owned, leased, hired, or borrowed by the Contractor."

(b) Notice: "Said policy shall not terminate, be suspended, or voided, nor shall it be cancelled, nor the coverage or limits reduced, until thirty (30) days after written notice is given to City."

(c) Other insurance: "The Contractor's insurance coverage shall be primary insurance as respects the City of Costa Mesa, its officers, officials, agents, employees, and volunteers. Any other insurance maintained by the City of Costa Mesa shall be excess and not contributing with the insurance provided by this policy."

(d) Any failure to comply with the reporting provisions of the policies shall not affect coverage provided to the City of Costa Mesa, its officers, officials,

agents, employees, and volunteers.

(e) The Contractor's insurance shall apply separately to each insured against whom claim is made or suit is brought, except with respect to the limits of the insurer's liability.

5.3. Deductible or Self Insured Retention. If any of such policies provide for a deductible or self-insured retention to provide such coverage, the amount of such deductible or self-insured retention shall be approved in advance by City. No policy of insurance issued as to which the City is an additional insured shall contain a provision which requires that no insured except the named insured can satisfy any such deductible or self-insured retention.

5.4. Certificates of Insurance. Contractor shall provide to City certificates of insurance showing the insurance coverages and required endorsements described above, in a form and content approved by City, prior to performing any services under this Agreement.

5.5. Non-Limiting. Nothing in this Section shall be construed as limiting in any way, the indemnification provision contained in this Agreement, or the extent to which Contractor may be held responsible for payments of damages to persons or property.

6.0. GENERAL PROVISIONS

6.1. Entire Agreement. This Agreement constitutes the entire agreement between the parties with respect to any matter referenced herein and supersedes any and all other prior writings and oral negotiations. This Agreement may be modified only in writing, and signed by the parties in interest at the time of such modification. The terms of this Agreement shall prevail over any inconsistent provision in any other contract document appurtenant hereto, including exhibits to this Agreement.

6.2. Representatives. The City Manager or his or her designee shall be the representative of City for purposes of this Agreement and may issue all consents, approvals, directives and agreements on behalf of the City, called for by this Agreement, except as otherwise expressly provided in this Agreement.

Contractor shall designate a representative for purposes of this Agreement who shall be authorized to issue all consents, approvals, directives and agreements on behalf of Contractor called for by this Agreement, except as otherwise expressly provided in this Agreement.

6.3. Project Managers. City shall designate a Project Manager to work directly with Contractor in the performance of this Agreement.

Contractor shall designate a Project Manager who shall represent it and be its agent in all consultations with City during the term of this Agreement. Contractor or its Project Manager shall attend and assist in all coordination meetings called by City.

6.4. Notices. Any notices, documents, correspondence or other communications concerning this Agreement or the work hereunder may be provided by personal delivery or mail and shall be addressed as set forth below. Such communication shall be deemed served or delivered: (a) at the time of delivery if such communication is sent by personal delivery, and (b) 48 hours after deposit in the U.S. Mail as reflected by the official U.S. postmark if such

communication is sent through regular United States mail.

IF TO CONTRACTOR:

Architectural Engineering Technology Inc.
18340 Yorba Linda Blvd., Suite 107
Yorba Linda, CA 92886
Tel: (714) 982-0398
Attn: Kenny Chao

IF TO CITY:

City of Costa Mesa
77 Fair Drive
Costa Mesa, CA 92626
Tel: (714) 754-5298
Attn: Noel Casil

Courtesy copy to:

City of Costa Mesa
77 Fair Drive
Costa Mesa, CA 92626
Attn: Finance Dept. | Purchasing

6.5. Drug-Free Workplace Policy. Contractor shall provide a drug-free workplace by complying with all provisions set forth in City's Council Policy 100-5, attached hereto as Exhibit "D" and incorporated herein by reference. Contractor's failure to conform to the requirements set forth in Council Policy 100-5 shall constitute a material breach of this Agreement and shall be cause for immediate termination of this Agreement by City.

6.6. Attorneys' Fees. In the event that litigation is brought by any party in connection with this Agreement, the prevailing party shall be entitled to recover from the opposing party all costs and expenses, including reasonable attorneys' fees, incurred by the prevailing party in the exercise of any of its rights or remedies hereunder or the enforcement of any of the terms, conditions, or provisions hereof.

6.7. Governing Law. This Agreement shall be governed by and construed under the laws of the State of California without giving effect to that body of laws pertaining to conflict of laws. In the event of any legal action to enforce or interpret this Agreement, the parties hereto agree that the sole and exclusive venue shall be a court of competent jurisdiction located in Orange County, California.

6.8. Assignment. Contractor shall not voluntarily or by operation of law assign, transfer, sublet or encumber all or any part of Contractor's interest in this Agreement without City's prior written consent. Any attempted assignment, transfer, subletting or encumbrance shall be void and shall constitute a breach of this Agreement and cause for termination of this Agreement. Regardless of City's consent, no subletting or assignment shall release Contractor of Contractor's obligation to perform all other obligations to be performed by Contractor hereunder for the term of this Agreement.

6.9. Indemnification and Hold Harmless. Contractor agrees to defend, indemnify, hold free and harmless the City, its elected officials, officers, agents and employees, at Contractor's sole expense, from and against any and all claims, actions, suits or other legal proceedings brought against the City, its elected officials, officers, agents and employees arising out of the negligence, recklessness, or willful misconduct of the Contractor, its employees, and/or authorized subcontractors, in the performance of the work undertaken pursuant to this Agreement. The defense obligation provided for hereunder shall apply without any advance

showing of negligence or wrongdoing by the Contractor, its employees, and/or authorized subcontractors, but shall be required whenever any claim, action, complaint, or suit asserts as its basis the negligence, errors, omissions or misconduct of the Contractor, its employees, and/or authorized subcontractors, and/or whenever any claim, action, complaint or suit asserts liability against the City, its elected officials, officers, agents and employees based upon negligence, recklessness, or willful misconduct in the work performed by the Contractor, its employees, and/or authorized subcontractors under this Agreement, whether or not the Contractor, its employees, and/or authorized subcontractors are specifically named or otherwise asserted to be liable. Notwithstanding the foregoing, the Contractor shall not be liable for the defense or indemnification of the City for claims, actions, complaints or suits arising out of the sole active negligence or willful misconduct of the City. In no event shall the cost to defend charged to Contractor exceed Contractor's proportionate percentage of fault. However, notwithstanding the previous sentence, in the event one or more defendants is unable to pay its share of defense costs due to bankruptcy or dissolution of the business, Contractor shall meet and confer with other parties regarding unpaid defense costs. This provision shall supersede and replace all other indemnity provisions contained either in the City's specifications or Contractor's Proposal, which shall be of no force and effect.

6.10. Independent Contractor. Contractor is and shall be acting at all times as an independent contractor and not as an employee of City. Contractor shall have no power to incur any debt, obligation, or liability on behalf of City or otherwise act on behalf of City as an agent. Neither City nor any of its agents shall have control over the conduct of Contractor or any of Contractor's employees, except as set forth in this Agreement. Contractor shall not, at any time, or in any manner, represent that it or any of its agents or employees are in any manner agents or employees of City. Contractor shall secure, at its sole expense, and be responsible for any and all payment of Income Tax, Social Security, State Disability Insurance Compensation, Unemployment Compensation, and other payroll deductions for Contractor and its officers, agents, and employees, and all business licenses, if any are required, in connection with the services to be performed hereunder. Contractor shall indemnify and hold City harmless from any and all taxes, assessments, penalties, and interest asserted against City by reason of the independent contractor relationship created by this Agreement. Contractor further agrees to indemnify and hold City harmless from any failure of Contractor to comply with the applicable worker's compensation laws. City shall have the right to offset against the amount of any fees due to Contractor under this Agreement any amount due to City from Contractor as a result of Contractor's failure to promptly pay to City any reimbursement or indemnification arising under this paragraph.

6.11. PERS Eligibility Indemnification. In the event that Contractor or any employee, agent, or subcontractor of Contractor providing services under this Agreement claims or is determined by a court of competent jurisdiction or the California Public Employees Retirement System (PERS) to be eligible for enrollment in PERS as an employee of the City, Contractor shall indemnify, defend, and hold harmless City for the payment of any employee and/or employer contributions for PERS benefits on behalf of Contractor or its employees, agents, or subcontractors, as well as for the payment of any penalties and interest on such contributions, which would otherwise be the responsibility of City.

Notwithstanding any other agency, state or federal policy, rule, regulation, law or ordinance to the contrary, Contractor and any of its employees, agents, and subcontractors providing service under this Agreement shall not qualify for or become entitled to, and hereby agree to waive any claims to, any compensation, benefit, or any incident of employment by City, including but not limited to eligibility to enroll in PERS as an employee of City and entitlement to

any contribution to be paid by City for employer contribution and/or employee contributions for PERS benefits.

6.12. Cooperation. In the event any claim or action is brought against City relating to Contractor's performance or services rendered under this Agreement, Contractor shall render any reasonable assistance and cooperation which City might require.

6.13. Ownership of Documents. All findings, reports, documents, information and data including, but not limited to, computer tapes or discs, files and tapes furnished or prepared by Contractor or any of its subcontractors in the course of performance of this Agreement, shall be and remain the sole property of City. Contractor agrees that any such documents or information shall not be made available to any individual or organization without the prior consent of City. Any use of such documents for other projects not contemplated by this Agreement, and any use of incomplete documents, shall be at the sole risk of City and without liability or legal exposure to Contractor. City shall indemnify and hold harmless Contractor from all claims, damages, losses, and expenses, including attorneys' fees, arising out of or resulting from City's use of such documents for other projects not contemplated by this Agreement or use of incomplete documents furnished by Contractor. Contractor shall deliver to City any findings, reports, documents, information, data, in any form, including but not limited to, computer tapes, discs, files audio tapes or any other Project related items as requested by City or its authorized representative, at no additional cost to the City.

6.14. Public Records Act Disclosure. Contractor has been advised and is aware that this Agreement and all reports, documents, information and data, including, but not limited to, computer tapes, discs or files furnished or prepared by Contractor, or any of its subcontractors, pursuant to this Agreement and provided to City may be subject to public disclosure as required by the California Public Records Act (California Government Code section 6250 *et seq.*). Exceptions to public disclosure may be those documents or information that qualify as trade secrets, as that term is defined in the California Government Code section 6254.7, and of which Contractor informs City of such trade secret. The City will endeavor to maintain as confidential all information obtained by it that is designated as a trade secret. The City shall not, in any way, be liable or responsible for the disclosure of any trade secret including, without limitation, those records so marked if disclosure is deemed to be required by law or by order of the Court.

6.15. Conflict of Interest. Contractor and its officers, employees, associates and subcontractors, if any, will comply with all conflict of interest statutes of the State of California applicable to Contractor's services under this agreement, including, but not limited to, the Political Reform Act (Government Code sections 81000, *et seq.*) and Government Code section 1090. During the term of this Agreement, Contractor and its officers, employees, associates and subcontractors shall not, without the prior written approval of the City Representative, perform work for another person or entity for whom Contractor is not currently performing work that would require Contractor or one of its officers, employees, associates or subcontractors to abstain from a decision under this Agreement pursuant to a conflict of interest statute.

6.16. Responsibility for Errors. Contractor shall be responsible for its work and results under this Agreement. Contractor, when requested, shall furnish clarification and/or explanation as may be required by the City's representative, regarding any services rendered under this Agreement at no additional cost to City. In the event that an error or omission attributable to Contractor occurs, then Contractor shall, at no cost to City, provide all necessary design drawings, estimates and other Contractor professional services necessary to rectify and correct the matter to the sole satisfaction of City and to participate in any meeting required with regard to the

correction.

6.17. Prohibited Employment. Contractor will not employ any regular employee of City while this Agreement is in effect.

6.18. Order of Precedence. In the event of an inconsistency in this Agreement and any of the attached Exhibits, the terms set forth in this Agreement shall prevail. If, and to the extent this Agreement incorporates by reference any provision of any document, such provision shall be deemed a part of this Agreement. Nevertheless, if there is any conflict among the terms and conditions of this Agreement and those of any such provision or provisions so incorporated by reference, this Agreement shall govern over the document referenced.

6.19. Costs. Each party shall bear its own costs and fees incurred in the preparation and negotiation of this Agreement and in the performance of its obligations hereunder except as expressly provided herein.

6.20. Binding Effect. This Agreement binds and benefits the parties and their respective permitted successors and assigns.

6.21. No Third Party Beneficiary Rights. This Agreement is entered into for the sole benefit of City and Contractor and no other parties are intended to be direct or incidental beneficiaries of this Agreement and no third party shall have any right in, under or to this Agreement.

6.22. Headings. Paragraphs and subparagraph headings contained in this Agreement are included solely for convenience and are not intended to modify, explain or to be a full or accurate description of the content thereof and shall not in any way affect the meaning or interpretation of this Agreement.

6.23. Construction. The parties have participated jointly in the negotiation and drafting of this Agreement and have had an adequate opportunity to review each and every provision of the Agreement and submit the same to counsel or other consultants for review and comment. In the event an ambiguity or question of intent or interpretation arises with respect to this Agreement, this Agreement shall be construed as if drafted jointly by the parties and in accordance with its fair meaning. There shall be no presumption or burden of proof favoring or disfavoring any party by virtue of the authorship of any of the provisions of this Agreement.

6.24. Amendments. Only a writing executed by the parties hereto or their respective successors and assigns may amend this Agreement.

6.25. Waiver. The delay or failure of either party at any time to require performance or compliance by the other of any of its obligations or agreements shall in no way be deemed a waiver of those rights to require such performance or compliance. No waiver of any provision of this Agreement shall be effective unless in writing and signed by a duly authorized representative of the party against whom enforcement of a waiver is sought. The waiver of any right or remedy in respect to any occurrence or event shall not be deemed a waiver of any right or remedy in respect to any other occurrence or event, nor shall any waiver constitute a continuing waiver.

6.26. Severability. If any provision of this Agreement is determined by a court of competent jurisdiction to be unenforceable in any circumstance, such determination shall not affect the validity or enforceability of the remaining terms and provisions hereof or of the offending

provision in any other circumstance. Notwithstanding the foregoing, if the value of this Agreement, based upon the substantial benefit of the bargain for any party, is materially impaired, which determination made by the presiding court or arbitrator of competent jurisdiction shall be binding, then both parties agree to substitute such provision(s) through good faith negotiations.

6.27. Counterparts. This Agreement may be executed in one or more counterparts, each of which shall be deemed an original. All counterparts shall be construed together and shall constitute one agreement.

6.28. Corporate Authority. The persons executing this Agreement on behalf of the parties hereto warrant that they are duly authorized to execute this Agreement on behalf of said parties and that by doing so the parties hereto are formally bound to the provisions of this Agreement.

[Signatures appear on following page.]

IN WITNESS WHEREOF, the parties hereto have caused this Agreement to be executed by and through their respective authorized officers, as of the date first above written.

CONTRACTOR

Signature _____ Date: 3/4/2022

KENNY CHAO, PRINCIPAL
[Name and Title]

CITY OF COSTA MESA

_____ Date: 3/17/2022

Lori Ann Farrell Harrison
City Manager

ATTEST:

Brenda Green 3/21/2022
Brenda Green
City Clerk

APPROVED AS TO FORM:

_____ Date: 3/15/22

Kimberly Hall Barlow
City Attorney

APPROVED AS TO INSURANCE:

_____ Date: 3/15/22

Ruth Wang
Risk Management

APPROVED AS TO CONTENT:

Noel Casil
Project Manager

Date: March 14, 2022

DEPARTMENTAL APPROVAL:

Raja Sethuraman
Public Services Director

Date: 3-14-22

APPROVED AS TO PURCHASING:

Carol Molina
Finance Director

Date: March 11, 2022

EXHIBIT A

SCOPE OF SERVICES

SCOPE OF SERVICES

The City of Costa Mesa is requesting proposals to develop traffic signal infrastructure and coordination improvements that will synchronize the traffic signals along three (3) continuous/contiguous corridors, namely; (1) Baker Street/Placentia Avenue, (2) Victoria Street, and (3) West 19th Street. The project includes a total forty-one (41) signals over 10.2 miles within the City of Costa Mesa. The project contains thirty-nine (39) traffic signals owned by the City of Costa Mesa and two (2) traffic signals owned by Caltrans. **Table 1** lists and **Exhibit 1** depicts the traffic signal locations.

All the project corridors are funded in part by the Orange County Transportation Authority (OCTA) Project P Regional Traffic Signal Synchronization Project (RTSSP) grant funds and matching funds from the City of Costa Mesa.

General Work Program

Signal timing along the three (3) continuous/contiguous project corridors requires updating to meet current traffic demands and patterns. The goals of the project are to update timing, coordinate the roadway between the jurisdictions and also to integrate the traffic signals, communication, and ITS components optimally at City's TMC. The scope of work is developed to improve these conditions. Improvements at the Caltrans signals will primarily be updating timing and coordination.

Existing field conditions and signal timing plans for intersection and corridor operations shall be evaluated and conditions documented. The consultant shall model, analyze and optimize individual intersection conditions and submit for review by the City, prior to analysis of arterial coordination studies. The Consultant shall use the latest version of Synchro 11 for the analysis. The intersection and arterial signal analysis and optimization approach and all software programs to be utilized by the Consultant shall be described in the proposal. New timings shall be developed, implemented, tested and refined to optimize signal coordination and vehicle progression. A minimum of five separate timing plans per intersection shall be prepared covering the AM peak period, PM peak period, midday, evening (if needed), and weekend. Full scale "draft" Time-Space Diagrams (500' per inch horizontal/50 second per inch vertical) shall be prepared for each timing pattern and presented to the City for each corridor for review, with final diagrams prepared documenting final coordination timings. The timing study shall account for the network-wide coordination system and respective impact/benefits to cross street progression. Network traffic flow shall not be compromised.

The professional services scope of work is intended as a "Turnkey" project. All tasks shall be coordinated to effectively develop interrelated project elements and tasks shall not be advanced until preliminary requirements are addressed and clear direction established. The consultant shall have total responsibility for the accuracy and completeness of all work and services required for this project. Quality Control shall be consistently and thoroughly applied throughout project development. Assigned QA/QC staff shall be technically well qualified to conduct the appropriate level of oversight, and demonstrate a concerted commitment to provide a high quality product.

Project development meetings shall be held monthly with concise written records prepared on all meetings and activities. The consultant will be responsible for all coordination, preparing meeting agendas, minutes and presentation materials. A project schedule shall be prepared itemizing all activities and subtasks to support project milestones. The schedule shall be in the form of a bar chart

and show deliverables and other relevant data needed for the control of work. A copy of the schedule and monthly updates shall be furnished to the City Project Manager. The proposed scope of work is based on a Measure M2 Program P grant award received from OCTA. **The consultant shall retain detailed accounting records to fully meet OCTA accounting and audit oversight.**

Consultants proposing on this project shall clearly demonstrate the ability and commitment to accelerate project completion with promptness and efficiency. Accordingly, the consultant shall commit all necessary resources to achieve expeditious completion. Firms considering proposal submittals are requested to have in-house technical expertise to fully and professionally address and facilitate all aspects of the project. The selected consulting firm shall maintain the same project manager throughout the duration of the project, as specified in the proposal and approved by the City.

The description of work defines the general project requirements. Associated tasks and provisions not specifically defined herein are requested to be fully addressed in the proposal. The tasks and fee shall reflect the mandatory combined elements for the overall project; route assessment, signal coordination, before and after studies, and address the equipment identified needs. All tasks shall be undertaken and complete within the proposed "Not to Exceed" contract fee.

Presentation to Stakeholders

The consultant will be required to present the results of the study for City Council Study Sessions and at the ITS Roundtable meetings at OCTA.

The following scope of services include Phase 1 - Primary Implementation (PI) and Phase 2 – Ongoing Maintenance and Operations (O&M) as described in the OCTA RTSSP Project P Supplemental Application dated February 25, 2020 (2nd revision).

Phase 1 - Primary Implementation (PI)

Task 1 – Project Administration

The consultant shall attend a project kick-off meeting with key City staff to initiate the project, review the project scope of work plan goals, review project schedule and key milestones, and develop a list of documents/data needed to assist in the successful completion of the project.

The City of Costa Mesa will perform normal day-to-day project administration. Project budget will include time for OCTA coordination, cooperative agreement development and execution of matching funds required of and by the City. The consultant will be responsible for all aspects of the project along with City of Costa Mesa staff.

Project progress meetings shall be held once a month every month for the duration of the contract. The consultant shall be responsible for preparing meeting agendas, minutes, and presentation materials. A Critical Path Method (CPM) network, based on activities to support all project milestones and subtasks shall be prepared. The information will be in the form of a bar chart and will show a deliverables schedule and other relevant data needed for the control of work, for City's review of the work status and accomplishments occurring each month. Monthly updates shall be furnished to the City's Project Manager.

Task 2 – Data Collection

The consultant will be responsible for performing data collection in house or using a qualified traffic data collection subconsultant. Data such as Average Daily Traffic (ADT), Speed (85th percentile), Turning Movement Counts (TMC), etc. shall be collected. All existing traffic patterns, flows, and conditions will also be taken into account The consultant will use the data collected to develop updated base timing and synchronized time-of-day timing plans for AM Peak, PM Peak, Mid-day Peak, evening (if-needed), and Weekend Peak.

Task 3 – Field Review and Plans Specifications and Estimates (PS&E)

Consultant will review the geometric layout, existing traffic signal equipment, and signal synchronization related infrastructure to identify any deficiencies for each intersection and along the corridor/route. The review shall include an assessment of the existing intersection geometry, traffic conditions, traffic signal control equipment, and telemetry/interconnect facilities along the corridor and at each intersection using observations, available as-built plans, and consultation with City staff. With permission from the City of Costa Mesa and Caltrans, the CONSULTANT shall inspect the interior of each traffic signal cabinet, inspect the existing ITS and communication systems, determine their respective condition, and make recommendations for equipment upgrades. The consultant shall also obtain the existing signal timing in the field.

This phase consists of the preparation of design plans, specifications, and estimates (PS&E). PS&E and utility coordination shall conform to the latest editions (including errata) of: California Manual on Uniform Traffic Control Devices (CA MUTCD), state and federal standards, and City of Costa Mesa standards. Plans shall be electronically plotted at 1" = 20' on standard 24" x 36" sheets. The latest version of AutoCAD shall be utilized.

Plans, specifications, and estimates shall be submitted at 60%, 90%, and 100% milestones. All PS&E submittals shall be submitted electronically (.docx, .xlsx, .pdf, .dwg etc.). The City will provide comments at each milestone for consultant revision of the PS&E.

The PS&E shall develop Project record drawings for the purchase of necessary fiber optic cable and accessories, traffic signal controllers, traffic signal improvements, communications equipment, Closed Circuit Television Cameras (CCTV), Video Detection, Emergency Vehicle Preemption and Intelligent Transportation System (ITS) equipment and elements. The work to be performed includes all necessary integration to the City of Costa Mesa Traffic Management Center (TMC) VMS and CENTRACS System.

1. Utilities - Perform all necessary research to establish precise location of all utilities and utility easements. Coordinate with all utility companies to determine the nature and location of all possible relocations and associated costs. Determine where interfaces with existing facilities will occur as a result of the construction of this project. Consult with affected utility companies requiring relocations, and resolve any conflicts, keeping City staff informed in writing, including the possibility of undergrounding utilities presently on poles along the project area. Comply with Caltrans "Manual on High and Low Risk Underground Facilities within Highway Rights-of-Way."

2. If needed, prepare a Water Pollution Control Plan meeting recent City and State standards.

3. Traffic control plans are required and must provide continuous driveway and pedestrian access

at all times during the construction phase of the project. Traffic control plans shall identify each construction stage and sequence; provide adequate details on alternate detour routes, developed to minimize impacts to residents. It is intended that only one lane may be closed from 8:30am to 3:00pm during daytime hours.

4. For budgeting purposes, submit to the City preliminary construction estimates and a monthly update of the estimates as design work progresses. Prepare final detailed construction quantity and cost estimate.

5. Obtain final design approval from the City, and comply with all applicable requirements.

6. Complete project contract documents and special provisions in a format consistent with current City projects and in conformance with OCTA's Project P, State, and Federal guidelines.
7. Prepare and submit two Resident Engineers files, containing at a minimum, final construction quantities and cost estimates with background calculation work sheets; Caltrans permit material and relative information.

8. The Consultant will be requested to review and approve addenda and provide clarification to plans and specifications. Consultant shall attend the pre-construction meeting, and shall be available for consultation and assistance during construction of the project to clarify or explain items relating to the design. The consultant will also be responsible for preparation of final as-built plans which will be developed using the latest AutoCAD software and by updating the final plans.

9. The selected consultant shall include all additional items necessary to achieve completion and approval of the final design plans and specifications.

Task 4 – Corridor "Before Study"

The consultant will conduct "before" floating car travel runs prior to timing implementation. The Consultant will develop a 'Before' field study report representative of the times and days for which synchronization plans will be developed. The report shall identify Measures of Effectiveness (MOE) to evaluate the effects of the synchronization plans. MOE's will likely include traffic flow, travel time, average speed, number of stops per mile, number of intersections traversed on green vs. stopped by red (Greens per Red), Corridor Synchronization Performance Index (CSPI), fuel consumption reduction, pollution reduction, and other pertinent items. The draft report will be submitted to the City for review. The City will provide comments which will be incorporated into the final "before study" report.

Task 5 – Signal Timing Optimization and Implementation

Synchronization will be inter-jurisdictional in nature, if applicable. All existing traffic patterns, flows, and conditions will be taken into account. The consultant will update the base timing plan elements which will affect the coordination plans such as pedestrian walk and clearance intervals, minimum green time, bicycle minimum green time, yellow clearance, all-red clearance, etc. Synchronized timing will be developed for the AM Peak, PM Peak, Mid-day Peak, evening (if-needed), and Weekend Peak. Special generators such as schools and businesses along with cross street traffic will be considered as part of the project.

Task 6 – Corridor "After" Study

The consultant will conduct "after" floating car travel runs after timing implementation. The Consultant will conduct an 'After' field study representative of the times and days for which synchronization plans will be developed. The 'After' study must be conducted in the same manner and contain the same MOE's as the 'Before' study in order to evaluate the improvements of the synchronization plans. The draft report will be submitted to the City for review. The City will provide comments which will be incorporated into the final "before study" report. This is task shall commence after installation and integration of controllers and video detection from Task 7.

Task 7 – Synchronization System Construction

The consultant and consultant's contractor will design, procure, and install equipment upgrades. All installations and upgrades will be per City of Costa Mesa, OCTA Project P, state, and federal standards. Details of proposed equipment upgrades are tabulated in the OCTA RTSSP Project P Supplemental Application dated February 25, 2020 (2nd revision). The consultant and consultant's contractor shall submit traffic control plans to the City for review and approval. The City will work to expedite an encroachment permit for the consultant's contractor prior to the start of construction.

Task 8 – Project Report

The contracted consultant will develop a final report for the project using the OCTA Final Report Template. This report will be completed after the Primary Implementation is completed and will include the following elements:

- Introduction/project description: a summary of the project including the purpose, background, and objectives of the project.
- Data collection: a summary of the data collected as part of the effort including the traffic counts, phasing, lane configurations, etc.
- Traffic signal systems improvements: a summary of the implemented traffic signal systems improvements.
- Signal timing optimization: a summary of the development and implementation of updated signal timing including the models, selected cycle lengths, intersection groupings, etc.
- Results: the study will contain directional AM, mid-day, PM, evening, and weekend peak periods using travel times, average speeds, green lights to red lights, stops per mile, and the derived corridor synchronization performance index (CSPI) metric. This information shall be collected both before and after any signal timing changes have been made. Additional details based on the Final Report Template will also be included.
- Benefits to cost analysis: project benefits resulting from signal synchronization will be evaluated based on the before and after study results. Savings will be calculated for travel time, fuel consumptions, vehicle maintenance, Greenhouse Gas (GHG) reduction, and a final Benefit Cost Ratio (BCR).
- Future signal corridor improvements: recommendations for system and equipment enhancements to improve traffic flow and signal synchronization will be provided.

- Conclusion: a summary of the before and after study and its findings.

Phase 2 – Ongoing Operations & Maintenance (O&M)

The ongoing maintenance and operation period will start after signal timing is implemented and last for a period of two (2) years. It will consist of (1) monitoring and improving optimized signal timing and (2) communications and detection support.

Task 9 – On-going Operations and Maintenance (O&M)

a. Monitoring and improving optimized signal timing

The corridor will be driven monthly from end to end in order to monitor and regularly improve the signal synchronization timing and parameters. Improvements and corrections will be implemented as necessary. These reviews will begin upon the completion of the primary implementation phase and will continue until the end of the two-year O&M period. The results of the monthly survey will be submitted to the City.

Any signal timing issues or adjustments needed to the coordination signal timing will be made with notification and approval by the City.

Any updates to the signal timing should be accompanied with the consultant updating the signal timing files and the consultant shall then leave the most updated set of timing sheets in the Signal Cabinet. The consultant shall coordinate with the City in order to back-up the existing and proposed signal timings on the City's CENTRAC system, prior to implementation and saving of timing on the controller data key/SD card.

b. Communications and detection support

Regularly scheduled communication and detection support will be provided along the synchronized corridor at the intersections identified in Table 1 to ensure the necessary conditions for signal synchronization. The primary focus will be on the monitoring and reporting of communications and detection issues. As issues are identified, they will be reported to the City and potential repairs will be identified. These reviews will begin upon the completion of the primary implementation phase and will continue until the end of the two-year O&M period. This support can be implemented using a variety of tools including monthly drives along the corridor, analysis of central system report output, and discussion with City staff.

c. O&M Final Memorandum

The O&M Final memorandum will summarize the execution and results of the O&M phase of the Project, including details on when and where the travel runs were conducted; identify issues encountered, and solutions developed and implemented throughout the O&M phase; and provide detailed and feasible recommendations for future improvements.

B. METHOD OF APPROACH

1. PROJECT UNDERSTANDING

BAKER STREET

This corridor travels east-west which is approximately 2.8 miles long. There are a total of 16 signalized intersections along this corridor. There are three lanes in each direction from Red Hill Avenue to Babb Street which pass through primarily residential and retail areas. There are two lanes in each direction from Babb Street to Mesa Verde Drive which pass through residential areas.

The City has recently upgraded its timing parameters and introduced a standard 120 second cycle length at most of its intersections. Also, corridors such as Red Hill Avenue, Bristol Street, Bear Street, Fairview Road and Harbor Boulevard have already been coordinated in the north-south direction as part of the similar TSSP projects from OCTA. During the development of proposed timing plans, the AET team will coordinate with the City to determine the traffic flow priority along these corridors to see if they prefer the traffic flow in north-south direction to be coordinated or if they want to override that coordination and have the east-west direction coordinated along Baker Street. This corridor provides access to SR-73 and SR-55 freeways and therefore experiences heavy traffic flow during AM and PM peak periods.

PLACENTIA AVENUE

This corridor travels north-south which is approximately 3.8 miles long. There are a total of 11 signalized intersections along this corridor. There are two lanes in each direction which passes through primarily recreational (Fairview Park, Costa Mesa Golf Course), residential and retail areas. Placentia at Adams is a heavily congested intersection due to school AM traffic (Estancia High School). AM and PM East / West heavy Huntington Beach area commuter traffic. Coordination timing is critical. The traffic flow along this corridor is relatively less congested when compared to the other three corridors where ADT is between 12,000 and 24,000.

VICTORIA STREET

This corridor travels east-west which is approximately 2.28 miles long. There are a total of 9 signalized intersections along this corridor. There are two lanes in each direction which passes through primarily residential and retail areas.

The City has recently upgraded its timing parameters and introduced a standard 120 second cycle length at most of its intersections. Also, Harbor Boulevard have already been coordinated in the north-south direction as part of the similar TSSP projects from OCTA. We understand, east-west is and will always the priority on Victoria due to Huntington Beach area access. Similar to Adams Ave. These 2 corridors are the only access to Huntington Beach area. This corridor provides the western parts of Costa Mesa the access to SR-55 freeway and therefore experiences heavy traffic flow towards SR-55 and away from SR-55 during AM and PM peak periods respectively. Victoria suffers from high-speed accidents on the west end near Victoria/Canyon, Victoria/American. Nearby school will be considered during the timing evaluation.

19TH STREET

This corridor travels east-west which is approximately 0.75 mile long. There are a total of 5 signalized intersections along this corridor. There are two lanes in each direction which passes through primarily residential and retail areas. Our sub consultant LLG is currently designing a new signal at 19th St/Wallace and is aware of the existing 19th street conditions and City concerns. This should make a seamless design/timing development.

Harbor Boulevard has already been coordinated in the north-south direction as part of the similar TSSP projects from OCTA. During the development of proposed timing plans, the AET team will coordinate with the City to determine the traffic flow priority along these corridors to see if they prefer the traffic flow in north-south direction to be coordinated or if they want to override that coordination and have the east-west direction coordinated along Victoria Street. This corridor provides the western parts of Costa Mesa the access to SR-55 freeway and therefore experiences heavy traffic flow towards SR-55 and away from SR-55 during AM and PM peak periods respectively.

Evaluation Of Complex Traffic Operations Conditions

The corridor passes through a variety of land uses such as residential, industrial, recreational, office, and retail. Each land use is characterized by its own unique traffic demand and driver behavior. Additionally, specific traffic generators such as schools, hospitals, shopping centers, and emergency services require different sets of traffic measures. This is further compounded by numerous major arterial cross streets which have already been coordinated in the north-south direction as part of OCTA's recent RTSSP projects. One of the challenges of this project will be to cater to the individual traffic needs of a specific section of a roadway while obtaining a corridor-wide optimum traffic flow.

The variety and complexity of the transportation issues affecting the corridor necessitates the evaluation of a wide-ranging traffic operational issues and development of solutions as part of this project to achieve corridor-wide coordinated traffic operations. The AET team has extensive knowledge of the corridor traffic issues and constraints, see Issues Table on the following page. This information will allow us to address technical constraints about the overall corridor, while focusing on the local intersection issues. We will coordinate with the City to understand the issues and constraints and will provide feasible solutions in terms of safety traffic operations. For cross streets which have already been synchronized in the north-south direction, the AET team will work with all agencies to determine if it is important to maintain the coordination or if the coordination along this corridor takes precedence. The AET team will also give special attention to intersections in the vicinity of schools, where pedestrian operations and safety will be a priority along with achieving optimum traffic flow along the corridor and intersections near the freeway which would require unique strategies to handle high traffic volumes accessing the freeway.

Special Concerns

One of the challenges on this corridor will be the collection of adequate traffic data for turning movement volumes at intersections and roadway segment data to perform the needed studies and time intersections. There are three factors that we need to consider during our data collection phase:

- The I-405 Freeway design/build is under construction as part of a major OC Go initiative. This construction has impacted traffic at major intersections adjacent to the freeway as well as along this corridor. In addition, it has an effect on the traffic progression and volumes along Placentia/Baker in each direction.
- We do not yet know how the COVID-19 crisis will impact traffic volumes moving forward. There is a possibility that by the time we receive NTP and begin to collect data, life will be back to normal, but we do not know if there will be long-term effects to traffic conditions or an extended recession as a result of the shut downs. This will be a challenge in determining time-of-day plans and actual signal timings for the corridor. We will need to work with the City to determine how best to address this matter in our data collection and development of TOD plans for projected conditions.
- There is also the need to determine what hardware needs to be provided in the TMC in order to give the City the required functionality to actively manage traffic conditions along the corridor and beyond.

The project characteristics and issues are presented in Table 2 Project Area and Issues Table and in Figure 2 Project Area Map on the following page.

2. APPROACH TO TASKS NECESSARY FOR SUCCESSFUL PROJECT COMPLETION

PROJECT ADMINISTRATION

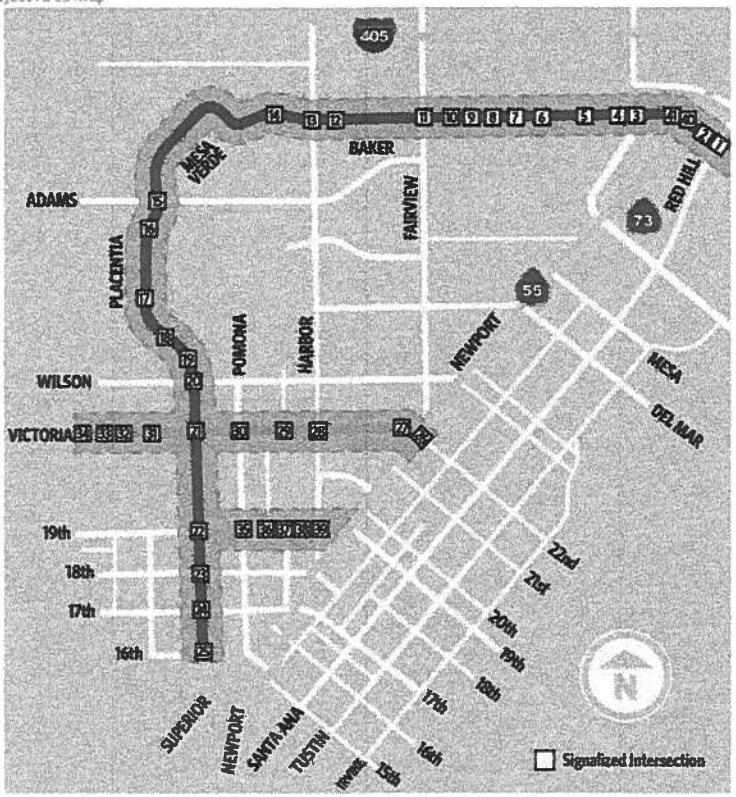
The purpose of this task is to ensure the timely and cost-effective delivery of the City of Costa Mesa TSSP Project for the City, OCTA, and its partners. Key elements include managing the consultant team's activities, resources, and schedule adherence; participating in and supporting the public outreach efforts; participating in and documenting project meetings; developing required project documentation; and preparing monthly invoices.

Kenny Chao, IMSA, will ensure the timely and integrated production of all tasks in a professional, quality, and timely manner. Kenny will commit the majority of his time to the management and successful completion of this study within the 36-month schedule. He will also be ready to make presentations regarding the study to advisory groups, the OCTA Board of Directors and its committees, and other parties as directed by Costa Mesa. Supporting Kenny will be his core team, including Doug Smith, PE; Rohit Itadkar, PE, TE; Kent Ko, PE, TE; Felipe Ortega, and Kelvin Nguyen, EE, as well as staff who have been carefully selected from our subconsultant partners to best meet the needs of the project. Our staffing plan is presented in Section G. Key Personnel.

Table 2: Project Area and Issues Table

NO.	INTERSECTION	TRAFFIC OPERATION ISSUES/CHARACTERISTICS LIST
1	Baker Street and Red Hill Avenue	NB Dual Left Turn. High NB traffic during peak periods. Split phasing in east-west direction. Heavy SB RT. Coordination timing sync critical with Baker/Pullman and SR-73
2	Baker Street and Pullman Street	High EBR & NBLT turn volume
3	Baker Street and Bristol Street	Dual Left Turn All Directions. High traffic volumes in north-south and east-west direction during peak periods. Bristol Street is co-ordinated in North-South direction. El Polo Loco Drive-through Queue conflicts with traffic at the intersection.
4	Baker Street and Randolph Avenue	Stop Control Intersection. New traffic signal being designed and contructed at this location.
5	Baker Street and Fire Signal	Entrance/Exit to Fire Station
6	Baker Street and Bear Street	Dual Left Turn in WB and SB Directions. High traffic volumes in north-south and east-west direction during peak periods. Bear Street is co-ordinated in North-South direction. Crossing coordination timing critical
7	Baker Street and Milbro Street	Moderate pedestrian activity.
8	Baker Street and Babb Street	Near the School crossing. High pedestrian activity. Church commuter traffic on weekends.
9	Baker Street and Mendoza Drive	Near the School crossing. High pedestrian activity.
10	Baker Street and Coolidge Avenue	High pedestrian activity.
11	Baker Street and Fairview Road	Dual Left Turn All Directions. High traffic volumes in north-south and east-west direction during peak periods. Fairview Road is co-ordinated in North-South direction. NBR turn overlap. Constant timing changes due to Fairview/405 FWY bridge construction.
12	Baker Street and College Avenue	High traffic during weekends. Provides access to major retail center Costa Mesa square. High speed issues.
13	Baker Street and Harbor Boulevard	Dual Left Turn All Directions. High traffic volumes in north-south and east-west direction during peak periods. Harbor Boulevard is coordinated in North-South direction. NBR turn overlap.
14	Baker Street and Royal Palm Drive	NB/SB Cut thru traffic and speeding a concern to local residents. Commuters using Royal Palm to bypass Harbor Blvd.
15	Placentia Ave and Adams Avenue	High East-West through and WBL Volumes during Peak Hours. NB Dual Left Turn lanes. Heavy School AM traffic WBLT.
16	Placentia Ave and Bike Xing	-
17	Placentia Ave and Fairview Park	High pedestrian activity.
18	Placentia Ave and Estancia N	Provides access to High school. High pedestrian activity.
19	Placentia Ave and Estancia S	Provides access to High school. High pedestrian activity.
20	Placentia Ave and Wilson Street	Provides access to Elementary school. High pedestrian activity. Wilson is a major WB PM cut thru route from SR-55.
21	Placentia Ave and Victoria Street	Dual NB Left Turn Lane. High east-west through traffic. Crossing coordination critical.
22	Placentia Ave and W 19th Street	Dual EB-WB Left Turn Lane. High east-west through traffic. Heavy pedestrian activity.
23	Placentia Ave and W 18th Street	High north-south traffic volumes during peak period. Heavy pedestrian activity.
24	Placentia Ave and W 17th Street	High north-south traffic volumes during peak period. Heavy pedestrian activity.
25	Placentia Ave and W 16th Street	High north-south traffic volumes during peak period. Heavy pedestrian activity.
26	Victoria Street and Newport Blvd NB	High traffic volumes heading to and from SR-55 during peak periods. Sync with frontage signals very critical.
27	Victoria Street and Newport Blvd SB	High traffic volumes heading to and from SR-55 during peak periods. Sync with frontage signals very critical.
28	Victoria Street and Harbor Blvd	Dual Left Turn in east-west Directions. High traffic volumes in north-south and east-west direction during peak periods. Harbor Boulevard is co-ordinated in North-South direction. SBR turn overlap. Heavy pedestrian activity.
29	Victoria Street and Maple Street	High East-West Volume during peak periods.
30	Victoria Street and Pomona Avenue	High East-West Volume during peak periods.
31	Victoria Street and National Avenue	High WB Right Turn Volume During Peak Hours
32	Victoria Street and American Avenue	Provides access to Elementary school. High pedestrian activity.
33	Victoria Street and Canyon Drive	High speed accidents in recent years.
34	Victoria Street and Valley Road	High speed accidents in recent years.
35	W 19th Street and Pomona Avenue	Dual Eastbound Left Turn lane. High east-west volumes during peak periods
36	W 19th St and Meyer Place	DMV access and heavy pedestrian activity.
37	W 19th St and Anaheim Avenue	High East-West Volume during peak periods. Heavy pedestrian activity. In n Out heavy drive thru backup a major concern.
38	W 19th St and Park Ave	Dual NBL Turn Lane. High NBL Turn Volume. Heavy pedestrian activity.

Figure 2. Project Area Map



TRAFFIC SIGNAL SYNCHRONIZATION

Data Collection and Field Review

The AET team will collect the 24-hour machine counts along all four corridors. The 24-hour counts serve two purposes: (1) to help identify the peak hour turn movement count collection periods; and (2) to program the time-of-day schedule (start and end times of the coordination plans). Therefore, the AET team will collect 7-day, 24-hour machine counts along each roadway segment (every 1 mile) along the corridor. The AET team will collect 24-hour machine count data at a minimum of 9 locations (3 along Baker Street, 4 along Placentia Avenue, 2 along Victoria Street and 1 along 19th Street) to get a good sampling of the traffic flow along the corridor. Additionally, the AET team will conduct 24-hour vehicle classification counts at 6 locations to determine the percentage of heavy vehicles such as trucks and buses.

The AET team will analyze the above collected data and determine the most appropriate 2-hour peak periods during weekday AM, midday, and PM and weekend. Upon approval of the peaks, the AET team will conduct peak hour counts for all 41 signalized intersections along the corridor. The counts will also include pedestrian and bicycle data. Additionally, speed surveys will be conducted along all four corridors to determine the 85th percentile speeds.

The AET team will coordinate with the City and Caltrans to obtain all necessary data such as As-built plans, CAD base maps, specifications, signal timing plans, and synchro model if available. The AET team will review and archive the data and use this information throughout the course of the project.

The AET team will perform a detailed field review along all corridors. The field review task has three primary purposes: 1) provide the necessary field data to calibrate the Synchro network model; 2) identify potential operational deficiencies which may or may not impact the ultimate recommendations; and 3) assess the existing field equipment to verify the required traffic signal and communication upgrades. The field review will consist of a thorough review of lane geometry, traffic signal equipment, ITS and communications infrastructure, traffic flow patterns and bottlenecks.

'Before' and 'After' Travel Time Studies

The AET team will use the floating car technique, a GPS receiver connected to the laptop and Tru-Traffic (Version 10) software, to conduct 'before' study travel runs at the beginning of the project and 'after' travel time runs once the proposed signal timings are implemented. The AET team will travel the length of all four corridors a minimum of five runs in each direction to collect segment travel times to serve as a base and help determine potential subsystems. The travel time runs will be collected for AM, midday, and PM peak periods during weekdays and Saturday peak period on weekends.

Special care will be taken to perform the travel time studies when typical conditions exists. The data will be used to evaluate the effects of the synchronization plan improvements. The MOEs will include OCTA-established Corridor Synchronization Performance Index (CSPI) metrics such as average speed, number of stops per mile, and green light to red light ratio. The Synchro model will also provide additional metrics, such as average travel time, average delay, number of total stops, fuel consumption, and vehicle pollutant and greenhouse gas emissions.

Signal Timing and Optimization

This task has been divided into five subtasks:

1. Base Network;
2. Local Timing Review;
3. Proposed Corridor Operation
4. Coordinated Optimized Traffic Signal Timing;
5. Signal Timing Implementation and Fine-Tuning.

1. Base Synchro Network

The AET team will meet with all agency stakeholders to discuss signal timing parameter standards and preferences, corridor issues, and operational objectives (what will make the signals operate "better"). We will develop, code, and calibrate the Synchro 10 model (AM, Midday, PM, weekend peak) to actual field conditions based on data collection efforts and field review of the corridor and submit to local agencies for review. We will use the Countywide Synchro Network as the base of the project Synchro models and confirm geometry, phasing, and signal timings.

2. Local Timing Review

The AET team will document the existing local timing parameters (Minimum Green, Walk, Flashing Don't Walk, Yellow, Red) in a table and develop updated local timings to conform with current agency standards and preferences such as CAMUTCD. We will meet with each agency to discuss the timing standards and guidelines prior to updating the basic timings.

3. Proposed Corridor Operations

We will work with the City staff to understand the specific

issues regarding traffic flow and signal timing limitations and develop proposed corridor operations which will be tailormade for City for all four corridors during all peak periods. The proposed operations will provide operations procedures, plans and strategies on how the traffic should flow optimally for all directions, providing as many successive greens as possible to the motorist whether on the primary coordinated band or traversing from a primary coordinated band to another coordinated band or vice versa. Special trip generators such as shopping centers, schools, and offices along with congestion points such as freeway interchange will be identified and analyzed for local circulation and queue mitigation (flush) operations. The AET team will present at least 2-3 timing plan operational scenarios based on coordination of major cross-arterials. These timing plans will have proposed groupings and cycle lengths within the groupings for all peak hours.

4. Coordinated Optimized Traffic Signal Timing

Timing plan development will include evaluating various cycle lengths for each time period and developing sub-groupings of signals to be optimized for the different time periods, which may be constrained by the cycle length(s) of crossing corridors where existing coordination is in place.

Once the cycle lengths are determined, we will develop phase split times, phase sequencing, and offsets. All timings will accommodate the minimum pedestrian and bicycle times, while providing the maximized throughput. We will evaluate phase sequencing and phase re-service options to provide improved efficiency. Coordinated crossing arterials will be maintained or adjusted with minimal disruption to the entire system.

The AET team will use Synchro Version 10.0, Sim-Traffic, and Tru-Traffic Version 10 software to develop the optimized traffic signal timings. The AET team will develop optimized timing plans for weekday AM, Midday, PM, weekend peak, with the final number of timing plans based on traffic volume data and field conditions analyses. The 24-hour counts will be analyzed to determine the start and stop times for each coordination timing plan. We will identify any similarities between various peak periods with the understanding that segments of Baker-Placentia-Victoria-19th Street may have different peak times.

5. Signal Timing Implementation and Fine-Tuning

Upon the approval of the Synchro based traffic signal timing plans for each timing period, implementation-ready timing sheets will be developed in controller-specific formats preferred by the City and Caltrans. We have developed signal timing tables to help with implementation. The tables include all relevant signal timing parameters in one place and will be tailored to Centracs data entry formatting. We will work with the City to deploy the new signal timings in the field. This may involve the agency entering the data or the AET team assisting with this task (in TMC or at each controller). We understand some agencies will play greater roles in the implementation phase and we will define roles and responsibilities at the kickoff meeting to avoid duplication of effort and allow our work to complement agency efforts. The new signal timing plans for 2 Caltrans intersections will be provided to Caltrans for its implementation.

Once the proposed signal timing plans have been implemented, the AET team will work with the City to conduct field reviews of the new timing plans along all corridors. Field observation and fine-tuning of the plans under live conditions are crucial to achieving the best possible coordinated flows along the corridor. We will spend significant time watching traffic operations along the corridor—both from a central location via CCTV, where available, and by driving the corridor.

Upon completion of the field fine-tuning, the AET team will revise the signal timing sheets and deliver final timing plan sheets to each agency for its records and use. All traffic signal synchronization files from Synchro and Tru-Traffic will be provided to relevant agencies, in their accepted formats, and will ensure consistency and full compatibility with OCTA's ROADS database.

PS&E DESIGN

Based on the data collected and field review conducted, the AET team will develop a Design Report Memorandum discussing suggested ITS elements such as CCTV surveillance camera installations, signal systems, communication network and functionality of the City's signal interconnect system. This Report will direct the PS&E as required for the installation of new and/or upgraded traffic signal control and communication equipment and various other ITS elements as detailed in the RFP. In addition to preparing the Design Report for the proposed system improvements for the Baker-Placentia-Victoria-19th Street corridor, we will also provide an update the developed "City of Costa Mesa Traffic Signal System Master Plan." The Master Plan update will allow for better planning and integration of various corridor project components for future 10 gigabit network. Full PS&E for all proposed improvements will be prepared by the AET team in accordance with City requirements.

The AET team will work with the City at the outset of the

project to discuss our approach to provide plans that are both constructable and detailed enough to achieve the City's objectives. Once the details of the project elements have been identified and agreed upon by the City, we will begin the detailed design phase, led by Kenny Chao, IMSA, for the 60%, 90%, and 100% submittals.

Full traffic signal modification plans at a scale of 1" = 20' will be prepared for locations where new traffic signal cabinets, foundation, and phasing modifications are being proposed. For proposed improvements such as video detection systems, communication equipment installations, ped countdown, APS push button, and CCTV camera installations, plans will be prepared at a 1" = 40' scale.

SYSTEM INTEGRATION

Together, our teams with the City's input will be leading the Systems Construction and Integration task on this project. The deployment of the various ITS elements into one integrated system will be based on best practices. The sequence of activities that will integrate ITS components into sub-systems, and sub-systems into entire systems will be defined. Integration and verification are closely linked processes in which one follows the other until the entire system is ready for operational deployment. We will work hand-in- hand with our contractor, Crosstown Electrical & Data (Crosstown), and system vendors in configuring IP devices and TMC integration. We will test and verify the connectivity from a TMC to field equipment for proper bandwidth and latency requirements for the ITS network. This is essential for a robust and reliable network to meet the needs of integration of future projects.

The AET team will make sure that new controllers have configured set IP Address, VLAN, programmed with existing basic timing and integrated into the Centracs ATMS system prior to the time of turn-on. This process will be similar for other ITS elements such as HD CCTV cameras, advanced Video Detection and other ITS systems integration.

TMC DESIGN APPROACH

Task 1 Preliminary Engineering and Conceptual Design

The focus of this task is to completely document existing conditions of the TMC including hardware/software systems employed today. This will facilitate the process of determining how/if these systems can be employed or if they need upgrading for the new proposed TMC design. Operations Center Site visits and technology vendor meetings are planned to help City staff and the AET team evaluate current available technologies that can be used for the upgraded TMC. All of this will be used to develop conceptual designs for the TMC software and hardware systems to be deployed and the floor plan spaces affected.

Task 2 TMC Systems and Existing Condition Documentation

The AET team (to include an Architect as needed) will complete a detailed survey of the existing TMC, affected areas, and related subsystem conditions. A detailed listing of all existing TMC systems including communications, network equipment, ITS software, and hardware, will be documented and evaluated for existing and future use. An existing TMC System Diagram will be developed to document existing system conditions for future use and evaluation. The existing TMC floor space and other affected areas will be documented.

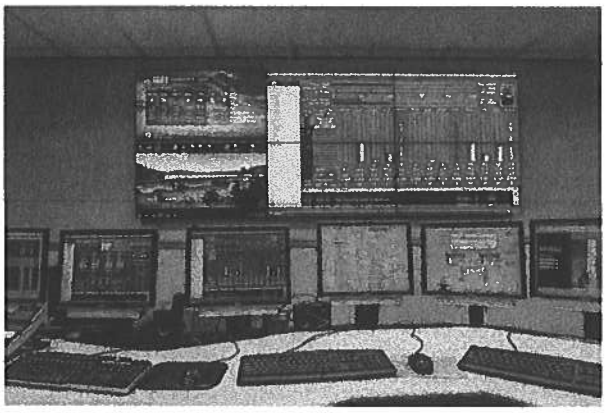
Task 3 Control Center and Vendor Site Visits

Where feasible and as needed by City and the AET team (to include an Architect as needed), visits to other surrounding area TMCs and/or control centers will be conducted. Up to three visits in a three-day session are planned. These visits are intended to identify technologies and systems that are employed in other TMCs, and to provide ideas to the team on how other TMCs are operated and designed. Visits will also help with review of subsystems and software they employ, to fully exploit and learn about available system capabilities. Findings from these meetings, surveys and site visits will be documented and presented to City staff for review.

Task 4 Conceptual TMC System Design

Employing lessons learned from Tasks 2 and 3, the AET team will develop an Initial Conceptual TMC System Design. A one-day planning session with City staff and other potential users of

Figure 3. The existing TMC will be modified under this contract



the TMC is planned for review of these documents to evaluate the Conceptual TMC System Design. These diagrams will be based on existing conditions and initial discussions with City staff during Tasks 2 and 3. They are intended to facilitate future technical discussions and reviews of the TMC System Designs. Based on results of these discussions a Conceptual TMC System Design be developed and submitted.

Task 5 AV Installation Contractor

The AET team will use information from previous tasks to finalize the project and TMC system implementation with Audio Video (AV) system installers to begin the installation and built out of the TMC.

SYNCHRONIZATION SYSTEM CONSTRUCTION

The AET team will facilitate the acquisition and construction of the recommended equipment per the final approved design plans. The construction would begin only after the design plans, specifications, and estimates are approved by the City and have provided a written approval to proceed with the construction. The AET team will be responsible for coordination of acquiring, scheduling, constructing, and inspecting of the proposed equipment for this project. The AET team will coordinate with equipment vendors to order the equipment for installation. All equipment procured will be in accordance with the current City standards, OCTA Project P, and Caltrans Standard Plans. The AET team will coordinate with the City, OCTA, and other agencies such as Caltrans to schedule the installation of the equipment throughout the corridor.

The AET team will be responsible for documentation of any changes that are encountered by the contractor during construction. The AET team will be responsible for ensuring that all the warranties and guaranties associated with the newly acquired equipment is transferred to the City. On completion of construction, the AET team will conduct the field visit to document the final improvements along the corridor. All the deviation during construction will also be reflected in the final as-built plans which will be submitted to the City.

PROJECT REPORT

The AET team will use the technical memoranda developed in earlier tasks to prepare a Final Timings and Evaluation Technical Report. The report shall provide complete documentation of the entire project. The report will also summarize the comparison of MOEs between the existing signal timings and optimized signal timings, and present the project benefits achieved including Cost/Benefit Analysis (Caltrans Cost/Benefit Model). The report will summarize all planned and programmed improvements along the study corridor, as well as identify the recommendations for further infrastructure improvements that would provide added benefits to the operation of the signal coordination along the corridor. The findings and conclusions in the draft final report will be presented to the City councils, as requested.

ONGOING OPERATIONS & MAINTENANCE

Monitoring & Improvement of Optimized Signal Timing

We will continue to optimize signal timing and phasing operation of all the intersections on a given project for a period of 24 months. The traditional approach of driving the corridors once a month during peak hours with GPS has been, and will be, utilized by our team to make fine-tuning adjustments on a monthly basis. We will review condition and make adjustments when long queues are observed or reported by residents. We will also use automated traffic signal performance measures and/or Bluetooth data to supplement our corridor monitoring.

Communications & Detection Support Timing

We will provide on-going support efforts that are required to operate and maintain the traffic signal hardware and maintain the signal timings that have been installed in the field for a 24 months period. The AET team, led by Felipe Ortega, will maintain efficient operations and close out the project at the end of the 2 year period.

On-Going Operations & Maintenance (O&M) Support

We will provide documentation of the on-going O&M efforts and resulting procedures over the final two (2) years of the contract. After the implementation of the optimized signal timing plans and fine tuning along the corridor, the AET team will not only conduct a corridor "after" study for each traffic signal coordination timing plans, but will provide O&M support to the City.

3. IMPLEMENTATION PLAN

PROJECT MANAGEMENT CONTROLS

Our project management approach is built on trust, a clear definition of shared goals, and the mutual understanding of the necessary steps to achieve those goals and exceed your expectations. We have assembled a team that is custom-fit to your project and bound together by a commitment to be a true partner to the City of Costa Mesa on this project and beyond. Our communication tools integrate Scope of Work activities

with schedule, resources, and budget details.

PROJECT MANAGEMENT PLAN

The method we will use to manage the project is our proven Project Management Plan (PMP), comprising four key areas: Operations Plan, Communication Plan, Quality Management Plan and Production Plan.

1. **Operations Plan.** The Operations Plan includes appropriate staff assignments with clear direction on deliverables, scope, process, schedule, budget, and priorities.
2. **Communication Plan.** The Communication Plan will establish the communication protocol to verify that project concerns, issues, and directions will be handled promptly and effectively, resulting in minimized delays and revisions.
3. **Quality Management Plan.** The Quality Management Plan (QMP) will verify that the project deliverables meet AET's and municipal standards quality assurance (QA) oversight of design consultants.
4. **Production Plan.** The Production Plan will outline each team member's responsibilities, procedures for initiating and advancing the work, and timing of preparation of products.

SCHEDULE & MONITOR PROJECT QUALITY ACTIVITY

The AET team uses a Quality Management System (QMS) to schedule and monitor project QA and QC reviews. This system aids project managers and AET leadership with organizing scheduled reviews, notifying reviewers, and tracking completed reviews. One method that will be employed by the AET team to manage the schedule is development of a detailed and realistic schedule at the beginning of the project. We will monitor that schedule via weekly team meetings so that the project meets the critical milestones. The AET team has developed the project schedule shown on page 10, Figure 4.

STAKEHOLDER METHODOLOGY

The AET team will work with all project stakeholders such as the City, Caltrans, and OCTA. Our team members have extensive working relationships and history that will aid in delivery a successful project on time and within budget.

4. APPROACH TO THE SCOPE OF WORK AND CLIENT SERVICE

The AET team focuses on collaborating, innovating, and delivering a product to meet and exceed client expectations. Our goal and focus will be to provide outstanding and high-quality services to the City working in a partnership and performing as much of the work for the City as possible. We will provide all deliverables listed in the RFP within the work plan and will minimize the amount of work that City staff has to self-perform. Our quality work products will reduce the number of reviews and allow the City to focus on managing the contract and coordinating with OCTA.

5. INNOVATIVE SOLUTIONS

The AET team proposes to take a detailed review at the intersection/corridor groupings during a Concept of Operations effort that we will undertake. This would result in updating coordinated timings that are not on the corridor proper, but the on-street operations should benefit. Dilemma zone detection and safety evaluations, review and consult with the current LRSP project consultant to evaluate implementable timing parameters. Leading Ped Interval (LPI) in signal timing evaluation. We would propose to evaluate the signal groupings (project limits) for all corridors together to provide better traffic flow.

Automated Traffic Signal Performance Measures

Floating car surveys of the entire corridor have historically been the primary metric used to measure the impacts of the updated traffic signal timings. We have found this method does not tell the entire story. End-to-end travel time of a 10.2-mile-long arterial corridor most likely does not match with the actual travel patterns and the proposed timing improvements. This can be illustrated by looking at different time periods of INRIX data. The AET team may use the floating car technique to conduct 'before' study travel runs as prescribed in the RFP, using a GPS receiver interfaced with Tru-Traffic Version 10. We propose to supplement the travel time surveys with Bluetooth data to obtain a dramatically larger data set, which can corroborate the actual travel time runs and provide a clearer picture of the benefits of signal timing. ATSPMs can be used to measure corridor progression, side street delay, and phase failure (to name a few), providing a more complete evaluation of the signal timings. The performance metrics will be linked to the operational objectives to ensure the signals are operating as planned.

The deployment of Signal Performance Measures along the Corridors can also help in the overall monitoring and operations of the corridor and assist with identification of critical issues affecting operations. In order to effectively ensure the

performance of arterials the intersections will need to maintain a lane-by-lane detection, with each lane reserving it's own unique detection channel. A software such as Centracs SPM is a powerful, easy-to-use cloud-based solution that measures and assesses factors that impact traffic signal coordination. Centracs SPM can integrate with any inductive loop or 3rd party video detection hardware, as long as the detection data is adequately sent back to the traffic signal controller. Before-and-after charts and reports allow engineers to know how timing and other changes affect traffic flow. The new controllers installed under this contract will have these capabilities.

Measuring Performance Based on Operational Objectives

In order to develop operational improvements, we need to truly understand the existing conditions and operational issues. To measure benefits, the metrics need to align with the operational objectives. While the TSSP program has historically focused on progression along corridors, more and more corridors have operational constraints that may not align with the traditional corridor timing metrics (i.e., end-to-end travel time). We have developed new timings that improved operations based on the operational objectives only to measure higher end-to-end travel times in the after condition, which doesn't tell the right story. It would be more appropriate if the performance metric linked to the operational objective (smooth flow - along a certain segment, minimize delay, reduce phase failures, etc.).

Crossing Corridors

We know there will be multiple signals along any project corridor where cross coordination will limit the traffic signal timing options. Any changes to the cycle lengths would impact the existing coordination on the cross streets. Our approach is to evaluate different intersection groupings that would tie into the existing cross coordinated cycle lengths, resulting in multiple breaks in the coordination along the corridor. We then review the operational objectives to determine if the proposed intersection/cycle length groupings provide an appropriate solution. Finally, we will sit down and discuss the different options with the City to make sure everyone understands the constraints, benefits, and drawbacks of the solution.

6. CITY STAFF ROLES

The AET team understands that the City of Costa Mesa Transportation Services Division has a very small staff and significant responsibilities within the City. We expect the involvement from City staff on this project to be limited to the following activities in order to make efficient use of staff time and energy:

- Provide background, existing counts, data, timing plans and as-builts as appropriate to complete the work tasks
- Attend and provide input at regular progress meetings and technical discussions
- Review and comment on quality-controlled deliverables in order to provide clear direction to the consultant team and insure the AET team is meeting the objectives of the project
- Coordinate with OCTA, Caltrans and internal departments in order to provide the AET team with the necessary information and direction to progress the project to completion

7. DETAILED PROJECT SCHEDULE

SEQUENCE OF ACTIVITIES

Based on the Scope of Work provided in the RFP, we have provided a detailed list of required activities and the staff members responsible to successfully carry out these tasks, as summarized in Table 3 Sequence of Activities and Responsible Staff to the right.

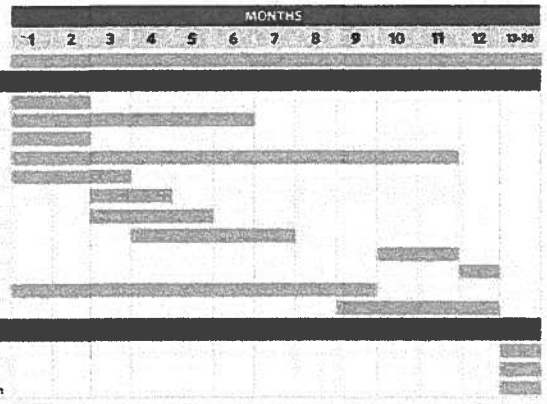
Project Schedule

We have developed this high-level project schedule based on the critical path tasks necessary to meet the City's timeline for project completion in 12 months for Implementation and 24 months for Operation and Maintenance, for a total of 36 months. It is further based on the activities described in our Work Plan and the Sequence of Activities indicated in Table 3 to the right. We estimate that with an NTP of 12/01/2021, the technical work will need to be completed in 12 months. The design plans, specifications and cost estimates of the proposed improvements will be completed by the end of 2022. The critical path, therefore, intends that activities be conducted in a concurrent and overlapping manner, as well as undergo expedited re-views by the City and Caltrans. In order to effectively address the outlined scope within the time frames allowed, the AET team will maximize efficiency in Tasks 3, 5 and 7 which are the critical path tasks included in the contract.

Table 3: Sequence of Activities and Responsible Staff

TASK #	DESCRIPTION	DELIVERABLES	FIRM	RESPONSIBLE STAFF
PROJECT IMPLEMENTATION (PI) PHASE				
1	Project Administration	PMP with communication plan; meeting scheduling, agendas, handouts, minutes; progress documents; project master schedule	AET	Kenny Chao / Doug Smith
2	Data Collection	Data Collection Report, Count Excel Spreadsheets	AET	Uyen Pham
3	Field Review and PS&E	Traffic Signal Modification Plans; Field Review Report	AET / HDR	Kenny Chao / Kent Ko
4	Corridor 'Before' Study	Corridor 'Before' Study Report, Travel Time Run Files	HDR	Rohit Itadkar
5	Signal Timing Optimization and Implementation	• Synchro Base Network • Excel Files of Existing Pedestrian and Vehicles Clearance Intervals • Proposed Corridor Operations Memorandum • Signal Timing Optimization and Implementation Memorandum, Final Synchro Files • Updated Signal Timing Plans	HDR / LLG	Rohit Itadkar / Felipe Ortega
6	Corridor 'After' Study	'After' Travel Time Study Memorandum, Presentation	HDR	Rohit Itadkar
7	Synchronization System Construction	Installation, implementation, and integration of all equipment procured	AET / LLG	Kelvin Nguyen / Felipe Ortega
8	Project Report	Final Project Report, Cost-Benefit Analysis Spreadsheet	HDR	Doug Smith
ONGOING OPERATIONS AND MAINTENANCE (O&M) PHASE				
9	Ongoing Operations and Maintenance - O&M Phase			
9A	Monitoring and Improving Optimized Signal Timing	Updated Signal Timing Plans, Travel Time Run files	HDR	Doug Smith / Rohit Itadkar
9B	Communications and Detection Support		AET / LLG	Kelvin Nguyen / Felipe Ortega
9C	Ongoing O&M Final Memorandum	Monthly Memorandum, Updated Signal Timing Plans	AET / HDR	Kenny Chao / Doug Smith

Figure 4. Schedule



C. QUALIFICATIONS & EXPERIENCE OF THE FIRM

1. CORPORATION DETAILS

CORPORATION DETAILS	
Name of Corporation	Architectural Engineering Technology, Inc.
Office Address	18340 Yorba Linda Blvd., Ste 107 Yorba Linda, CA 92886
Incorporation State/ Date	California, 2018

2. PARTNERSHIP DETAILS

AET & Associates (AET), is an S-Corporation. See details above.

3. YEARS IN BUSINESS

AET has been in business for 3+ years.

4. CURRENT AND PREVIOUS CONTRACTS

Refer to Table 4 Relevant Project Experience and the AET Team Expertise, page 12.

5. QUALIFICATIONS, EXPERIENCE, AND ABILITIES TO COMPLETE THE SCOPE OF WORK

ABOUT AET & ASSOCIATES (AET)

Since 2008, AET principal, Kenny Chao, has been providing services to the Cities of Orange County for almost two decades with a wide range of traffic engineering, Intelligent Transportation Systems design, system engineering, network communication, and signal timing services. This partnership has allowed AET to assist City's bridge the gap of legacy system and building Nexgen infrastructure for years to come.

AET's wide breath of transportation experience provides our clients a unique blend of strategy, design, concepts, engineering, construction management, and system & network engineering integration.

AET bridges the gap by offering specialized plans, designs, builds next generation ITS Fiber Optic Communication network that connects cities to regional and smart network. Our engineering knowledge comes from our full range of services for transportation projects. They are recognized locally for ITS planning, design, implementation, and integration expertise.

AET engineers and planners have extensive expertise in traffic signal design, traffic signal timing, traffic management center (TMC) operation, systems planning, traffic management, network engineering, systems engineering, system implementation, and event operation.

Our staff has worked with multi-jurisdictional agencies, traffic and planning commissions, city and councils, and other groups to develop sound transportation solutions. We stay abreast of continuing changes to capacity analysis through professional societies and technical committees.

AET staff has been a trusted partner providing professional services to local agencies throughout Souther California for the past 19 years. We have demonstrated our understanding of the City's needs, preferences, and processes. Projects AET staff have completed in Orange County are shown in Section D. Work History on the following page.

The AET team provides support services to many agencies to implement a range of operational improvements along arterials. We have worked on projects from planning and analyzing arterial improvements through implementation. The team proposed for this project has experience with:

- Analysis of time-of-day signal timing and improving timing for optimal operations
- Systems engineering for adaptive signal projects
- Implementation, verification, and validation of adaptive traffic signal systems
- Transit signal priority (TSP) analysis and implementation for first time corridors through complex corridors with predictive TSP
- Multi-modal analysis and design
- Intelligent Transportation Systems (ITS) solutions from advanced traffic signal controllers with advanced functionality to queue-detection systems

Our experience in Orange County and working relationships with many of the cities allows us to provide value-added services and additional solutions to the challenges of the Baker-Placentia-Victoria-19th RTSSP.

1. SIMILAR PROJECT EXPERIENCE

As transportation professionals, you care about what you create and want it to improve mobility, enhance safety, and create economic vitality. We use our experience and broad expertise to help you accomplish your vision. Table 4 and the project descriptions that follow have been selected to highlight the diverse array of relevant project experience that the AET team brings to this assignment, including extensive experience providing the components necessary to improve and enhance signal timing, synchronization, and coordinated operations for signalized intersections.

Table 4: Relevant Project Experience and the AET Team Expertise

	EXPERTISE										
RELEVANT PROJECTS	Project Management	Data Collection	Counts and Field Review	'Before' and 'After' Travel Time Studies	System Construction and Integration	Design Plans and Standards	Signal Timing Optimization	Concept of Operations	Signal Timing Implementation and Fine	Project Report and Technical Memorandum	Continuing Support
City of San Gabriel, Adaptive Traffic Responsive Signal Project	■	■	■	■	■	■	■	■	■	■	■
LACMTA, I-105 Integrated Corridor Management (ICM) Concept of Operations, Requirements, and Design	■	■	■			■		■		■	
City of Torrance, Transportation Communication Management System Improvements	■	■	■		■	■		■		■	■
✳ Goldenwest Street TSSP	■	■	■	■	■	■	■	■	■	■	■
✳ State College Boulevard TSSP	■	■	■	■	■	■	■	■	■	■	■
✳ Anaheim Boulevard TSSP	■	■	■	■	■	■	■	■	■	■	■
✳ Magnolia Street TSSP	■	■	■	■	■	■	■	■	■	■	■
✳ Westminster Avenue/17th Street TSSP	■	■	■	■	■	■	■	■	■	■	■
✳ Olympiad Road/Felipe Road TSSP	■	■	■	■	■	■	■	■	■	■	■
✳ Avenida Pico TSSP	■	■	■	■	■	■	■	■	■	■	■
✳ El Camino Real TSSP	■	■	■	■	■	■	■	■	■	■	■
▲ Los Angeles World Airports (LAWA), Traffic Design for Automated People Mover (APM) Landside Access Modernization Program	■	■	■		■	■		■		■	■
▲ Los Angeles County Metropolitan Transportation Authority (Metro), I-605 Corridor Improvement Project PA/ED Traffic Signal Analysis	■	■	■					■		■	
▲ City of Rancho Cucamonga, 8th Street/Hellman Avenue At-Grade Crossing and Traffic Signal PS&E	■	■	■	■		■	■		■		■
▲ OC Public Works (OCPW), OC Loop Pedestrian and Bikeway Improvements, Traffic Signal Modification Project	■		■			■					
▲ Metropolitan Transportation Commission (MTC), Program for Arterial System Synchronization (PASS)	■	■	■	■			■	■	■	■	
▲ FDOT D5, Volusia County TSM&O Retiming	■	■	■	■	■		■	■	■		■
▲ MetroPlan Orlando, Conroy Road Retiming	■	■	■	■	■		■	■	■	■	
▲ City of Albuquerque, Albuquerque Bus Rapid Transit (BRT)	■	■	■	■		■	■	■	■	■	■
▲ FDOT D5, City of Ocala TSM&O Retiming	■	■	■	■		■	■		■	■	
▲ Kentucky Transportation Cabinet, US 23 & KY 1426 Traffic Signal System Timing Upgrade	■	■	■	■		■	■		■	■	
▲ Kentucky Transportation Cabinet, US 60 & US 45x Traffic Signal System Timing Upgrade	■	■	■	■		■	■		■	■	
✣ Adams RTSSP	■	■	■	■	■	■	■	■	■	■	■
✣ Sunflower RTSSP	■	■	■	■	■	■	■	■	■	■	■
✣ Placentia-Baker RTSSP	■	■	■	■	■	■	■	■	■	■	■
✣ Bear RTSSP	■	■	■	■	■	■	■	■	■	■	■
✣ Malvern-Chapman RTSSP	■	■	■	■	■	■	■	■	■	■	■
✣ Gilbert-Idaho RTSSP	■	■	■	■	■	■	■	■	■	■	■

✳ *Projects where AET Staff as PM or Task Lead working for another firm*
✣ *Projects where Felipe has completed working for another firm*
▲ *HDR Projects*

AET Staff History on TSSP Projects in Orange County

13+ TSSP PROJECTS FOR CITIES AND OCTA

525+ INTERSECTIONS/COMMUNICATIONS/ DESIGN & NETWORK INTEGRATION PROJECTS WITHIN ORANGE COUNTY

Adaptive Traffic Responsive Signal Project

City of San Gabriel | San Gabriel, CA

AET with HDR as a major subconsultant, provided engineering services to preparing plans, specification, and estimates (PS&E) and responsive signal timing for the City of San Gabriel. This project consists of traffic signal improvements to optimize traffic flow along major arterials within the City by installing fiber optics that connects traffic signals along San Gabriel Blvd., Valley Blvd, Del Mar Ave., and Las Tunas Dr. providing the city with a 10 gig core system. The project improvements include new 2070 ATC controllers, fiber optic communication network equipment, communication hubs, ethernet switches, video detection systems, CCTV cameras, and ATC cabinet upgrade. The signal timing enhancements will provide public safety and more efficient traffic movement pattern at this congested location.

FIRM INVOLVED: AET, HDR

YEAR COMPLETED: Ongoing

COST: $288k

REFERENCE: Alan Mai, PE
Senior Civil Engineer
p: 626.308.2825 | e: amai@sgch.org

VALUE ADDED: The AET and HDR team will delivered traffic signal synchronization operations and 10 gigabit ITS communication city wide.

Transportation Communication Mgmt. System Improvements

City of Torrance | Torrance, CA

AET is completing a citywide network communication improvement for the City of Torrance. The city current network consists of a mix of mostly copper interconnect, some fiber optic interconnect, and some Ethernet radio systems connected to traffic signal controllers via unmanaged Ethernet switches. The network is a flat network and suffers from data congestion (data storms) causing traffic signal communications to be inconsistent.

The project consists of upgrading the Ethernet switches at each traffic signal controller cabinet and implementation a new revised internet protocol (IP) address scheme that will allow communication through multiple layers within the network. This will increase the capacity of the City's interconnect network and provide more consistent communication between the City's traffic signal control room and each traffic signal. The enhanced communication would assure that City staff can monitor the system to verify proper function.

FIRM INVOLVED: AET

YEAR COMPLETED: Ongoing

COST: $370k

REFERENCE: Jessamine Que, PE
Associate Engineer
p: 310.618.3066 | e: jque@torranceca.gov

VALUE ADDED: AET provide the city with a more robust network communication system as well as a transition plan from their current legacy communication to the NextGen communication network.

Adaptive I-105 Integrated Corridor Management (ICM) Concept of Operations, And Requirements, And Design

LACMTA | South Bay, CA

AET is a subconsultant that is currently under contract with Los Angeles County Transportation Authority (LACMTA) to develop a High-Level Communications Architecture, Systems Engineering Management Plan, Concept of Operations and Performance Measurement Plan, and High-Level Design Document for the ICM system. As part of the first phase, AET assisted the team in existing conditions assessments of the project area (on/off ramps, intersections, transit, rail, bicycle, and pedestrian), existing infrastructure and assets on arterials, communications network, existing traffic conditions, and existing traffic incident management.

FIRM INVOLVED: AET

YEAR COMPLETED: Ongoing

COST: $225k

REFERENCE: Ed Alegre, PTP
Senior Director, Highway ITS at LA Metro
p: 213.418.3287 | e: alegree@metro.net

VALUE ADDED: Demonstrates our understanding of Intelligent Transportation System (ITS) strategy to manage the capacity of a corridor utilizing existing and new technologies with a high-level system requirement and system architecture.

On-Call As-Needed Engineering Services

City of Westminster | Westminster, CA

AET is providing on-call services to the city and the services includes:

- Provide reviews construction of plans including traffic signal, street lighting, communication, signing and striping, and traffic control plans.
- Traffic signal modification design at various intersections
- Signing and striping design at various roadways
- Communication and network Develop new IP Scheme and devices on the network.
- Perform a network analysis to identify areas of improvement (Layer 3 Core configuration, documentation, and video optimization) and provide network redundancy.
- Upgrade existing network communication infrastructure to allow for interdepartmental use of fiber throughout the city.
- Traffic Signal Synchronization Plan for OCTA

FIRM INVOLVED: AET

YEAR COMPLETED: Ongoing

COST: $50k

REFERENCE: Adolfo Ozaeta, PE, TE
City Traffic Engineer
p: 714.548.3462 | e: aozaeta@westminster-ca.gov

VALUE ADDED: AET developed a network analysis to identify areas of improvement with Layer 3 Core configuration and provide network redundancy. Transitioning the city to upgrade existing network communication infrastructure to 10 gigabit core and 1 gigabit edge (intersection location).

Traffic Design for APM Landside Access Modernization Program

Los Angeles World Airports (LAWA) | Los Angeles, CA

HDR is the lead designer of the Los Angeles International Airport (LAX) APM as a member of the LAX Integrated Express Solutions (LINXS) Public–Private Partnership (P3) team. HDR is leading the design for fixed facilities for the APM system, with an estimated design and construction value of $1.95B.

HDR's scope of work includes final design of 2.25 miles of elevated guideway and five APM stations with associated elevators and escalators, elevated passenger walkway structures with moving walkways between stations and terminals, parking garages, roadway and landscape improvements, and a maintenance and storage facility for the system's electric trains.

Technical design innovations introduced by the HDR team include engineering the guideway to avoid two existing parking structures, which eliminates the time and cost of demolishing and rebuilding them, and placing the vehicle maintenance and storage facility at ground level instead of at the elevated guideway level, which reduces construction time and cost and simplifies future facility expansion.

FIRM INVOLVED: HDR

YEAR COMPLETED: 2021

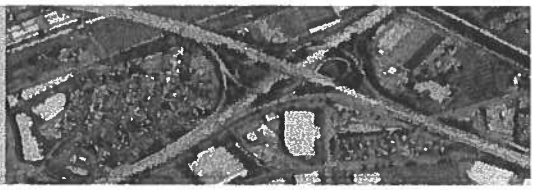
COST: $22M

REFERENCE: Saly Heng, PE
Strategic Operations Transportation Specialist
p: 424.646.7584 | e: sheng@lawa.org

VALUE ADDED: HDR has produced more than 200 traffic design plan sheets, including signal modifications and timing at 24 intersections. We are also involved in implementation/installation.

I-605 Corridor Improvement PA/ED Traffic Signal Analysis

LA Metro | Los Angeles, CA



Caltrans, Metro, Gateway Cities Council of Governments (GCCOG), and San Gabriel Valley Council of Governments (SGVCOG) are proposing highway improvements along the I-605 corridor, including improvements to SR-60 and I-5, which would help to reduce congestion, improve freeway operations, improve and enhance safety, and improve local and system interchange operations.

HDR's scope of work initially included improvements to I-605 from Slauson Avenue to I-10 and east of Turnbull Canyon Road on SR-60 to Santa Anita Road. Subsequent to execution of our contract with Metro, HDR has been directed to prepare one Environmental Document for the I-605 Corridor extending south to I-105 and consider improvements on I-5 from Florence Avenue to Paramount Boulevard in cooperation with another designer.

This region is projected to experience substantial growth in the goods movement industry. Reconstruction of the system interchange and widening of the mainline facility will address existing deficiencies and accommodate projected growth.

Based on the results of the Project Study Report - Project Development Support (PSR-PDS), the HDR team will prepare the Project Approval/Environmental Document (PA/ED), which is the next step in moving forward with improvements to the interchange and adjacent freeway segments, as conceptually identified in the Feasibility Study.

FIRM INVOLVED: HDR

YEAR COMPLETED: 2021

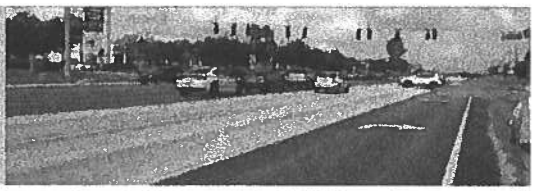
COST: $32M

REFERENCE: Isidro Panuco, Manager
Transportation Planning Highway Program
p: 213.922.7343 | e: panucoi@metro.net

VALUE ADDED: We provided a range of services from multi-modal planning to Complete Street treatment for this 28-mile corridor and delivered an alternatives analysis in less than 3 years. The effort included Synchro modeling at 158 signalized intersections.

Volusia County TSM&O Retiming

FDOT 5 | Volusia County, FL



This retiming project corridor consisted of 11 intersections with Econolite ASC/3-2100 controllers. HDR was tasked to analyze and implement new coordination timings to improve corridor performance. Supplementary task for "before" and "after" travel time studies were undertaken. A GPS receiver unit and Tru-Traffic was used to collect REAL TIME travel time studies and to verify field programmed offsets operating as intended. Prior to implementation, the corridor was known to have significant queuing, mainline and delays, pedestrian traffic, and inefficient traffic flow. Through the newly developed coordination plan, along with split, offset, and multi-pattern adjustments, specifically tuned to control minor movement behaviors, significant reductions in queuing and travel delay were observed. The before and after study verified significant savings in cost as well as fuel consumption as result of the retiming efforts.

FIRM INVOLVED: HDR

YEAR COMPLETED: 2020

COST: $78K

REFERENCE: Bobby Maddox
p: 386.736.5968 | e: bmaddox@volusia.org

Tricia Labud
p: 321.257.7244 | e: tricia.labud@dot.state.fl.us

VALUE ADDED: This project highlights our signal coordination experience.

OC Loop Pedestrian and Bikeway Improvements, Traffic Signal Modification Project

Orange County Public Works | Orange County, CA

OC Loop is a project headed by County of Orange, Department of Public Works which involves design of 66 miles of active transportation improvements such as pedestrian and bicycle facilities improvements within County of Orange. As part of the project, 5 intersections were modified by adding pedestrian crossings, Americans with Disabilities Act (ADA) ramps, bike lanes/path, countdown pedestrian signal heads, signage and striping. HDR prepared traffic signal modification plans to incorporate these design changes. HDR coordinated between City of Yorba Linda, City of Anaheim, and County of Orange for timely review and update of the plans The plans were prepared for 35 percent, 95 percent, and 100 percent submittals. The plan set included title sheets, key maps, sheet index and general notes. HDR participated in two meetings with the County during the course of the project.

FIRM INVOLVED: HDR

YEAR COMPLETED: 2019

COST: $34K

REFERENCE: Melissa Pasa, OCPW
p: 714.647.3977
e: melissa.pasa@ocpw.ocgov.com

VALUE ADDED: This project is an example of our ability to prepare PS&E in critical schedules and work with multiple stakeholders. The bid came within 3% of the Engineer's Estimate.

E. SCHEDULE, FINANCIAL CAPACITY, CONTRACT AGREEMENT, & FINANCIAL RESPONSIBILITY

SCHEDULE

Please reference the schedule previously provided on page 11.

FINANCIAL CAPACITY

Our firm has the financial stability, capacity, and resources to successfully deliver this Project. AET has not been acquired by or merged with any other companies. No financial, litigation, or business conditions exist that will impede our ability to perform the required Scope of Work (SOW).

CONTRACT AGREEMENT (ADDITIONAL REQUIREMENTS)

AET confirms that the proposal terms shall remain in effect for ninety (90) days following the date proposal submittals are due.

FINANCIAL RESPONSIBILITY

AET affirms that we and our subconsultant partners have strong financial management and accounting systems in place.

F. COST PROPOSAL, DISCLOSURES, & SAMPLE PROFESSIONAL SERVICES AGREEMENT

Cost Proposal

Per the Answers to Questions Received posted on September 10, 2021, we have submitted our cost proposal electronically as a separate attachment in a pdf.

Disclosures

AET does not have any business or personal relationships to disclose.

Sample Professional Service Agreement

No exceptions.

G. KEY PERSONNEL

1. PROJECT TEAM

We have tailored a team of talented, skilled, and experienced professionals to deliver this project for the City efficiently and effectively. Bringing industry-leading expertise, delivered locally, our team includes experts in Signal Timing Operation. AET has assembled a team for this project with one goal in mind – to provide the City of Costa Mesa with the best talent possessing value-added experience and local knowledge.

The depth and range of AET's experience in managing similar projects are proven by the successful completion and delivery of projects. We have structured our team with the optimal staffing levels needed to deliver this project, including our subconsultant partners HDR and LLG, that possess relevant experience. Each of our key personnel has been hand selected for this project based on their specific experience and capabilities to deliver.

The AET team is uniquely qualified to lead the Baker-Placentia-Victoria-19th RTSSP. Our key personnel will leverage our direct knowledge, expertise, and history working together on similar projects to reduce the learning curve, identify streamlined solutions, and mitigate risks.

We have designated Kenny Chao, IMSA, as our proposed Project Manager. Kenny brings 19 years of experience to this project. He has managed many corridor projects in Orange County and knows how to manage work to the satisfaction of the agencies involved in this project. He is an expert in ITS/signal design and system integration, and has completed many projects with similar tasks and deliverables. Kenny is fully available to manage this contract and will be supported by the following key discipline leads.

Doug Smith, PE, has 40 years experience in the management and development of ITS with 25 years of experience in providing traffic operations improvement projects to public agencies in Orange County. He has specific experience in the development of final design plans for City and Caltrans projects. He has directed the preparation of numerous Traffic signal synchronization studies for arterial highway projects and has worked in the City of Costa Mesa and surrounding cities.

Rohit Itadkar, PE, TE, Signal Timing Lead, has 12 years of Traffic and ITS design experience. He has worked on five RTSSP projects for OCTA and cities in Orange County. He has detailed knowledge of how to cost estimate, scope, and complete deliverables for this contract. He knows the design effort for each city and how to develop the signal coordination plans and complete the final report for this TSSP project. Rohit will be involved in day-to-day management of both the design and signal coordination efforts. He has working relationships with all of the members of the proposed team.

Kent Ko, PE, TE, Corridor Task Lead Designer, is an excellent design lead who has experience preparing traffic and ITS design plans for many agencies in the counties of Orange and Los Angeles. Kent has design/build and system integration expertise and knows the equipment being installed in all three cities.

Felipe Ortega, System Integration Lead, provides expertise in systems integration. He trains engineering and maintenance staff in the use of system hardware and software. He also provides essential support for clients, both onsite and remotely, in design implementation, purchasing consultation, and last-mile integration of signal systems, controllers and TMC hardware. His areas of expertise include communications design, signal modification design review, network management and operations, traffic management systems, and troubleshooting traffic related equipment.

Kelvin Nguyen, EE, System Construction Lead, has 34 years of experience in Transportation Electrical Engineering with extensive knowledge of Electrical Engineering principles and practices. He has solid knowledge of various phases in transportation electrical engineering, system planning, methods, materials and equipment used in designing, constructing, maintaining and operating highway electrical systems.

These key personnel are complemented and supported by staff members leading stakeholder coordination, support services, and value-added services.

2. PROJECT MANAGER

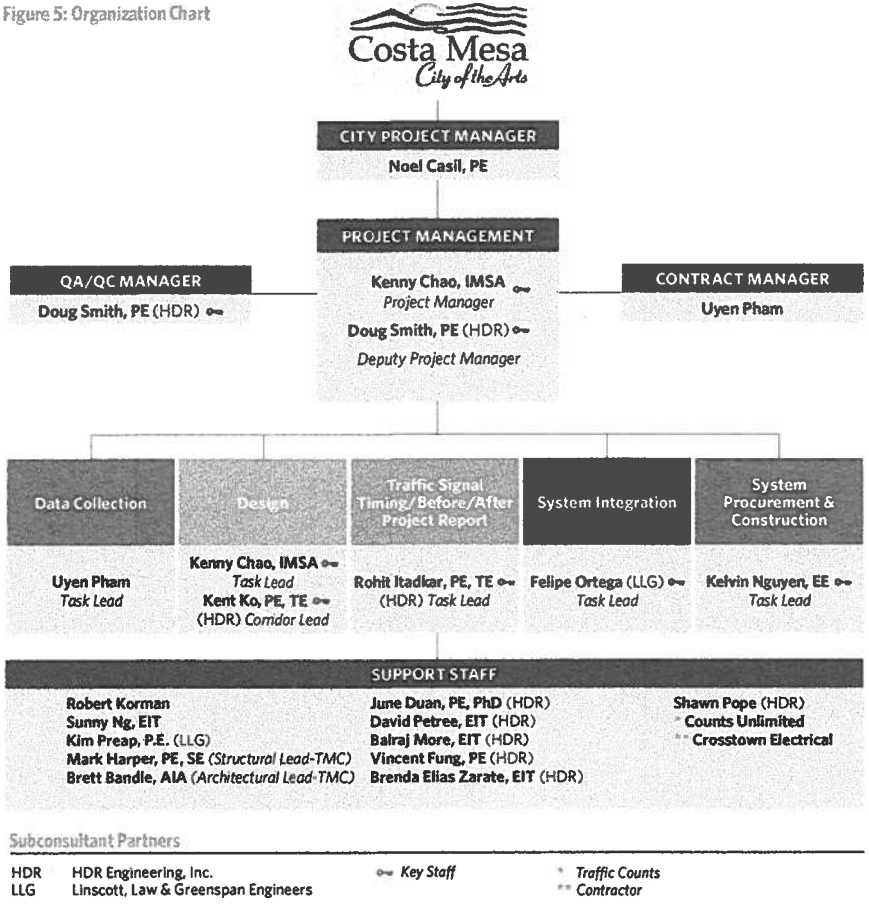
As mentioned above, Kenny Chao, IMSA, will serve as Proposed Project Manager. He will lead our team and serve as your primary point of contact. Kenny's full resume is included in the Resumes Section of the proposal.

3. ORGANIZATION CHART

The proposed team, as shown in the organization chart below, provides the breadth to support the Baker-Placentia-Victoria-19th RTSSP. We have structured the team with the depth of resources necessary to properly deliver this project.

Our leader and your primary point of contact for the project is Kenny Chao, IMSA, Project Manager and Design Lead. He will be supported by key discipline leaders Doug Smith, PE (HDR) Deputy Project Manager; Rohit Itadkar, PE, TE, (HDR) Signal Timing; Kent Ko, PE, TE, (HDR) Design; and Felipe Ortega (LLG), System Integration. Each discipline is structured with a deep bench of qualified staff members that have worked on similar RTSSPs in Orange County and surrounding areas. They are further complemented by staff members leading stakeholder coordination, support services, and value-added services.

Figure 5: Organization Chart



Subconsultant Partners

HDR	HDR Engineering, Inc.	🗝 *Key Staff*	* *Traffic Counts*
LLG	Linscott, Law & Greenspan Engineers		** *Contractor*

4. STAFFING PLAN

Table 5: Staffing Plan

NAME/ ROLE	RESPONSIBILITIES/ TASKS INVOLVED	SIMILAR PROJECT EXPERIENCE
Kenny Chao, IMSA PM & Design Lead	Oversee contract and manage schedule, scope and budget and design task leader.	• OCTA TSSP, Goldenwest Street, Orange County, CA • OCTA TSSP, State College Boulevard Orange County, CA • OCTA TSSP, Westminster/17th Street, Orange County, CA • OCTA TSSP, Magnolia Street, Orange County, CA • Anaheim Boulevard Traffic Signal Synchronization Project, Anaheim, CA
Doug Smith, PE (HDR) Deputy PM & QA/QC Manager	Support schedule, scope and budget.	• MTC/City of Fremont, Program for Arterial System Synchronization (PASS Project) • OCPW, OC Loop Pedestrian and Bikeway Improvements • City of Irvine, Culver Drive Traffic Signal System and Communications Design Project • City of Santa Clarita ITMS/TSI PS&E Project • Metro, TSM Program Evaluation Project
Rohit Itadkar, PE, TE (HDR) Signal Timing Lead	Signal timing task leader.	• Westminster/17th Street TSSP, Orange County, CA • Anaheim Boulevard TSSP, Anaheim, CA • State College Boulevard TSSP, Orange County, CA • OCTA TSSP, Goldenwest Street, Orange County, CA
Kent Ko, PE, TE (HDR) Corridor Design Task Lead	One corridor PS&E.	• Los Angeles World Airports (LAWA), Traffic Design for Automated People Mover (APM) Landside Access Modernization Program • City of Los Angeles, On-Call Engineering, Traffic Signal Improvements Project • County of Los Angeles, Inglewood Avenue, Amar Road, Carson Street, & Normandie Avenue Traffic Signal Improvements Project
Felipe Ortega (LLG) System Integration Lead	System integration, TMC improvements and coordination with city staff.	• Adams RTSSP, Costa Mesa, CA • Sunflower RTSSP, Costa Mesa, CA • Placentia-Baker RTSSP, Costa Mesa, CA • Bear RTSSP, Costa Mesa, CA • Imperial HWY RTSSP, Orange County, CA
Kelvin Nguyen, EE System Construction Lead	Construction integration, controller deployment, and TMC improvements.	Assisted Cities and OCTA in reviewing and providing technical support for more than 40 ongoing traffic signal synchronization projects between State and Cities.

5. RESUMES

Full resumes for our key personnel follow. Resumes for all non-key personnel are also available upon request.

6. PROJECT MANAGER AND AUTHORIZED CONTACT

Kenny Chao, IMSA, will serve as Proposed Project Manager. His full resume is included on the following page. He has signed this proposal and has contractual responsibility. He is authorized to negotiate the contract on behalf of AET.

7. STAFF AVAILABILITY

We have tailored a team of talented, skilled, and experienced professionals to deliver this project for the City efficiently and effectively. We have structured our team with the breadth and depth of resources necessary to support the City in the achieving project completion within the proposal timeframes. Our key team will be available to the extent proposed for the duration of the Project. We acknowledge that no person designated as "key" to the project will be removed or replaced without the prior written concurrence of the City.

Kenny Chao, IMSA

PROJECT MANAGER & DESIGN LEAD

Kenny has managed projects for various local and state agencies in the design of traffic signals, roadway lighting, fiber optic communications networks, CCTV systems, signing, striping, construction staging, and temporary traffic control. He has designed more than 500 traffic signal 100 miles of fiber optic, and 100 roadway lighting systems. Kenny has experience with design standards used by the local, state and national jurisdictions and has been involved in the review and development of traffic signal, fiber optic, and roadway lighting standards.

Kenny has worked with numerous cities throughout California. Kenny also has a good understanding of the local needs. Kenny is a highly effective traffic and ITS engineer who skillfully meets challenges and creates positive change. Kenny is a creative and detail-oriented professional with a record of success in project management, on-time and on-budget project delivery, and a proven ability to foster strong positive client relations. He is an accomplished leader with a solid technical foundation and has a reputation for consistently developing teams and leading them to achieve outstanding results in fast-paced, dynamic environments. Kenny's project portfolio encompasses a full range of projects starting from planning and design, through construction.

RELEVANT PROJECT EXPERIENCE

OCTA Regional Traffic Signal Synchronization Program (TSSP) Program, CA | Various Roles. Kenny has served in various roles, such as Principal in Charge, Contract Manager, Project Manager, Task Leads, Technical Advisor, and QA/QC official throughout the past 13 plus years. The following are list of projects that Kenny has completed for OCTA and/or Orange County Cities:

- **OCTA, Westminster/17th TSSP, CA | Deputy Project Manager, Technical Advisor, and Task leads.** Traffic signal synchronization project along 16 miles of Westminster Avenue/17th Street. The project consists of the preparation of signal timing plans, coordination plans, traffic signal modification plans, and conducting before and after studies for 63 intersections along the corridor.
- **OCTA, Magnolia Street TSSP, CA | Principal-in-Charge, Task Lead for PS&E and Construction & System Integration.** The project provided professional engineering services for the traffic signal synchronization project along 16 miles of Magnolia Street. The project consists of the preparation of signal timing plans, coordination plans, traffic signal modification plans, and conducting before and after studies for 59 intersections along the corridor.
- **Olympiad/Felipe TSSP, CA | Principal-in-Charge, Task Lead, and Technical Advisor.** The project provided traffic and transportation engineering services to improve traffic flow through an optimized traffic signal design system. In addition, Kenny assisted in performing data collection and analysis to develop and implement optimized traffic signal synchronization.
- **OCTA, State College Boulevard TSSP, CA | Project Manager.** The project was to performed an operations and timing analysis to develop and implement optimized traffic signal synchronization timing, which included the development and implementation of timing plans at all signalized intersections. The project developed

FIRM | AET & ASSOCIATES

EDUCATION

Executive Master in Business Administration (EMBA), Chapman University

BS, Civil Engineering, California State Polytechnic University, Pomona

PROFESSIONAL REGISTRATIONS/ CERTIFICATIONS

International Municipal Signal Association (IMSA) Certified No. AA 111992 & ZZ 111992

PROFESSIONAL MEMBERSHIPS

Co-Chair of Work Area Temporary Traffic Control Handbook Committee (WATCH BOOK)

Intelligent Transportation Society of California - ITSCA (Board of Directors)

APWA GREENBOOK Standard Plan Committee Member

Institute of Transportation Engineers (ITE)

INDUSTRY TENURE | 19 YEARS

KENNY CHAO | PROJECT MANAGER & DESIGN LEAD CONTD.

new coordinated signal timings for 33 traffic signals along State College Boulevard.

- **Fairview Road, Costa Mesa, CA.** Kenny served as task lead for PS&E and system integration for the design and implementation of various ITS elements, including fiber optic, CCTV, Bluetooth, wireless interconnect, and signal equipment upgrades for the cities of Costa Mesa and Santa Ana and for Caltrans. Kenny designed and directed the contractor to implement the various ITS equipment upgrades to integrate the existing infrastructure to create a more robust system.
- **Anaheim Boulevard TSSP, Anaheim, CA | Project Manager.** Kenny was the lead engineer in the development of the design of ITS, traffic signals, and communication plans for the corridor.
- **San Clemente Avenida Pico and El Camino Real Traffic Signal Synchronization Project, CA.** Kenny served as design engineer for this ITS Master Plan vision that helped the City develop its traffic signal communications infrastructure through various equipment and system integration upgrades. Through careful analysis of current construction costs, Kenny proposed pragmatic solutions to allow the City to build the communications infrastructure for the Avenida Pico and the El Camino Real corridors while staying within the Project P grant budget.
- **Irvine Barranca Parkway, Von Karman Avenue, Irvine Center Drive, MacArthur Boulevard Signal Coordination Projects, CA | Project Engineer.** Kenny designed CCTV camera systems and communications equipment for four different projects, totaling 20+ intersections along four different corridors in Irvine. The design included fiber optic interconnect in new and existing conduits to work with the existing copper/interconnect within the project limits. Kenny also performed field checks at all 20+ intersections, including evaluation of pull boxes and conduits for the possibility of pulling additional CCTV power and transmission cables through existing conduit runs. He prepared traffic signal base plans and designed the CCTV system using the City of Irvine's design manual, which required him to understand and apply the specific requirements of all of the equipment that was installed or modified.
- **Irvine/Caltrans District 12 CCTV and Fiber-optic Design, CA | Project Manager.** Kenny was responsible for the design of a CCTV camera system and ITS communications equipment for five different projects, totaling 43 intersections along five corridors in Irvine. The ITS equipment, including CCTV, Ethernet switches, fiber optic cable, and installation details, provides a redundant communication paths to ITRAC.
- **Beach Boulevard Traffic Light Synchonization Project (TLSP), CA | Lead Designer.** Kenny served as the lead designer for the design, implementation, and system integration of ITS components for this traffic signal synchronization project. Based on recommendations, Caltrans agreed to use the existing copper interconnect cable to connect all 72 intersections along Beach Boulevard via Ethernet-over- copper communications and to transmit data and video to Caltrans District 12 TMC via single-mode fiber optic cable. The recommendation saved about $1.5M in conduits/pull boxes and fiber optic cabling costs. This project was the first Ethernet over copper project conducted by Caltrans; it was so successful that other districts referenced it as a prototype to implement along other corridors.
- **Anaheim CCTV, ITS, AND Fiber-Optic Communications System Design, CA.** Kenny served as project manager and lead designer for six separate traffic and ITS PS&E design projects, involving over 20 intersections. The project included the preparation of ITS infrastructure to implement a CCTV camera systems, fiber optic communications trunk lines, 2070 controller upgrades, split cycle offset optimization technique detectors for adaptive traffic signal control, and other signal upgrades. Kenny evaluated existing infrastructure and recommended improvements along the corridors to ensure that the City's needs were met and the project met the latest City, APWA Greenbook, and Caltrans' standards.

OCTA, Communications Study, CA | Traffic Engineer. Kenny addressed the transportation infrastructure that was operated and maintained by OCTA, Caltrans, the County of Orange, as well as the 34 municipalities. The purpose of the study was to explore options for interconnecting the regional data collection systems, identify projects needed to facilitate regional data and video sharing, and determine data standards needed to support the regional vision.

Ontario Municipal Fiber Optic Network, Ontario, CA | Project Manager. Kenny is responsible for the PS&E for the City of Ontario Municipal Fiber OpticNetwork. The project consists of installing approximately 74 miles of fiber optic cable andcommunications to 149 traffic signals, 25 City Buildings, four well sites, retrofitting an existing city building into a communication facility on the southeast side of the City, and designing a new building to house the communications equipment on the northeast side of the City. Coordination was also provided with Caltrans District 8, San Bernardino Flood Control District and Union Pacific Railroad Company to process and obtain encroachment permits for several crossings.

Kelvin Nguyen, EE

SYSTEM CONSTRUCTION LEAD

Kelvin is experienced in Transportation Electrical Engineering, Signal System Design, Signal Timing, Lighting and Sign Illumination, Fiber Optic Communication Systems, Closed Circuit Television Systems, Ramp Metering Systems, Census Systems, Changeable Message Signs, Construction, Inspection, Trouble shooting, Operations and Maintenance.

Kelvin has 34 years of experience in Transportation Electrical Engineering with extensive knowledge of Electrical Engineering principles and practices. Knowledge of various phases in transportation electrical engineering and system planning. Knowledge of the methods, materials and equipment used in designing, constructing, maintaining and operating highway electrical systems. Knowledge of Caltrans Standard Plans, Standard Specifications, Caltrans Construction Manual, and Traffic Control Manual.

Solid design knowledge of Traffic Signals (TS), Video Detection System (VDS), Traffic Monitoring Systems (TMS), Changeable Message Sign (CMS), Closed Circuit Television (CCTV), Lighting and Sign Illumination, Census Systems, Fiber Optic (F/O) Communication Systems and Ramp Metering Systems (RMS). Knowledge of construction and inspection of highway electrical systems and. Abilities and skills in quick problem solving during the Design – Build phases and temporary construction.

RELEVANT PROJECT EXPERIENCE

California Department of Transportation – District 12
Traffic Electrical Operating Engineer | Electrical Systems/Traffic Signal Timing Branch

- Responsible for signal timing and monitoring of all State traffic signals on State Routes 5, 39, 57, 72, 91 and 142 to maintain efficient operation and safety for motorists. Activated and operated hundreds of traffic signals on numerous constructions projects in Orange County.
- Responsible for maintaining the efficient operation of Battery Backup System (BBS) for all traffic signal locations during a Public Safety Power Shutoff (PSPS)
- Reviewed and approved Plans, Specifications and Estimate (PS&E) for in-house and consultant projects to ensure the compliance with State Standards and Practices
- Designed C&I (Condition and Improvement) Diagram for installation of traffic signals. Provided technical support for traffic operation activities and pilot projects.
- Assisted Public Information Office (PIO) in response to traffic signal complaints and inquiries from highway users, media and elected officials.
- Reviewed and approved proposed electrical systems in encroachment permit projects.
- Inspected, activated and operated new and modified traffic signal locations during staging and final construction phases.
- Provided technical expertise to the Caltrans Planning Department in reviewing traffic environmental impacts due to proposed development from local agencies.
- Assisted Cities and Orange County Transportation Authority (OCTA) in reviewing and providing technical support for more than 40 on-going traffic signal synchronization projects between State and Cities.

FIRM | AET

EDUCATION

BS, Electrical Engineering, California State University, Fullerton

AS Engineering, Fullerton College

PROFESSIONAL REGISTRATIONS/ CERTIFICATIONS

Professional Engineer - Electrical, CA, No. E14383

PROFESSIONAL MEMBERSHIPS

Member of Institute of Transportation Engineers, ITE

INDUSTRY TENURE | 35 YEARS

KELVIN NGUYEN, EE | SYSTEM CONSTRUCTION LEAD CONTD.

- Assisted Senior Resident Engineer in Construction to inspect, activate and operate all traffic signal locations during construction staging and final construction of the major freeway widening I-5 Gateway Project in Orange County from Beach Blvd to Artesia Blvd. Duties also included traffic control and detour of routes due to major freeway closure during construction.
- Assisted the Maintenance Department in traffic signal software and hardware installations for 2070 controllers and provided technical support for daily maintenance activities.
- Assisted Caltrans Legal in Tort Liability Defense.

California Department of Transportation – District 7
Electrical Engineering Inspector | Division of Construction

- Responsible for the inspection of all electrical elements in the contract plans to ensure the Contractor complied with State Standard plans, State specifications and the special provisions
- Route 405 from Orange County line to Route 110: Project consisted of the installation of Fiber Optic Communication main trunk line, Closed Circuit Television Vision System (CCTV), Ramp Metering Systems, Changeable Message Sign (CMS), and Highway Advisory Radio (HAR).
- Route 110 widening from Route 10 to Pasadena Road: Project consisted of the installation of Fiber Optic Communication main trunk line and branched to electrical elements such as CCTV, TMS and RMS. Responsible for writing Time & Material tickets based on approved Contract Change Order (CCO).
- Route 30 widening from Route 210 to Base Line Road: Coordinated with utility companies to establish power services for electrical elements for CCTV, Lighting and Sign illumination, CMS, Ramp Metering Systems and Traffic signals locations. Inspected electrical work of temporary construction staging and permanent installation.
- Acted as Resident Engineer (R.E.) for minor electrical contracts. Duties included utility coordination, reviewed and approved contractor submittals, payment to the contractor, R.E daily report and performed Contract administration work.

California Department of Transportation – District 1
Electrical Design Engineer | Division of Design

- Responsible for the design and preparation of plans, specification and estimates (PS&E) for Traffic Signals (TS), Traffic Monitoring Station (TMS), Lighting and Sign Illumination, High Mast Lighting, Closed Circuit Television systems (CCTV), Ramp Metering systems (RMS), Changeable Message Sign (CMS) and Fiber Optic Communication systems (F/O). Projects included the I-5 widening from 5/91 interchange to Los Angeles County line (1991-1996), the Route 5/55 widening and interchange reconstruction (1989-1991), the Route 5 widening from Route 55 to Route 405 (1989-1994), and the Route 55 widening from Route 91 to Route 405 (1990-1995)
- Provided electrical design oversight to Engineering Consultants on major freeway widening and reconstruction projects in Orange County such as Routes 5/57/22 Interchange, Route 91 widening from Route 57 to Riverside County line, Route 55 widening from SR-73 to Costa Mesa, Routes 55/405 Interchange, Route 405 widening, and the Route 57 widening.
- Provided support and consultation to all District functions in Planning, Permits, Project Management, Design, Construction, and Maintenance.

California Department of Transportation – District 7
Electrical Engineering Inspector | Division of Construction

- Responsible for the inspection of all electrical elements in the contract plans to ensure the Contractor complied with State Standard Plans, State Standard Specifications and the Special Provisions. Projects included traffic signal installations on Route 1, Route 55 and multiple traffic signal installations on Route 39 from Route 91 to Route 72. Assisted the Resident Engineer to inspect and write daily construction reports for installation of traffic signals and safety lighting, poles, conduits, pull boxes and signal conductors, Signal Interconnect cables, controllers, and power service cabinets. Duties included inspection of traffic lane closures set by contractor and coordination with the Traffic Management Center (TMC) for construction projects.
- Designed traffic signals on I-5 at Ball Road in Orange County and designed CCTV installations at various location on Route 101 in Los Angeles.

Doug Smith, PE

DEPUTY PM & QA / QC MANAGER

Doug has over 40 years of broad experience in the management and development of ITS, transportation and traffic engineering projects. He is a registered engineer in California and has over 25 years of experience in providing traffic operations improvement projects to public agencies in Orange County. His project experience includes numerous arterial street improvement traffic operations, traffic/electrical design and intersection improvements and complex traffic signal timing projects. He has directed ITS and traffic operations improvements and design of more than 1,000 traffic signals and systems. He has specific experience in the development of final design plans for City and Caltrans projects. He has directed the preparation of numerous Traffic signal synchronization studies for arterial highway projects and has worked in the City of Costa Mesa and surrounding cities of Huntington Beach, Fountain Valley and Santa Ana numerous times over the years.

RELEVANT PROJECT EXPERIENCE

MTC/City of Fremont, Program for Arterial System Synchronization (PASS) Project, Fremont, CA | Traffic Lead. Doug provided technical expertise, coordinated with stakeholders, and provided technical expertise to staff developing data collection, existing conditions analysis, Synchro model calibration, before travel time studies, and the development of optimized signal timing plans that incorporate the latest California Manual on Uniform Traffic Control Devices (CA MUTCD) signal timing parameter revisions. The City of Fremont received a grant from the MTC PASS to conduct a signal timing study and develop optimized timing plans for 13 intersections along Decoto Road, Fremont Boulevard, and Paseo Padre Parkway. Eleven of the 13 intersections were maintained and operated by the City of Fremont, and two intersections were maintained and operated by Caltrans.

LA Metro, I-605 Corridor Improvement Project PA/ED Traffic Signal Analysis, Los Angeles, CA | Traffic Operations Lead. Doug managed the development of a corridor-wide improvement study for alternative improvements associated with the freeway/arterial corridor within a region bounded by I-105 and I-10. The project included extensive analysis of arterial traffic operations along the corridor. Doug supported preparation on the Draft and Final Traffic Operations Analysis Report (TOAR) and an Intersection Control Evaluation Report.

San Bernardino County Transportation Authority (SBCTA), I-215 at University Parkway Interchange PA/ED & PS&E, San Bernardino, CA | Traffic Engineering Manager. HDR has developed the geometry to reconfigure the I-215 University Parkway Interchange into a DDI. This interchange reconfiguration concept will be carried through PA/ED and immediately into PS&E for SBCTA and Caltrans District 8. The project includes the analysis and development of traffic signal operations including complex timing plans.

FIRM | HDR

EDUCATION

BS in Civil and Environmental Engineering, University of Rhode Island

Graduate courses in Transportation Engineering, University of Rhode Island

Certificate in Management for Engineering and Tech, University of California, Irvine

Certificate, Engineering (Traffic Engineering Short Course), Georgia Institute of Technology

PROFESSIONAL REGISTRATIONS/ CERTIFICATIONS

Professional Engineer - Civil, CA, No. 43549

INDUSTRY TENURE | 40 YEARS

DOUG SMITH, PE | DEPUTY PM & QA/QC MANAGER CONTD.

City of Irvine, Culver Drive Traffic Signal System and Communications Design Project, Irvine, CA | Project Manager. Doug was responsible for the development of traffic signal systems upgrades at 20 intersections on Culver Drive in Irvine, includING signal coordination plans. He was also the Project Manager for concept development of the Irvine TMSOS, which included concept design of TMS elements, assistance in preparation of a concept design report, plans, specifications and estimate (PS&E) of CMS locations and preparation of a Signal Coordination Policies and Practices Report.

City of Santa Clarita, Intelligent Traffic Management System (ITMS)/TSI PS&E Project, Santa Clarita, CA | Project Manager. Doug served as the Project Manager for the Communications Master Plan, TOS, and electrical design elements of the ITMS for the City through a grant funded through MTA. It included development of citywide signal coordination plans by time of day.

LA Metro, TSM Program Evaluation Project, Los Angeles County, CA | Project Manager. Doug served as the project manager on the TSM Program (also konwn as, Signal Synchronization and Bus Speed Improvement Program) Evaluation project. This included the analysis and evaluation of 20 TSM projects in the County of LA, including TSM/Signal Synchronization, BSP and Rapid Bus projects implemented in the region.

City of Santa Ana, I-5/SR-55 Congestion Relief Corridor Project, Santa Ana, CA | Assistant Project Manager. Doug analyzed and designed a full TOS for the arterial corridors running adjacent to SR-55 and I-5, including CCTV, CMS, HAR, Video Detection Systems and citywide fiber optic/copper wire communications. The project required an ITS Master Plan that provided a concept design of the Santa Ana TMC and traffic signal timing plans for five arterial corridors.

City of Fountain Valley, Citywide Traffic Signal Coordination Project | Project Manager. Doug oversaw the development of traffic signal timing plans for AM, Mid Day and PM peak hours for the city wide signal system that utilized the VMS 330 central control system.

Rohit Itadkar, PE, TE

Rohit has more than 12 years of experience in all facets of the transportation industry. He brings a strong project management capability through technical expertise, fine-tuned communication and inter-personal skills. Rohit has a comprehensive knowledge of transportation engineering guidelines and practices including California Environmental Quality Act (CEQA)/ National Environmental Policy Act (NEPA), ITE, Caltrans Standard Plans and Manual on Uniform Traffic Control Devices (MUTCD).

RELEVANT PROJECT EXPERIENCE

OCTA, Westminster Avenue-17th Street Traffic Signal Synchronization Project, Orange County, CA | Deputy Project Manager. Rohit served as deputy project manager for a $3.2M project in preparing synchro modeling during the weekday and weekend peak hours for 63 intersections along a 16-mile corridor of Westminster Ave-17th Street. He coordinated with OCTA, Caltrans and the Cities of Seal Beach, Westminster, Garden Grove, Santa Ana, and Tustin and the County for data collection and executing the cooperative agreement between Caltrans and OCTA for the transfer of project budget allotted to Caltrans to perform tasks on Caltrans ROW. Rohit prepared technical documents such as data collection report, field review report, signal timing report, and before study report for OCTA. Additionally, he supervised field verification of conduit runs and geometric features of the corridor for use in design plans and synchro analysis and prepared new synchronized signal timing plans for all the intersections. He conducted monthly status meetings with all the agencies and presented findings and status update. He scheduled, organized monthly meetings and documented meeting minutes. He also managed the before and after travel time study during the peak hours along the corridor using Tru-Traffic and presented the results to the Cities.

City of Anaheim, Anaheim Boulevard Traffic Signal Synchronization Project, Anaheim, CA | Project Manager. Rohit served as project manager for a traffic signal synchronization project for the City of Anaheim. His responsibilities included managing all aspects of the project such as signal timing, fiber optic design, before and after travel time studies, field review of existing conditions, delegating responsibilities, tracking progress and budget, setting up status meetings with the City, providing status updates to client, invoicing, and ordering equipment. Rohit was responsible for preparing technical reports such as data collection reports, field review reports, before study report, after study report, and monthly project status reports.

OCTA, State College Boulevard Traffic Signal Synchronization Project, Anaheim-Orange, CA | Analyst. Rohit served as an analyst in preparing synchro modeling during the weekday and weekend peak hours for 35 intersections along State College Boulevard. He coordinated with OCTA, Caltrans and Cities of Anaheim and Orange for data collection and executed the cooperative agreement between Caltrans and OCTA for the transfer of project budget allotted to Caltrans to perform tasks on Caltrans ROW. He also prepared technical documents such as data collection report, field review report, signal timing report, before study report for OCTA. Rohit assisted in field verification of conduit runs and geometric features of the corridor for use in design plans and synchro analysis and prepared design plans for the City of Anaheim and EVP design plans for the City of

FIRM | HDR

EDUCATION

MS, Civil (Transportation) Engineering, University of Southern California

BS, Civil Engineering, University of Mumbai

PROFESSIONAL REGISTRATIONS/ CERTIFICATIONS

Professional Engineer - Civil, CA, No. 92404

Professional Engineer - Traffic, CA, No. 2754

PROFESSIONAL MEMBERSHIPS

Member of Institute of Transportation Engineers (ITE)

Board Member of Intelligent Transportation Society of California Young Professionals Group (ITSCA YPG)

INDUSTRY TENURE | 12 YEARS

ROHIT ITADKAR, PE, TE | SIGNAL TIMING LEAD CONTD.

Orange as part of the project. He also performed before and after travel time study during the peak hours along the corridor using Tru-Traffic.

City of Rafael, MTC PASS, Traffic Signal Synchronization Project, San Rafael, CA | Project Manager. Rohit served as project manager for a traffic signal synchronization project along 5 corridors located in downtown of City of San Rafael. His responsibilities included managing all aspects of the project such as signal timing, before and after travel time studies, field review of existing conditions, delegating responsibilities, tracking progress and budget, setting up status meetings with the City, providing status updates to client, invoicing, and ordering equipment. Rohit was responsible for preparing technical reports such as data collection reports, field review reports, before study report, after study report, and monthly project status reports.

SCORE Traffic Operations at Railroad Crossings, Simi Valley and Orange County, CA | Project Engineer. The project involves upgradation of 4 at-grade railroad crossing to improve safety of vehicles. Rohit served as a project lead/engineer which involved evaluation of most feasible improvement measures to ensure safety of vehicular queue at the crossing. Rohit also developed railroad pre-emption signal parameters along with updating signal timing of the adjacent city controlled intersection. Rohit coordinated with City, OCTA, Design consultants, SCRRA, and Metrolink for timely review and update of signal timing sheets based on comments from these agencies. Rohit validated the updated timings in a Sim-traffic micro-simulation model to ensure that the railroad crossing would remain clear of vehicular queue at all times and the overall operation is synchronized during peak hours.

City of Banning, Signal Timing Plans on Highland Springs Road, Banning, CA | Analyst. Rohit assisted in developing signal timing plans for six intersections along Highland Springs Road during the AM and PM peak hour using Synchro. He synchronized signal timings by optimizing the splits and offsets along the roadway corridor for improved traffic flow during peak hours. He also supervised the installation of the timing plans in to the controller along with the City traffic engineer and Caltrans. Rohit conducted before and after travel time study to record the improvement in the traffic flow and delay along the roadway corridor during the peak hours.

OCTA, Anaheim Canyon Station Traffic Operations, Anaheim, CA | Project Engineer. The project involves upgradation of at-grade railroad crossing to improve safety of vehicles. Rohit served as a project lead/engineer which involved evaluation of most feasible improvement measures to ensure safety of vehicular queue at the crossing. Rohit recommended queue-cutter traffic signal along with Video Detection to ensure that vehicular queue formation would remain clear of the railroad crossing at all times. Rohit also developed railroad pre-emption signal parameters along with updating signal timing of the adjacent city controlled intersection. Rohit coordinated with City of Anaheim, OCTA, Design consultants, SCRRA, and Metrolink for timely review and update of signal timing sheets based on comments from these agencies. Rohit validated the updated timings in a Sim-traffic micro-simulation model to ensure that the railroad crossing would remain clear of vehicular queue at all times and the overall operation between queue-cutter traffic signal and city intersection is synchronized during peak hours.

Los Angeles County Public Works, Traffic Signal Modification Plans, Los Angeles County, CA | Project Engineer. Rohit served as a project engineer for developing PS&E for traffic signal modification at 5 intersections. The modification included ADA compliant ramps, new controller and cabinet, traffic poles, mast arms, vehicle heads, countdown pedestrian heads, detectors. Rohit coordinated with County for data request, field investigation, review and update of plans. The plans were prepared 35%, 90% and 100% submittals. Plans also included title sheet, general notes sheet, cost estimates and specifications.

Orange County Public Works, OC Loop, Traffic Signal Modification Plans, Orange County, CA | Project Engineer. OC Loop is a project headed by County of Orange Department of Public Works which involve design of 66 miles of active transportation improvements. Rohit served as a project engineer for developing PS&E for traffic signal modification at 5 intersections. The modification included ADA compliant ramps, bike lanes/paths, countdown pedestrian heads, signage and striping. Rohit coordinated with City of Yorba Linda, Anaheim and County for data request, field investigation, review and update of plans. The plans were prepared 35%, 95% and 100% submittals. Plans also included title sheet, general notes sheet, cost estimates and specifications.

Kent Ko, PE, TE

CORRIDOR DESIGN TASK LEAD

Kent is a registered Civil and Traffic Engineer with specialized technical experience in traffic and transportation engineering and planning, ITS planning and design, traffic signal and transit-related traffic engineering design. Kent has professional experience in ITS, traffic, and transportation engineering and design. He has conducted traffic analyses and studies and provided traffic design services on intersection and street improvement projects throughout the Counties of Orange, Los Angeles, San Bernardino, and Riverside. Specific transportation engineering experience includes intersection capacity analyses and design of conceptual intersection improvements; highway and street improvements design; traffic engineering including signing, striping, traffic signal, and traffic control plan design. Specific traffic and electrical engineering experience includes signing, striping, stage construction/ traffic control, traffic signals, communication systems, ITS, lighting plans, specifications and estimates for city, county and Caltrans highway facilities. Kent has strong management and communications skills coordinating with multiple project team members and stakeholders. He is proficient in traffic design using MicroStation and AutoCAD, Highway Capacity Manual 2010, Traffix/Vistro, and Synchro software systems.

RELEVANT PROJECT EXPERIENCE

Los Angeles World Airports (LAWA), Automated People Mover (APM) Landside Access Modernization Project, Los Angeles, CA | Traffic Design Discipline Lead. Kent is responsible for traffic and electrical design, including signing, striping, traffic signal, street lighting and ITS elements within LAX and City of Los Angeles. This project is a design-build contract to implement an APM system for LAWA. The goal of this modernization program is to provide quick, reliable access to terminals, the Metro Rail station, and rental car sites for passengers and users at Los Angeles International Airport. The 2.25-mile-long elevated guideway will feature six stations, and each car will accommodate 50 passengers with luggage. HDR is the lead designer for the APM system as a member of the LAX Integrated Express Solutions (LINXS) Public–Private Partnership (P3) team. The estimated design and construction value of this project is about $1.95B.

OCTA, Northbound SR-57 Phase I (PR/ED) and Phase II (PS&E), Anaheim & Orange, CA | Senior Traffic Engineer. Kent was responsible for the development of the TMP, PS&E for stage construction/traffic handling, construction area signs, and detours. HDR provided OCTA with professional and technical consulting services for developing an approved Project Report and Environmental Document (PR/ED) in Phase I of the project and the Plans Specifications and Estimates (PS&E) in Phase II of the project for proposed widening improvements to the segment of Northbound State Route 57 (SR-57) in Orange County California between Katella Avenue and Lincoln Avenue.

City of Manhattan Beach, SR-1/Sepulveda Bridge Widening PA/ED and PS&E, Manhattan Beach, CA | Senior Traffic Engineer. Kent was responsible for QC for lighting, temporary and final communication system (ITS), and traffic signal plans. The Sepulveda Boulevard (SR-1) Bridge Widening Project consists of widening Sepulveda Boulevard between 33rd Street and Rosecrans Avenue, within the City of Manhattan Beach. Built in 1930, the existing bridge is a five-span, 165-foot-long and 106-foot-wide structure. The project includes upgrading the existing bridge sidewalks to comply with new

FIRM | HDR

EDUCATION

BS, Civil Engineering, University of California, Irvine

PROFESSIONAL REGISTRATIONS/ CERTIFICATIONS

Professional Engineer - Civil, CA, No. 83872

Professional Engineer - Traffic, CA, No. TR2644

PROFESSIONAL MEMBERSHIPS

American Society of Civil Engineers (ASCE), Member

Institute of Transportation Engineers (ITE), Member

Orange County Traffic Engineering Council (OCTEC), Member

Toastmaster International Club #6724, Toxic Toastmaster, Member

INDUSTRY TENURE | 19 YEARS

KENT KO | CORRIDOR DESIGN TASK LEAD CONTD.

ADA requirements.

Riverside County Transportation Commission (RCTC), SR-91 Corridor Improvement Project (Design and Construction, PM/ Oversight), Riverside & Corona, CA | Senior Traffic Engineer. Kent was responsible for the development of the Traffic Operations and Incident Management Plan, and experimental/non-standard striping work plan for CTCDC and FHWA approval. This project entailed providing PCM services to SR-91 Corridor Improvement Project to increase capacity and reduce congestion for a 14-mile segment of SR-91 and a 3-mile segment along I-15. The project was delivered through a DB contract that includes improvements to accommodate the conversion to/addition of tolled express lanes.

City of Los Angeles, On-Call Engineering, Los Angeles, CA | Project Engineer. Kent provided electrical design services for upgrading traffic signal controller and cabinet and installation of Adaptive Traffic Control System (ATCS) loops, left turn phasing, audible pedestrian signals, and emergency vehicle preemption at 105 locations within the West Los Angeles Transportation Improvement and Mitigation Specific Plan Project. Specific roles included field work/preliminary engineering, development of accurate base plans, and final traffic signal modification plans.

Caltrans District 12, SR-22 HOV Design-Build, Orange/ Santa Ana/Garden Grove, CA | Project Engineer. Kent provided signal modification design as well as maintenance of traffic handling plans during the construction phase. This included the addition of an HOV lane to SR-22 for a span of 13 miles. Scope included modifications to surface street intersections at on/off ramps that were approximately 32 intersections. This $41M project also called for connection into existing Caltrans TMC for ITS elements. ITS elements included ramp metering, DMS, and highway cameras.

Caltrans District 8, I-15/I-215 Devore Interchange Improvement, San Bernardino County, CA | Project Engineer. Kent prepared plans for traffic and electrical design, including stage construction, detours, signing, striping, and lighting. Assisted in preparation of the Transportation Management Plan (TMP); detail check traffic handling, detour, lighting and ITS, and pavement delineation and sign plans; coordination with contractor. The project included reconfiguring the I-15/Kenwood Avenue Interchange, reconnect Cajon Boulevard through the I 15/I-215 Interchange, reconstructing the intersection at Cajon Boulevard and Kenwood Avenue, reconfiguring the I-215/Devore Road Interchange, and realigning of local streets to accommodate project improvements.

Port of Long Beach (POLB), SR-47 Schuyler Heim Bridge Replacement, Long Beach, CA | Project Engineer. Kent provided ACTA PS&E design to replace of the lift Schuyler Heim Bridge with a new fixed-span bridge across the Cerritos Channel. Responsible for preparing Caltrans format PS&E traffic and electrical design, including stage construction, detours, signing, striping, lighting, traffic signals, communication system, and various ITS elements including RMS, WIM, EMS, and CCTV systems for the proposed bridge replacement.

County of Los Angeles, Inglewood Avenue Traffic Signal Improvement Plan Services, Los Angeles County, CA | Design Engineer. Kent conducted field inventory and documented intersection geometrics and traffic signal facilities at 24 intersections along Inglewood Avenue in the Cities of Inglewood, Hawthorne, Lawndale and Redondo Beach and the County of Los Angeles. Specific roles include preparing final plans and exhibits for roadway, striping and traffic signal improvements.

County of Los Angeles, Amar Road et al. Traffic Signal Improvement Plan Services, Los Angeles County, CA | Design Engineer. Kent conducted field inventory and documented intersection geometrics and traffic signal facilities at 50 intersections along Amar Road, Francisquito Avenue, Workman Mill Road, Puente Avenue, and Grand Avenue in the Cities of Puente, Industry, Baldwin Park and West Covina and the County of Los Angeles. Specific roles include preparing final plans and exhibits for roadway, striping, and traffic signal improvements.

County of Los Angeles, Carson Street Traffic Signal Improvement Plan Services, Los Angeles County, CA | Design Engineer. Kent conducted field inventory and documented intersection geometrics and traffic signal facilities at intersections along Carson Street in the Cities of Long Beach, Lakewood, Hawaiian Gardens and the County of Los Angeles. Specific roles include preparing final plans for traffic signal improvements.

County of Los Angeles, Normandie Avenue Traffic Signal Improvement Plan Services, Los Angeles County, CA | Design Engineer. Kent conducted field inventory and documented intersection geometrics and traffic signal facilities at intersections along Normandie Avenue in City of Gardena and the County of Los Angeles. Specific roles include preparing final plans for traffic signal improvements.

Felipe Ortega, IMSA

Felipe is a Senior Signal Systems Specialist at Linscott Law & Greenspan. He provides expertise in systems integration and serves as a valuable link to city and agency staff. He trains engineering and maintenance staff in the use of system hardware and software (including newly installed traffic systems and TMC equipment). He also provides essential support for clients, both onsite and remotely, in design implementation, purchasing consultation, and last-mile integration of signal systems, controllers and TMC hardware. His areas of expertise include communications design, signal modification design review, coordination timing implementation, TMC network management and operations, interagency communications, traffic management systems (Centracs, QuicNet, Tactics, Intelight, Transuite, TrafficWare), and troubleshooting traffic related equipment (network, controllers, and timing).

Felipe's expertise in all facets of communications infrastructure, as well as his background in the installation and configuration of software and hardware for nearly every type of communications system in use throughout Orange County means his clients have a reliable asset when it comes to installation, configuration, advising and training staff in the use of these systems.

Felipe is extremely familiar with the existing Costa Mesa traffic signal system. Over the past 25 years our staff has worked extensively with City engineers and technical staff to maintain, expand, troubleshoot, and repair traffic signal communications and control systems for the City. Felipe is trained to identify traffic control system issues and flow problems and recommend improvements and adjustments accordingly. Typically, he is engaged to integrate and repair systems when other consultants and contractors cannot make things work. Felipe has worked hand-in-hand with Caltrans District 12 engineering and operations staff for many years and developed master plans where Caltrans-controlled intersections were key components in the development of multi-jurisdictional coordination timing within the City. He has also designed and installed various ITS elements, including CCTV cameras, fiber optic communication systems, wireless interconnect systems, and serial or Ethernet based systems, as well as upgraded multiple central systems in the past, present and future in the City.

FIRM | LLG

PROFESSIONAL REGISTRATIONS/ CERTIFICATIONS

IMSA Transportation Center System Specialist Level I

IMSA Traffic Signal Senior Field Technician, Level III

PROFESSIONAL MEMBERSHIPS

ITE

IMSA

OCTEC

INDUSTRY TENURE | 25 YEARS

RELEVANT PROJECT EXPERIENCE

City of Costa Mesa Relevant Projects:

- On-Call ITS Support Services
- Adams RTSSP
- Sunflower RTSSP
- Placentia-Baker RTSSP
- Bear RTSSP

City of Fullerton, California

- On-Call ITS Support Services
- Malvern-Chapman RTSSP
- Gilbert-Idaho RTSSP

FELIPE ORTEGA | SYSTEM INTEGRATION LEAD CONTD.

- Orangethorpe RTSSP
- Brea RTSSP
- Commonwealth RTSSP
- Lemon RTSSP
- Placentia RTSSP

City of La Habra, California

- On-Call ITS Support Services
- La Habra Blvd-Central Ave-State College Blvd RTSSP
- Lambert RTSSP
- Imperial HWY RTSSP

City of Brea, California

- On-Call ITS Support Services
- Birch RTSSP
- Lambert Traffic Control Technology Upgrade RTSSP (TMC & Fiber Project)
- Imperial HWY RTSSP

Felipe provided the System Integration, design, signal timing support and implementation. Signal hardware and software components installed by various RTSSP tasks included upgraded signal controllers & assemblies. Integration with the respective agency central systems to improve the infrastructure and signal timing and Ethernet network. Tasks included on-going support and maintenance of traffic signal communications along the project corridor and to central systems in the member cities.

EXHIBIT C

FEE SCHEDULE

Cost Proposal Template

Phase	Task	Costs	
		City of Costa Mesa	Total
Primary Implementation (1 Year	Project Administration	$34,320.00	$34,320.00
	Develop and Implement	$233,278.48	$233,278.48
	Before and After Study	$36,816.10	$36,816.10
	Sub-Total	$304,414.58	$304,414.58
	Design	$140,507.00	$140,507.00
	System Improvements	$1,129,031.54	$1,129,031.54
	Contingency	$21,170.69	$21,170.69
	Construction Engineering	$391,641.42	$391,641.42
	Sub-Total	$1,682,350.65	$1,682,350.65
	Phase Total	$1,986,765.23	$1,986,765.23
On-Going Maintenance & Operation (2 Years)	Ongoing Maintenance Monitoring	$74,880.00	$149,760.00
	Ongoing Maintenance Communication & Detection Support	$37,440.00	$74,880.00
	Phase Total	$112,320.00	$224,640.00*
Project Total		$2,099,085.23	$2,211,405.23

All originals of plans, field notes, data and calculations, reports, electronic files, etc., will be turned over to the City upon completion of work. Specific task line items may be added according to proposers work plan.

*AET during the O&M phase the with additional budget, if avaiable, our team will provide additional training, software, communication equipment upgrade, and enhanced safety operational features.

EXHIBIT D

CITY COUNCIL POLICY 100-5

CITY OF COSTA MESA, CALIFORNIA

COUNCIL POLICY

SUBJECT	POLICY NUMBER	EFFECTIVE DATE	PAGE
DRUG-FREE WORKPLACE	100-5	8-8-89	1 of 3

BACKGROUND

Under the Federal Drug-Free Workplace Act of 1988, passed as part of omnibus drug legislation enacted November 18, 1988, contractors and grantees of Federal funds must certify that they will provide drug-free workplaces. At the present time, the City of Costa Mesa, as a sub-grantee of Federal funds under a variety of programs, is required to abide by this Act. The City Council has expressed its support of the national effort to eradicate drug abuse through the creation of a Substance Abuse Committee, institution of a City-wide D.A.R.E. program in all local schools and other activities in support of a drug-free community. This policy is intended to extend that effort to contractors and grantees of the City of Costa Mesa in the elimination of dangerous drugs in the workplace.

PURPOSE

It is the purpose of this Policy to:

1. Clearly state the City of Costa Mesa's commitment to a drug-free society.

2. Set forth guidelines to ensure that public, private, and nonprofit organizations receiving funds from the City of Costa Mesa share the commitment to a drug-free workplace.

POLICY

The City Manager, under direction by the City Council, shall take the necessary steps to see that the following provisions are included in all contracts and agreements entered into by the City of Costa Mesa involving the disbursement of funds.

1. Contractor or Sub-grantee hereby certifies that it will provide a drug-free workplace by:

   A. Publishing a statement notifying employees that the unlawful manufacture, distribution, dispensing, possession, or use of a controlled substance is prohibited in Contractor's and/or sub-grantee's workplace, specifically the job site or location included in this contract, and specifying the actions that will be taken against the employees for violation of such prohibition;

   B. Establishing a Drug-Free Awareness Program to inform employees about:

1. The dangers of drug abuse in the workplace;

2. Contractor's and/or sub-grantee's policy of maintaining a drug-free workplace;

3. Any available drug counseling, rehabilitation and employee assistance programs; and

4. The penalties that may be imposed upon employees for drug abuse violations occurring in the workplace;

C. Making it a requirement that each employee to be engaged in the performance of the contract be given a copy of the statement required by subparagraph A;

D. Notifying the employee in the statement required by subparagraph 1 A that, as a condition of employment under the contract, the employee will:

1. Abide by the terms of the statement; and

2. Notify the employer of any criminal drug statute conviction for a violation occurring in the workplace no later than five (5) days after such conviction;

E. Notifying the City of Costa Mesa within ten (10) days after receiving notice under subparagraph 1 D 2 from an employee or otherwise receiving the actual notice of such conviction;

F. Taking one of the following actions within thirty (30) days of receiving notice under subparagraph 1 D 2 with respect to an employee who is so convicted:

1. Taking appropriate personnel action against such an employee, up to and including termination; or

2. Requiring such employee to participate satisfactorily in a drug abuse assistance or rehabilitation program approved for such purposes by a Federal, State, or local health agency, law enforcement, or other appropriate agency;

G. Making a good faith effort to maintain a drug-free workplace through implementation of subparagraphs 1 A through 1 F, inclusive.

2. Contractor and/or sub-grantee shall be deemed to be in violation of this Policy if the City of Costa Mesa determines that:

   a. Contractor and/or sub-grantee has made a false certification under paragraph 1 above;

   b. Contractor and/or sub-grantee has violated the certification by failing to carry out the requirements of subparagraphs 1 A through 1 G above;

   c. Such number of employees of Contractor and/or sub-grantee have been convicted of violations of criminal drug statutes for violations occurring in the workplace as to indicate that the contractor and/or sub-grantee has failed to make a good faith effort to provide a drug-free workplace.

3. Should any contractor and/or sub-grantee be deemed to be in violation of this Policy pursuant to the provisions of 2 A, B, and C, a suspension, termination or debarment proceeding subject to applicable Federal, State, and local laws shall be conducted. Upon issuance of any final decision under this section requiring debarment of a contractor and/or sub-grantee, the contractor and/or sub-grantee shall be ineligible for award of any contract, agreement or grant from the City of Costa Mesa for a period specified in the decision, not to exceed five (5) years. Upon issuance of any final decision recommending against debarment of the contractor and/or sub-grantee, the contractor and/or sub-grantee shall be eligible for compensation as provided by law.