**PROFESSIONAL SERVICES AGREEMENT**
**FOR TRAFFIC SIGNAL ENGINEERING**

THIS AGREEMENT is made and entered into this 16th day of April, 2013 ("Effective Date"), by and between the CITY OF COSTA MESA, a municipal corporation ("City"), and ALBERT GROVER ASSOCIATES, a California Corporation ("Consultant").

**W I T N E S S E T H :**

A. WHEREAS, City proposes to utilize the services of Consultant as an independent contractor to provide traffic signal coordination for Baker Street/Placentia Ave corridor as more fully described in Consultant's Proposal attached as Exhibit "A"; and

B. WHEREAS, Consultant 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 Consultant desire to contract for the specific services described in Exhibit "A" (the "Project") 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 California Government Code, Sections 1090-1092, 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. Consultant shall provide the professional services described in Consultant's Proposal, a copy of which is attached hereto as Exhibit "A" and incorporated herein by this reference.

1.2. Professional Practices. All professional services to be provided by Consultant 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 consultants in similar fields and circumstances in accordance with sound professional practices. It is understood that in the exercise of every aspect of its role, within the scope of work, consultant will be representing the City of Costa Mesa, and all of its actions, communications, or other work, during its employment, under this contract is under the direction of the department. Consultant 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 Consultant's performance of this Agreement.

1.3. Performance to Satisfaction of City. Consultant agrees to perform all the work to the complete satisfaction of the City and within the hereinafter specified. Evaluations of the work will be done by the City Clerk or her designee. If the quality of work is not satisfactory, City in its discretion has the right to:

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

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

(c) Terminate the Agreement as hereinafter set forth.

1.4. Warranty. Consultant 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. Consultant 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 Consultant's performance under this Agreement.

1.5. Non-discrimination. In performing this Agreement, Consultant shall not engage in, nor permit its agents to engage in, discrimination in employment of persons because of their race, religion, color, national origin, ancestry, age, physical handicap, medical condition, marital status, sexual gender or sexual orientation, except as permitted pursuant to Section 12940 of the Government Code.

1.6. Non-Exclusive Agreement. Consultant acknowledges that City may enter into agreements with other consultants 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.

1.7. 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. Consultant may engage a subcontractor(s) as permitted by law and may employ other personnel to perform services contemplated by this Agreement at Consultant's sole cost and expense.

1.8. Confidentiality. Employees of Consultant in the course of their duties may have access to financial, accounting, statistical, and personnel data of private individuals and employees of City. Consultant covenants that all data, documents, discussion, or other information developed or received by Consultant or provided for performance of this Agreement are deemed confidential and shall not be disclosed by Consultant 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. Consultant's covenant under this Section shall survive the termination of this Agreement.

## 2.0. COMPENSATION AND BILLING

2.1. Compensation. As compensation for the provision of services outlined in Exhibit

"A" and in accordance with this agreement, Consultant shall be paid in accordance with the fee schedule set forth in Exhibit "B," attached hereto and incorporated by reference. Consultant's total compensation shall not exceed Five Hundred Eighty Thousand Dollars ($580,000.00).

2.2. Additional Services. Consultant shall not receive compensation for any services provided outside the scope of services specified in the Consultant's Proposal unless the City or the Project Manager for this Project, prior to Consultant 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. Consultant may submit invoices to City supervisor 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 Consultant's services which have been completed to City's sole satisfaction as of the date the invoice is created. City shall pay Consultant'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 Consultant'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 for a period of three (3) years from the Effective Date.

## 3.0. TIME OF PERFORMANCE

3.1. Commencement and Completion of Work. The professional services to be performed pursuant to this Agreement shall commence within five (5) days from the Effective Date 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, material shortages, compliance with laws or regulations, riots, acts of war, or any other conditions beyond the reasonable control of a party.

## 4.0. TERM AND TERMINATION

4.1. Term. This Agreement shall commence on the Effective Date and continue for a period of Five (5) years and Two (2) months ending on June 30, 2018, unless previously terminated as provided herein or as otherwise agreed to in writing by the parties. At the end of the term period, Consultant and City may mutually agree, in writing, to renew the contract for up to four (4) term periods of one (1) year each.

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 Consultant. The termination of this Agreement shall be deemed effective upon receipt of the notice of termination. In the event of such termination, Consultant 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 Consultant 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 as to 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 Consultant.

4.4. Documents. In the event of termination of this Agreement, all documents prepared by Consultant 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 Consultant, at no cost to City. Any use of uncompleted documents without specific written authorization from Consultant shall be at City's sole risk and without liability or legal expense to Consultant.

## 5.0. INSURANCE

5.1. Minimum Scope and Limits of Insurance. Consultant 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. Consultant 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 Consultant 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. Consultant 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 Consultant pursuant to its contract with the City; products and completed operations of the Consultant; premises owned, occupied or used by the Consultant; automobiles owned, leased, hired, or borrowed by the Consultant.."

(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 Consultant'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 Consultant'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: Consultant 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 Consultant 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.

Consultant shall designate a representative for purposes of this Agreement who shall be authorized to issue all consents, approvals, directives and agreements on behalf of Consultant 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 Consultant in the performance of this Agreement.

Consultant shall designate a Project Manager who shall represent it and be its agent in all consultations with City during the term of this Agreement. Consultant 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, facsimile 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; b) at the time of transmission if such communication is sent by facsimile; and c) 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 CONSULTANT:

Albert Grover Associates
211 E. Imperial Highway,
Suite 208
Fullerton, CA 92835

IF TO CITY:

City of Costa Mesa
77 Fair Drive
Costa Mesa, CA 92626

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|---|---|
| Tel: 714-992-2990 | Tel: 714-754-5017 |
| Fax: 714-992-2883 | Fax: 714-754-5028 |
| Attn: Rob Kuehn | Attn: David Cho |

6.5. Drug-free Workplace Policy. Consultant shall provide a drug-free workplace by complying with all provisions set forth in City's Council Policy 100-5, attached hereto as Exhibit "C" and incorporated herein by reference. Consultant'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: Consultant shall not voluntarily or by operation of law assign, transfer, sublet or encumber all or any part of Consultant'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 Consultant of Consultant's obligation to perform all other obligations to be performed by Consultant hereunder for the term of this Agreement.

6.9. Indemnification and Hold Harmless Consultant agrees to defend, indemnify, hold free and harmless the City, its elected officials, officers, agents and employees, at Consultant'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 performance of the Consultant, its employees, and/or authorized subcontractors, 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 Consultant, 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 Consultant, 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 the work performed by the Consultant, its employees, and/or authorized subcontractors under this Agreement, whether or not the Consultant, its employees, and/or authorized subcontractors are specifically named or otherwise asserted to be liable. Notwithstanding the foregoing, the Consultant 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. This provision shall supersede and replace all other

indemnity provisions contained either in the City's specifications or Consultant's Proposal, which shall be of no force and effect.

6.10. Independent Contractor. Consultant is and shall be acting at all times as an independent contractor and not as an employee of City. Consultant 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 Consultant or any of Consultant's employees, except as set forth in this Agreement. Consultant shall not, at any time, or in any manner, represent that it or any of its or employees are in any manner agents or employees of City. Consultant 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 Consultant and its officers, agents, and employees, and all business licenses, if any are required, in connection with the services to be performed hereunder. Consultant 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. Consultant further agrees to indemnify and hold City harmless from any failure of Consultant to comply with the applicable worker's compensation laws. City shall have the right to offset against the amount of any fees due to Consultant under this Agreement any amount due to City from Consultant as a result of Consultant's failure to promptly pay to City any reimbursement or indemnification arising under this paragraph.

6.11. PERS Eligibility Indemnification. In the event that Consultant or any employee, agent, or subcontractor of Consultant 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, Consultant shall indemnify, defend, and hold harmless City for the payment of any employee and/or employer contributions for PERS benefits on behalf of Consultant 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, Consultant 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 Consultant's performance or services rendered under this Agreement, Consultant 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 Consultant or any of its subcontractors in the course of performance of this Agreement, shall be and remain the sole property of City. Consultant 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 Consultant. City shall indemnify and hold harmless Consultant 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 Consultant. Consultant 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: Consultant has been advised and is aware that all reports, documents, information and data including, but not limited to, computer tapes, discs or files furnished or prepared by Consultant, or any of its subcontractors, 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 Consultant 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. Consultant and its officers, employees, associates and subconsultants, if any, will comply with all conflict of interest statutes of the State of California applicable to Consultant'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, Consultant and its officers, employees, associates and subconsultants shall not, without the prior written approval of the City Representative, perform work for another person or entity for whom Consultant is not currently performing work that would require Consultant or one of its officers, employees, associates or subconsultants to abstain from a decision under this Agreement pursuant to a conflict of interest statute.

6.16. Responsibility for Errors. Consultant shall be responsible for its work and results under this Agreement. Consultant, 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 Consultant occurs, then Consultant shall, at no cost to City, provide all necessary design drawings, estimates and other Consultant 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. Consultant 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. No Third Party Beneficiary Rights. This Agreement is entered into for the sole benefit of City and Consultant 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.

6.21. 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.

6.22. Construction. The parties have participated jointly in the negotiation and drafting of this Agreement. 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.

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

6.24. 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.

6.25. 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.

6.26. 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.

6.27. 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.

**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.

CITY OF COSTA MESA,
A municipal [redacted]

[redacted] Date: 5/8/13
Mayor of the City of Costa Mesa

[redacted] Date: 4.5.13
Department D[redacted]

CONSULTANT Albert Grover & Associates

[redacted] Date: 3/28/13
Signature

Rob Kuehn – Director of Project Development
Name and Title

[redacted]
Social Security or Taxpayer ID Number

ATTEST:

[redacted] 5-10-13
City Clerk and ex-officio Clerk
of the City of Costa Mesa

APPROVED AS TO FORM:

[redacted] Date: 03/28/13

APPROVED AS TO INSURANCE:

[redacted]

Date: 4/1/13

APPROVED AS TO CONTENT:

[redacted]

Project Manager

Date: 4-5-13

# EXHIBIT A

# CONSULTANT'S PROPOSAL


# TECHNICAL PROPOSAL

TO PROVIDE

## PROFESSIONAL CONSULTANT SERVICES

FOR THE

# BAKER STREET/PLACENTIA AVENUE, VICTORIA STREET AND 17TH STREET CORRIDOR PROJECTS

SUBMITTED TO

**CITY OF COSTA MESA**

TRANSPORTATION SERVICES DIVISION

JANUARY 18, 2013

SUBMITTED BY

ALBERT GROVER & ASSOCIATES

ALBERT GROVER & ASSOCIATES

January 18, 2013

Mr. Raja Sethuraman
Transportation Services Manager
Transportation Services Division
Fourth Floor City Hall
77 Fair Drive
Costa Mesa, California 92628

**RE: Baker Street/Placentia Avenue, Victoria Street, and 17th Street Corridor Projects**
**Measure M2 Program P Grants**

Dear Mr. Sethuraman:

Albert Grover & Associates (AGA) is pleased to respond to the City of Costa Mesa's Request for Proposal (RFP) dated December 11, 2012 to provide professional Turn-Key services for design, equipment purchase and installation, construction management, system integration, and ongoing monitoring/maintenance to improve coordination signal timing on three key arterial corridors – the Baker Street/Placentia Avenue Corridor, the Victoria Street Corridor, and the 17th Street Corridor.

Enclosed please find four copies of our Technical Proposal detailing our proposed project approach/work plan and project schedule; identifying our project team and describing their relevant experience; and listing details of AGA's experience in conducting similar projects for various governmental agencies throughout Southern California, including appropriate references and contact persons. As requested in the RFP, our three individual sealed Fee Proposals (one for each corridor) have been submitted under separate cover.

There are several key factors that we feel make AGA, in general, and Mr. Chalap Sadam, our designated Project Manager, in particular, especially qualified to provide the required services and more. These factors include the following:

- AGA's expertise in *all phases* of multijurisdictional traffic signal coordination projects, including *planning, design, construction, operation and maintenance*, will greatly assist us in helping achieve project goals. Per our references, no other consulting traffic and transportation engineering firm in Southern California is nearly as experienced as AGA in two key areas: development, implementation and fine-tuning of multijurisdictional coordination timing plans and ongoing operation of various traffic signal control systems. Our experience in all components of signal timing enables us to develop optimized coordination plans for real world traffic conditions.

- AGA staff have successfully completed many multijurisdictional traffic signal coordination projects involving a multitude of different hardware and software systems. With the Cities of Newport Beach and Huntington Beach plus Caltrans included in one or more of the corridors, these are truly multijurisdictional projects. Our extensive experience in achieving consensus among various Cities, Counties and Caltrans with different systems and, quite often, different engineering and political concerns, is a definite asset that will help us achieve project objectives, as was the case in AGA's development of a large scale multijurisdictional traffic signal coordination project for 260 signals in Orange County's GMA-6 and also for 650 signals involving 17 jurisdictions throughout the San Bernardino Valley for SANBAG.

- AGA staff have timed thousands of signals in Orange County alone over the past twenty years, including Citywide and/or multi-corridor coordination timing projects for La Habra, Fountain Valley, Fullerton, Santa Ana, Brea, Buena Park, Huntington Beach, Lake Forest, and Costa Mesa. Additionally, for OCTA, we conducted the Traffic Signal Coordination Forum Project, involving all Orange County cities; developed the Orange County Traffic Signal Coordination Program, the road map for

County-wide signal coordination; conducted the Euclid Street Traffic Signal Synchronization Demonstration Project, OCTA's first multijurisdictional signal coordination project; and completed the Chapman Avenue Project, one of the first three Traffic Light Synchronization Program (TLSP) corridor projects funded by OCTA, and the Orangethorpe Avenue Project, one of the second group of corridors under OCTA's TLSP Program. It is important to note that the Euclid, Chapman and Orangethorpe projects were all conducted as turn-key projects, with AGA responsible for all components of the projects. AGA is the only consultant (from OCTA's select group of eight pre-qualified consultants) to have conducted three separate multijurisdictional corridor interconnect and coordination timing projects for OCTA. Additionally, as part of OCTA's Consultant Team for the Traffic Signal Synchronization Project (previously referred to as the BRT Project), AGA developed and implemented signal synchronization plans for the Harbor Boulevard, State College Boulevard, and Bristol Street Corridors. It is important to note that Mr. Sadam served as Project Manager for the vast majority of the above listed projects, including design and overseeing installation of fiberoptic communications and upgrades on Harbor Boulevard in Costa Mesa.

- AGA staff have designed and installed various ITS elements including CCTV, fiberoptic communication systems, wireless interconnect systems, and serial or Ethernet based systems, as well as upgraded central systems including Siemens ACTRA/TACTICS, Econolite Aries and Centracs, McCain QuicNetPro, and Caltrans CTNET systems. We also have provided support services for Telvant MIST and Multisonics VMS systems, and we provide complete design/build services, design/manage services or design/bid services as appropriate.

- AGA's methodology for developing optimum coordination timing involves far more than simply plugging traffic count data into off-the-shelf signal timing software programs for generalized conditions. Because of our extensive experience in operating signal systems for a multitude of cities, our coordination timing plans are based on real world conditions often not addressed by others.

- AGA proposes to basically use our same staff members that we have utilized for many years to provide identical services for many similar projects to design and provide the installation/construction of the signal control/communication hardware/software and various other ITS components and to develop, implement, fine-tune and operate the new timing plans for this project. All of our project team members have extensive local Orange County experience in developing and implementing both local and coordination timing plans, specific to all of the controllers utilized on both project routes.

- AGA's overall approach to this project is that we can provide much more than simply conducting various tasks – we make systems work. Our goal is to utilize our expertise in helping the various participating agencies develop large scale multijurisdictional signal coordination for the maximum overall public benefit at a reasonable cost.

It should be noted that AGA is requesting no modifications to the City's standard Professional Services Agreement, and that we have no existing or potential conflict of interest which might impair or undermine our ability or credibility regarding the proposed services.

AGA looks forward to working with the Cities of Costa Mesa, Newport Beach, and Huntington Beach jointly with Caltrans on these very important projects. If you have any questions or require amplification on any aspect of this proposal, please call me or Mr. Sadam. This Technical Proposal and our accompanying Fee Proposal are valid for a period of 90 days from the date of submittal, and I am authorized to negotiate and contractually bind AGA.

Respectfully submitted,

ALBERT GROVER & ASSOCIATES

[redacted]

Rob Kuehn
*Director of Project Development*

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# SECTION I: QUALIFICATIONS, RELATED EXPERIENCE AND REFERENCES

## QUALIFICATIONS

The City of Costa Mesa Transportation Services Division has requested proposals to provide professional Turn-Key services for the Baker Street/Placentia Avenue, Victoria Street, and 17th Street Corridor Projects, multijurisdictional coordination timing projects funded in part by the Orange County Transportation Authority's Regional Traffic Signal Synchronization Program.

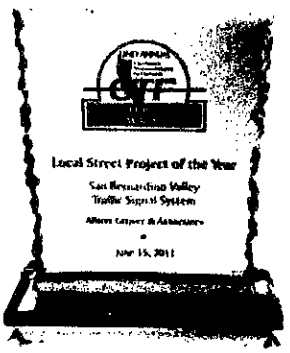
Albert Grover & Associates (AGA), in conjunction with our data collection subcontractor Transportation Studies, Inc. (TSI), our equipment installation subcontractor Crosstown Electrical & Data, Inc. (Crosstown), and vendor (Econolite) possess all of the necessary qualifications, experience and manpower to provide the requested services. These services include not only signal timing synchronization services, but also traffic signal/interconnect/ITS component design, equipment purchase and installation, system integration, and ongoing operational support services.

AGA's services are not just routine, but rather the application of experience and knowledge to first properly identify a problem and then to provide the most appropriate and cost-effective solution. AGA is not a company that provides only labor service for client designated tasks; rather, AGA provides a high level of intellectual support to accomplish client objectives. AGA's unique blend of Civil Engineers, Traffic Engineers, and skilled technical traffic signal system maintenance/monitoring personnel provides a synergy that typically results in project success beyond expectations.

AGA's wide range of services offered can be divided into six primary areas of expertise: traffic engineering, day-to-day traffic signal operations, transportation planning, civil engineering/ construction management, communication and operational control of traffic signal systems, and actual onsite City Traffic Engineer staffing. While we are well known and respected for our work in all six of these areas, we are perhaps best known for our extensive expertise and experience in the field of multijurisdictional traffic signal coordination. It should also be noted that AGA operates traffic signal systems for various governmental agencies and does so remotely from our Fullerton office, which includes a mini TMC (Traffic Management Center). Our unique "hands-on" signal experience, combined with our senior staff's previous experience as City Traffic Engineers, allows AGA staff to possess a very realistic understanding of what it takes to adequately serve the public while maintaining political harmony.

It is important to note that for both 2008 and 2010 AGA was recognized as one of the most successful architectural, engineering, planning, and environmental consulting firms in the country, having been named as one of the Top 200 "Hot Firms" nationwide, as recognized by ZweigWhite. Additionally, AGA received the "Local Street Project of the Year" award for 2011 from the California Transportation Foundation for the San Bernardino Valley Coordinated Traffic Signal System Project that we conducted for SANBAG, a project that included interconnect design and construction, and timing plan development, implementation and monitoring/maintenance for 650 signalized intersections throughout the San Bernardino Valley, including signals at 48 Caltrans interchanges.

> "Congratulations to AGA for winning the prestigious CTF Local Street Project of the Year Award. Well deserved. The AGA team did outstanding work on this project."
>
> Caltrans District 8




There are many reasons why we feel that the AGA Project Team is most qualified to conduct and successfully complete these corridor projects. While all of these reasons are more fully discussed in various sections of this Technical Proposal, key relevant factors include the following:

- We have a thorough knowledge of traffic conditions not only throughout each of the three corridors, but also along the various coordinated crossing arterials that must be considered when developing coordination plans for the corridors. Via our multijurisdictional and/or citywide projects, we have developed coordination timing plans for a majority of these crossing arterials. We fully understand the importance of evaluating the impacts to these crossing arterials of the coordination plans that we develop for the three corridors.

- We conducted the Euclid Street Traffic Signal Synchronization Demonstration Project (Euclid Street Project), the first multijurisdictional signal coordination project funded and overseen directly by OCTA. This project, developed during 2006-2007, served as the "test" project for OCTA to assess the overall feasibility and effectiveness of similar future projects such as the project that is the subject of this RFP. The significant improvements in all Measures of Effectiveness (MOEs) obtained by AGA, due in no small part to our project management expertise and our ability to achieve consensus among multiple cities and Caltrans, became the standard that subsequent projects were measured against.

> Since incorporation in 1993, AGA has become a recognized leader in the field of traffic signal interconnect and coordination timing.

- We were selected by OCTA to conduct both the Chapman Avenue TLSP and Orangethorpe Avenue TLSP Projects, both of which were similar to not only the Euclid Street Project, but also to the three corridor projects that are the subject of the current RFP. As with the Euclid Street Project, significant improvements in all MOEs were achieved on both the Chapman Avenue and Orangethorpe Avenue Projects, portions of which were conducted simultaneously.

- While we are very well known and respected for our expertise in developing and implementing highly efficient coordinated timing plans, we have extensive expertise and experience in <u>all</u> phases of the proposed projects. Via our many previous multijurisdictional traffic signal interconnect and coordination timing projects, we have designed, constructed, implemented, fine-tuned, operated and maintained WWV/GPS time synchronized independent systems utilizing fiber optic, hardwire, wireless, cellphone, and telephone interconnect methodologies. Recognizing that equipment design and installation are significant components of the three corridor projects, it is important to note that our design/build experience helps to make us good construction, installation and operational managers as well as good designers. The fact that AGA staff actually go into the field to troubleshoot and solve operational problems tremendously enhances our design expertise.

- We are experienced in the design and operation of all types of signal control systems, including Econolite, Siemens, Multisonics, McCain, Naztec, Traconex and Model 170/2070 systems and have, for many years, operated and maintained both Type 90 (NEMA) and Model 170/2070 systems for governmental agencies from our offices in Fullerton. We presently operate/monitor over 300 traffic signals for eight different cities, including Seal Beach, La Habra, Fountain Valley, Fullerton, Montclair, Highland, Rialto and Loma Linda, and recently designed a signal system Master Plan for the City of Highland. All of these systems include coordination with Caltrans signals.

- AGA previously prepared the City of Costa Mesa Traffic Signal System Master Plan which identified specific improvements on each corridor to upgrade the Citywide system. Detailed knowledge of the Citywide Master Plan will allow AGA to approach the project more holistically and identify/implement cost effective solutions on each project corridor.

- One of our key staff members who will be instrumental in conducting the three corridor projects – Mr. Felipe Ortega – has been providing on-call signal system support services to Costa Mesa for the past two years, including troubleshooting the City's VMS system; replacing parts to get the system up and running; bringing additional signals online; and supporting City staff in operating the system on an ongoing basis. This includes assisting the City in converting the VMS system on Harbor Boulevard to the Econolite ASC/3 system.

> "We continue to be extremely pleased with the timing coordination plans developed, monitored and maintained by AGA throughout the City."
>
> City of Fountain Valley

- One additional key factor further amplifying AGA's unique qualifications to conduct the proposed three corridor projects relates to the ongoing monitoring of signal coordination. The RFP notes that project requirements include three years of continuing signal timing support to monitor, observe, fine-tune and optimize the signal timing and phasing operations of all corridor intersections, including proactively surveying the corridors on a regular and frequent schedule, observing the traffic and fine-tuning the signal timing as required. These are the identical services that AGA has been providing to a wide range of Southern California cities for many years, including citywide monitoring for La Habra, Fountain Valley, Fullerton and Seal Beach in Orange County.

Our unique combination of experienced Professional Engineers and highly trained Signal System Specialists enables us to provide this service in an efficient, cost-effective manner, with our own Traffic Operations Center (TOC) serving as the hub for this activity.

- Our key employees' previous experience as City Traffic Engineers, and our current service as Contract City Traffic Engineers, allows us the opportunity to view situations "from both sides of the fence." Combined with our many previous consensus-building projects, including the Euclid Street Project, the Chapman Avenue TLSP and Orangethorpe Avenue TLSP Projects, the OCTA Traffic Forum, and the OCTA Orange County Traffic Signal Coordination Program, we are confident that these multijurisdictional projects can be completed to the satisfaction of all responsible agencies.

- Mr. Chalap Sadam, AGA's Vice President, has been designated as Project Manager for these very important projects, and will devote as much of his time as necessary to ensure the timeliness, cost-effectiveness and overall success of the projects. Mr. Sadam's extensive experience with Orange County signal synchronization projects has resulted in the establishment of professional relationships with traffic engineering personnel at Caltrans, Orange County, and the majority of the 34 Orange County cities, wherein he is highly respected for his project management and consensus building skills. He will be available for any agency meetings and presentations to explain and/or clarify any aspect of the project, whether or not such meetings and presentations have been specified in the Scope of Work. Mr. Sadam will be personally responsible for all project work efforts and deliverables, with overall project oversight and quality control provided by Mr. Al Grover, AGA's Principal in Charge for this project, and Mr. Mark Miller, who will be directly responsible for all of the design and construction phases of the project. In short, Mr. Sadam, Mr. Grover and Mr. Miller will do whatever is necessary to ensure the success of this project.

> "I wanted to personally thank...AGA team for quickly lending us a hand in implementing the construction coordination timing...intersections are operating wonderfully. We really appreciate the partnership and teamwork your firm demonstrates."
>
> City of Ontario

## RELATED EXPERIENCE

Staff of AGA in general, and Mr. Sadam in particular, have been providing professional consulting traffic engineering services for both municipalities and private developers for over twenty years. Overall, staff of AGA have provided consulting services to ten California counties and more than 100 California cities during this time.

AGA is especially qualified and experienced in the field of multijurisdictional traffic signal interconnect and timing synchronization and other ITS elements. Our staff has completed timing plans for more than 6,500 traffic signals in California alone. We have designed, analyzed and evaluated various hardware and software components for the majority of the different traffic signal control and synchronization systems. We have experience with Model 170/2070 systems (BI Tran QuicNet), 2070 systems (BI Tran QuicNet and ACTRA/Tactics), Type 90 systems (Econolite, Siemens, Naztec, Multisonics and Traconex), Caltrans CTNET systems, and UTCS systems. We have designed and analyzed Time Base Coordination Systems and fiber optic, hardwire, microwave, spread spectrum, cellphone and telephone interconnect systems. We have coordinated City signals with Caltrans on-and off-ramp signals, and have for many years controlled a Type 90 (originally Traconex, now ACTRA) system for the City of La Habra, an ACTRA/Tactics system (previously a Multisonics VMS system like Costa Mesa's system) in Fullerton, and Model 170 systems for the Cities of Montclair, Highland, Rialto, and Seal Beach, and Caltrans from our office in Fullerton.

> AGA has been conducting multijurisdictional signal coordination projects since 1993, well before other Traffic Engineering firms even considered such projects.

We completed a Growth Management Area (GMA-6) Signal Timing Project involving 160 intersections in the Cities of Huntington Beach, Fountain Valley, Seal Beach, Garden Grove, and Westminster several years ago, and have subsequently performed a signal timing update of an expansion to that system. Another Orange County signal timing project conducted by AGA involved 130 intersections along eleven arterials in the City of Santa Ana. As an addition to that project, we subsequently developed coordination timing plans for 35 additional intersections along three additional arterials in Santa Ana. We also conducted a joint Santa Ana/Costa Mesa project that developed appropriate interties between the two cities' signal systems for various arterials. Additionally, as part of OCTA's TSS (previously designated as Bus Rapid Transit – BRT) Project, we were responsible for developing timing and converting from VMS Multisonics controllers to Econolite controllers, including utilization of

fiberoptic communication and integration with the MIST central system for signals on Harbor Boulevard in Costa Mesa. Several of the most relevant similar turn-key projects conducted for OCTA by AGA are the previously noted Euclid Street Project, a project involving 62 intersections in six cities; the Chapman Avenue TLSP Project, which included 52 intersections for four agencies; and the Orangethorpe Avenue TLSP Project, which included 43 intersections for seven agencies. All of these projects included coordination with Caltrans. These similar turn-key projects included hardware installation by the same AGA team members. Some of the turn-key components included controller upgrades, cabinet replacements, fiber switches, splice enclosures, pullboxes, CCTV, Control Center upgrades, conduit installation, signal hardware improvements, and the development of As-Built plans.

AGA staff have also completed many other multijurisdictional signal timing projects for cities in Orange County, including the following:

- City of La Habra/City of Brea/Caltrans signal coordination timing project for 74 signalized intersections.
- City of Buena Park/Caltrans signal coordination timing project for 66 signalized intersections.
- City of Fountain Valley/Caltrans signal coordination timing project for 52 signalized intersections.
- Joint Huntington Beach/Costa Mesa/Caltrans project; a joint Fullerton/Anaheim/ Caltrans project; a joint Santa Ana/Costa Mesa/Caltrans project; and a joint Fullerton/Yorba Linda/Placentia Project.
- City of Lake Forest/Caltrans signal coordination timing project for 75 signalized intersections.
- City of Buena Park Citywide Intelligent Transportation System Project.

The most relevant recently completed projects were also OCTA sponsored projects. The Euclid Street Traffic Signal Synchronization Demonstration Project, OCTA's first multijurisdictional corridor interconnect and coordination project, basically set the stage for all of OCTA's subsequent Proposition 1B TLSP Projects, including the two corridor projects conducted by AGA: the Chapman Avenue and Orangethorpe Avenue projects. It should be noted that the Chapman Avenue TLSP Project included the installation of the Centracs central signal control system at the City of Garden Grove. All components of the proposed three corridor projects were likewise included in those TLSP projects, including design, system integration/construction management, development/ implementation/fine-tuning of coordination timing plans, and providing ongoing system maintenance and operations.

> "Thank you for the excellent work in the preparation of the I-405 PA/ED Traffic Study...We have not received a report of this quality from other Consulting Firms. We are particularly impressed with the quality, thoroughness and level of detail of this report. We are considering sending a copy to Headquarters HOV/HOT Program and recommending that this report be adopted as a template for future traffic studies statewide."
>
> Caltrans District 12

AGA has extensive experience with Siemens ACTRA/Tactics systems, and has previously installed the ACTRA system in the Cities of La Habra, Redlands and Fullerton. AGA recently upgraded to the Siemens Tactics system in the Cities of Fullerton and Buena Park, and has successfully completed an upgrade to the Tactics system in Redlands.

It should be noted that the same key AGA Project Team members identified in the following Section II of this proposal were instrumental in conducting <u>all</u> of the previously listed projects. Because our key senior staff have worked together for more than eighteen years, we bring a wealth of experience, expertise, familiarity and continuity to the project. We also have extensive experience working with various vendors and their products which will be utilized in this turn-key project, including Telvant (MIST central control system) and Econolite (ASC/3 controllers). Likewise, we have worked for many years with TSI, the traffic data collection firm, and Crosstown, the equipment installation subcontractor, proposed as key members of our team. Our most recent projects wherein we teamed with TSI and Crosstown were the Euclid Street Project, the Chapman Avenue TLSP Project, the Orangethorpe Avenue TLSP Project, and the Buena Park Citywide ITS Project. Relevant contact information is as follows:

Transportation Studies, Inc.
2640 Walnut Avenue, Suite H
Tustin, California 92780
Craig Shick
(714) 508-3612

Crosstown Electrical & Data, Inc.
5463 Diaz St
Irwindale, CA 91706
David Heermance
(626) 813-6693

## REFERENCES

Following is a listing of several of the most recent similar relevant projects completed by AGA. Included are the names of contact persons and current telephone numbers. It is important to note that the most important aspect of all of the multijurisdictional projects conducted by AGA is the establishing of a consensus among all participating agencies. More often than not, hardware and software incompatibilities between adjoining jurisdictions are simply engineering problems requiring engineering solutions. Of more importance is the resolution of conflicting political concerns between adjoining jurisdictions. Our key strength is our ability to work with divergent personalities in different agencies to resolve these concerns. This has been an important factor in our successful multijurisdictional projects involving coordination between different vendor type systems and involving Caltrans. We strongly urge the City of Costa Mesa to contact the listed references regarding their experience with AGA.

AGA's approach to interconnect and synchronization projects is that we do more than simply prepare interconnect and timing plans – *we actually make the system work.*

**Fullerton Citywide Timing Plan Development and Implementation**
Initial project was for development, implementation and fine-tuning of multijurisdictional coordination timing plans for 120 intersections, including Caltrans ramps, for four separate time periods. Also included was development of a Local Timing Guidelines Manual. The initial multijurisdictional project included signals in the Cities of Anaheim, Buena Park, Fullerton, Placentia, and Yorba Linda. Subsequent multijurisdictional corridor timing projects include Bastanchury, Yorba Linda, Malvern, Chapman, State College, Harbor, Rosecrans, Commonwealth, Magnolia, Brookhurst and Gilbert corridors, completed at various times for various costs. AGA currently provides ongoing monitoring for all Fullerton signals.

Mr. Don Hoppe
City of Fullerton
303 W. Commonwealth Ave.
Fullerton, CA 92832
(714) 738-6864
dhoppe@cityoffullerton.com

**Fountain Valley Citywide Signal Synchronization Project**
Multijurisdictional coordination timing plan development project, including development, implementation and fine-tuning for 52 signals citywide. Project includes ongoing monitoring. Completed in 2009 at a cost of $190,000.

Mr. Mark Lewis
Director of Public Works/
City Engineer
City of Fountain Valley
10200 Slater Avenue
Fountain Valley, CA 92708
(714) 593-4435
mark.lewis@fountainvalley.org

**La Habra/Brea/Caltrans Coordinated Signal System Project**
Development, implementation, fine-tuning and monitoring of 74 signalized intersections, including Caltrans signals on Imperial Highway (SR-90) and Beach Boulevard (SR-39) and at various freeway ramp intersections. Includes ongoing monitoring of coordination timing citywide. Completed in 2011 at a cost of $273,000.

Mr. Nelson Wong
City of La Habra
201 East La Habra Boulevard
La Habra, CA 90631
(562) 905-9620
nelson_wong@lahabracity.com

**Chapman Avenue TLSP Project and Orangethorpe Avenue TLSP Project**
Design of signal interconnect/communication improvements; construction management of all improvements; system integration; development, implementation, and fine-tuning of coordination timing plans; monitoring and maintenance of coordination; preparation of final report identifying project objectives, scope, findings, improvements, and recommendations for continued operation. Chapman was completed in 2010 at a cost of $798,000. Orangethorpe was completed in 2011 at a cost of $698,000.

Mr. Ron Keith
Principal Traffic Engineer
OCTA
550 S Main St
Orange, CA 92863
(714) 560-5990
rkeith@octa.net

# SECTION II: PROPOSED STAFFING/PROJECT ORGANIZATION

AGA's extensive expertise and experience in designing and installing interconnect systems, in developing, implementing, fine-tuning and operating traffic signal timing and coordination plans, and *most importantly in helping resolve both technical and policy traffic management issues*, enables us to provide the required consultant services entirely in-house, with the exception of data collection tasks, which will be conducted by our subconsultant, Transportation Studies, Inc. (TSI), and construction related tasks, which will be conducted by our equipment installation subcontractor, Crosstown Electrical & Data, Inc. (Crosstown).

All tasks defined in the RFP, and elaborated upon in Section III of this proposal, will be directly overseen and managed by **Mr. Chalap Sadam, P.E., T.E.,** Vice President. All meetings will be chaired by Mr. Sadam, who will also, if required, personally make any required presentations to City staff, Commissions, or Councils. As shown on the Project Organization Chart (**Figure 1**), all AGA Task Managers will report directly to Mr. Sadam.

Mr. Sadam is a registered Civil and Traffic Engineer with a Master of Science, Civil Engineering (Transportation) degree from Virginia Polytechnic Institute and State University, and a Master of Business Administration degree from the University of Southern California. He was AGA's Project Manager for joint Costa Mesa/Huntington Beach and Costa Mesa/Santa Ana coordination timing projects; for citywide signal timing projects in the Cities of La Habra, Fullerton, Fountain Valley, and Santa Ana; for the San Bernardino Valley Coordinated Traffic Signal System Project; and for various projects conducted by AGA for OCTA, including the Euclid Street Traffic Signal Synchronization Demonstration Project, the Chapman Avenue TLSP Project, and the Orangethorpe Avenue TLSP Project. Mr. Sadam also served as Assistant Project Manager for the Orange County Traffic Signal Coordination Program that AGA completed for OCTA. He was also responsible for developing multijurisdictional coordination signal timing plans for hundreds of signals for the various Orange County GMA-2 and GMA-6 multijurisdictional coordination signal timing projects conducted by AGA.

Mr. Sadam joined Albert Grover & Associates in 1993 as a Transportation Engineer, and provides expertise in the preparation of traffic impact studies, development of transportation planning models to evaluate long range impacts, development of signal coordination master plans, preparation of traffic signal coordination timing plans, design and operation of traffic signal systems, design of intersection improvement plans, traffic signal interconnect plans and ITS plans, traffic accident analysis and recommendation of mitigation measures, and the preparation of freeway interchange feasibility studies and Major Investment Studies (MIS). Mr. Sadam has completed numerous traffic impact and transportation planning studies in Southern California.

> Because multi-level review of both individual components and final work products is the key to quality control, AGA utilizes the extensive expertise and experience of senior staff members to review all work products to ensure that project goals are met and that agency review efforts can be minimized.

Mr. Sadam's additional experience includes the development of traffic circulation studies and corridor studies, signal synchronization feasibility studies, parking feasibility studies, street lighting master plans, speed studies, traffic engineering software development and project management. Computer skills include experience in the usage of transportation planning and traffic engineering software such as Synchro, Vissim, TruTraffic, HCS and WEBSTER and ArcView GIS systems. Mr. Sadam is also familiar with relational database management systems and has used Microsoft Access and Oracle databases along with programming languages such as Visual Basic and C/C++.

Full resumes for Mr. Sadam and other key staff are contained in Appendix A.

Serving as Principal in Charge and providing overall quality control for all work products will be **Mr. Al Grover, President/CEO**. Mr. Grover is a registered Civil and Traffic Engineer with a Master of Engineering (Civil/Transportation) degree from Cornell University. He was AGA's Project Manager for the development of the San Bernardino Valley Coordinated Traffic Signal System Plan, the Coachella Valley Project 2020 Signal Synchronization Feasibility Study, and OCTA Traffic Signal Forum Project and the Orange County Traffic Signal Coordination Program. Mr. Grover has managed and/or conducted scores of traffic signal interconnect and coordination timing projects throughout California, including FETSIM projects for 16 separate grants involving over 500 traffic signals; has been instrumental in proposed development studies, parking studies, bike trail projects, street alignments, traffic signal installations, etc.; set up AGA as a contract operator of local agency signal systems; and established the firm as a leader in Design/Manage (the forerunner of our Design/Build) operations. Prior to forming AGA in 1993, Mr. Grover was Executive Vice President of Mohle-Grover and

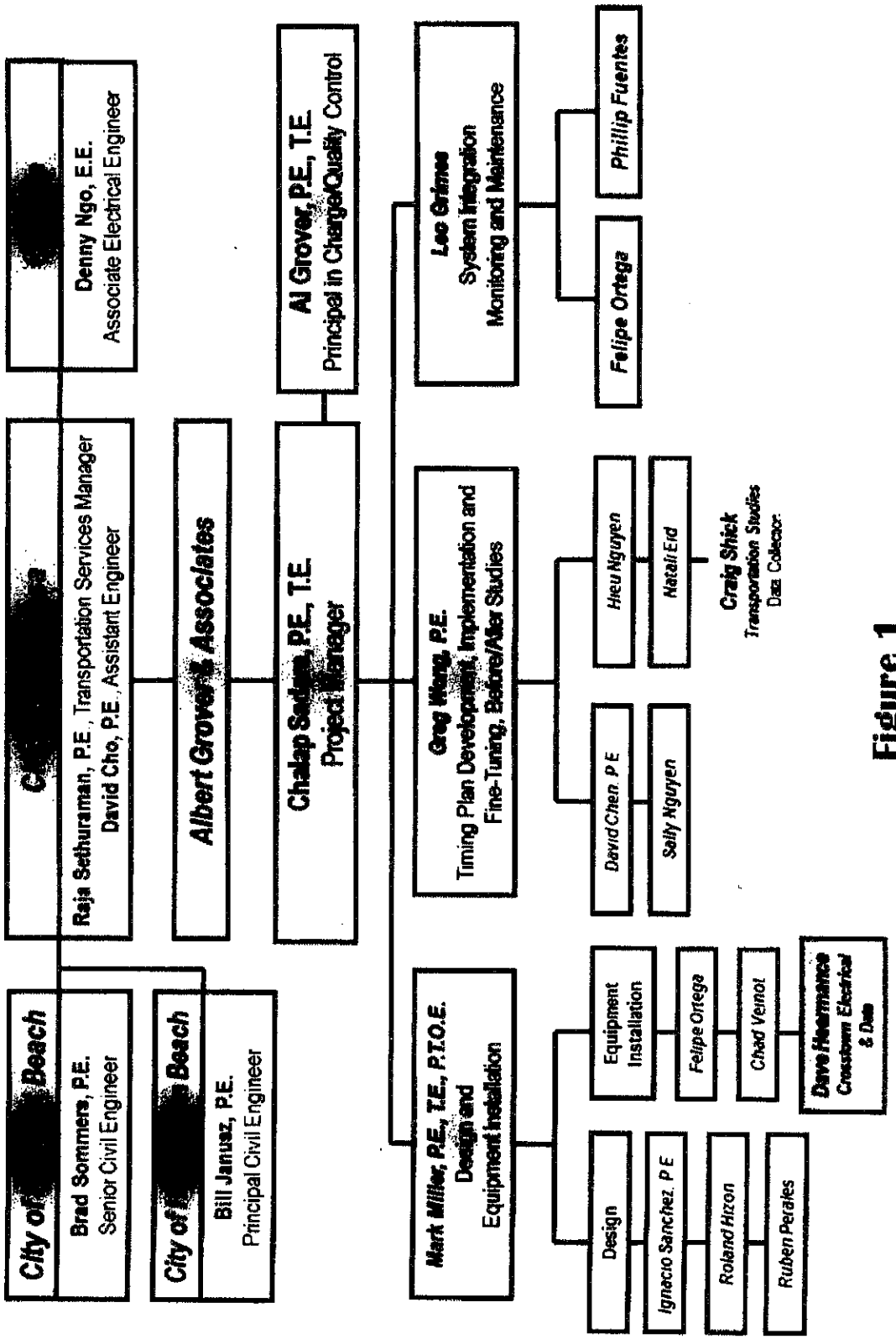



**Figure 1**

**COSTA MESA THREE CORRIDOR PROJECTS**
**ORGANIZATION CHART**

Associates, where key AGA staff members were also employed, for 12 years. Additionally, Mr. Grover previously was the Director of Traffic and Parking for the City of Beverly Hills; Traffic Engineer for the City of Inglewood, where he implemented a computerized traffic control system operating 105 intersections from City Hall utilizing the UTCS software package; and Project Engineer for Caltrans' Los Angeles Area Freeway Surveillance and Control Project, a test program to evaluate innovative ITS traffic control techniques and devices. Mr. Grover also served as member of the Highway Capacity Manual Committee, which provides a link with national activities relative to signal operations and roadway capacity issues. Recently, Mr. Grover has been actively involved in California Manual of Uniform Traffic Control Devices (CA MUTCD) updates relative to bicycle detection, bicycle timing, and signalized intersections. Mr. Grover will be directly responsible for all aspects of Quality Assurance/Quality Control on the proposed project.

Project management is a critical component of the proposed three corridor projects. Unlike other projects where Task Managers can simply manage their respective tasks and report to the overall Project Manager, this project requires extensive involvement of the Project Manager in all tasks and aspects of the project identically to the manner in which AGA has successfully conducted previous OCTA corridor projects. The Project Manager will be directly responsible for conducting any meetings/workshops that will be required to build the consensus necessary to achieve success on these important projects.

Both Mr. Grover and Mr. Sadam are extremely well qualified to manage the proposed project. They both have previously managed multijurisdictional traffic signal coordination timing projects; have extensive expertise in all phases of traffic and transportation engineering; and have well-deserved reputations for resolving conflicts and achieving consensus.

**AGA's depth and breadth of experienced staff with local Orange County expertise allows us to conduct multiple coordination timing projects simultaneously.**

Preparation of plans, specifications, cost estimates, bid and contract documents for all new/upgraded traffic signal control and communication hardware and software, and providing equipment installation and construction management services, will be the responsibility of **Mr. Mark Miller, P.E., T.E., P.T.O.E., Executive Vice President,** with the assistance of **Mr. Ignacio Sanchez, P.E., Senior Design Engineer, Mr. Roland Hizon, Mr. Chad Veinot** and **Mr. Ruben Perales**. Mr. Miller has more than 38 years of experience, including more than 20 years serving as a City Traffic Engineer. Mr. Miller has managed many ITS, traffic signal interconnect/coordination and street light system projects. He has developed and implemented design standards, specifications and cost estimates for traffic signals, interconnect projects, CCTV projects, and street light projects. He also has extensive experience in preparing traffic signal coordination and timing plans. Additionally, Mr. Miller has provided expert witness testimony on a variety of issues. He has served as both a member and the President of the City Traffic Engineers Association (CTE) and, as such, has been instrumental in conducting workshops to educate Traffic Commissioners and Planning Commissioners from Cities throughout Southern California on various aspects of traffic engineering. Mr. Miller has provided on call as-needed traffic engineering services to the Cities of Cerritos, La Habra, Montclair, Torrance, and Victorville, and has since 1998 served as the Contract Traffic Engineer for the City of Fullerton, which presently requires only one day per week at City Hall.

Development, implementation and fine-tuning of coordination timing plans, including all required data collection and conducting "before and after" studies, will be the direct responsibility of **Mr. Greg Wong, P.E** with assistance from **Mr. David Chen, P.E., Ms. Natali Eid, Mr. Hieu Nguyen,** and **Ms. Sally Nguyen.** Mr. Wong was instrumental in development of timing plans for the La Habra, Fountain Valley, Santa Ana, and Fullerton Citywide Timing Plans; for the OCTA Euclid Street Traffic Signal Synchronization Demonstration Project and Chapman Avenue and Orangethorpe Avenue TLSP Projects; for the 650 intersections in the San Bernardino Valley Coordinated Traffic Signal System Project for SANBAG; and for the recently completed OCTA TSS Project which included Harbor Boulevard and Bristol Street in the Cities of Costa Mesa and Santa Ana.

Mr. Wong rejoined AGA in July 2001 as a Transportation Engineer. He had previously worked for AGA for several years prior to leaving to obtain experience working in the public sector. His duties at AGA include the preparation of traffic signal coordination timing plans, traffic impact studies/analyses, GIS analysis/design/implementation projects, parking circulation analyses, and traffic signal designs. Mr. Wong has extensive experience in using a variety of transportation planning and traffic engineering software, such as Synchro, Tru Traffic, HCS, and WEBSTER. Other software's include GIS (ArcView), AutoCAD, Microstation, and Microsoft applications. Mr. Wong was a key participant in numerous projects that involved the state, local cities and private agencies. These included County Traffic Signal Synchronization Program (TSSP) projects, street and highway improvement projects, local city projects and County signal upgrades.

Providing system integration services during construction and implementation phases of the project, and providing monitoring and maintenance of both the hardware/software and actual signal coordination for the three corridors during the three year monitoring period after agency acceptance of all improvements, will be overseen by **Mr. Leo Grimes, Senior Signal Systems Specialist**, with significant assistance provided by **Mr. Phillip Fuentes** and **Mr. Felipe Ortega**. Mr. Grimes joined Albert Grover & Associates in 2000, after having spent ten years working with Signal Maintenance, Inc., where he was trained and certified as a Signal Technician Level 3. Mr. Grimes routinely monitors signal operations and coordination along the streets of various cities that have contracted with AGA to provide such on-going signal monitoring services, looking for both hardware related and timing related problems. He also quickly responds to requests from various cities on an as-needed basis. His unique expertise in both signal timing software and signal hardware enables AGA to quickly identify the actual cause of the problem and take definitive action to provide the appropriate solution, thereby avoiding the frustrating "finger pointing" often experienced with troubleshooting of sophisticated signal systems.

With 20% of our firm being Registered Civil and Traffic Engineers, and 30% being registered Traffic Engineers, AGA is one of the largest Orange County based Traffic Engineering firms with local staff experienced with local traffic.

Since joining AGA, Mr. Grimes has been responsible for conducting field reviews of hundreds of signalized intersections, including physically opening controller cabinets and pull boxes to assess the condition and usability of existing equipment. Mr. Grimes has implemented both local and coordination timing plans in hundreds of signal controllers, including nearly every brand of controller in use in Southern California. Mr. Grimes has been responsible for fine-tuning of timing plans at hundreds of locations, and for daily monitoring of signal systems in the Cities of La Habra, Fullerton, Loma Linda, Fountain Valley, and Seal Beach. He has also been responsible for purchasing, installing and integrating hardware and software in local agencies' Traffic Management Centers, including a wide range of central control systems: QuicNet, CTNET, Actra, Aries, Centracs, Tactics, and others. He has resolved signal system communication problems, addressing both internal communication issues and multijurisdictional issues. Mr. Grimes' familiarity with, and respect of, signal maintenance contractor's procedures and personnel greatly assists AGA in the implementation, fine-tuning, operation, monitoring and troubleshooting of various signal systems.

Mr. Grimes provides technical expertise in the design of new, and upgrading of existing Traffic Management Centers. He is especially well versed in the utilization of various communication media such as fiberoptics, radios, wireless Ethernet, Ethernet over copper, etc., including previous generation equipment utilizing serial and Frequency Shift Key (FSK) communication. His experience includes assistance in designing CCTV systems for various cities, along with utilizing video detection cameras to provide live video feeds to city Traffic Management Centers and AGA's own TMC. Mr. Grimes has also been involved in the development and design of Internet Protocol (IP) schemes for cities' traffic signal related equipment, including assisting in the configuration of Layer 2 and 3 Ethernet networking communication switches.

Collection of various traffic data, including intersection turning movement counts and 24-hour ADT counts and pedestrian/bicycle counts will be conducted by **Transportation Studies, Inc. (TSI)**. TSI's work will be overseen by **Mr. Craig Shick, Vice President**. TSI was founded in 1997 to provide high quality, reasonably priced raw traffic data collection for government agencies, engineering firms, and private businesses in the Western United States who are engaged in transportation planning. AGA has utilized TSI for the collection of traffic volume data and other similar data collection efforts (such as pedestrian counts, delay studies, parking utilization studies, etc.) for fourteen years. Mr. Shick has over eighteen years of experience in the traffic data collection business. Mr. Shick will be TSI's Project Manager for the three corridor projects, and will be personally responsible for all data collection.

We also plan to utilize **Crosstown Electrical & Data, Inc. (Crosstown)** for various equipment installation tasks that are required as part of the three corridor projects. We have worked with this firm for many years on a wide variety of signal interconnect communication projects, including various OCTA funded projects throughout Orange County. **Mr. Dave Heermance, Crosstown's Project Manager**, provided identical service to AGA as part of our team for the Chapman Avenue TLSP Project, Orangethorpe Avenue TLSP Project, and the City of Buena Park Citywide ITS Project. Additionally, AGA plans to use Econolite for signal controller cabinets and communication D panel installation services for related locations along the project corridors.

# SECTION III: PROJECT UNDERSTANDING, APPROACH, AND SCHEDULE

Via the Citywide Traffic Signal System Master Plan, the City of Costa Mesa has developed an overall plan for coordination of traffic signals on major corridors throughout the City. The proposed Baker Street/Placentia Avenue, Victoria Street and 17th Street Corridor Projects are several more steps in improving Citywide and regional traffic operations. In general, these projects will provide for various signal system and communication upgrades, and the development and continued operation of coordinated timing plans, on approximately 17.5 miles of Baker Street/Placentia Avenue, 3.5 miles of Victoria Street, and 2.4 miles of 17th Street.

**The Baker Street/Placentia Avenue Corridor**, between Red Hill Avenue on the east and Hospital Road on the south, includes traffic signals controlled by the Cities of Costa Mesa and Newport Beach, and by Caltrans. The Baker Street roadway varies from a four-lane section east of Harbor Boulevard, to a two-lane section from Harbor Boulevard to Mesa Verde Drive. The Placentia Avenue roadway is a four-lane section from Mesa Verde Drive to Superior Avenue. Daily traffic volumes range up to 36,000 vehicles per day (vpd).

Baker Street experiences heavy commuter traffic during the AM and PM peak hours due to the SR-55 interchange on the corridor, and its proximity to the SR-73 interchange at Bear Street. Additionally, a significant amount of Adams Avenue traffic shifts over to Baker Street from Fairview Road, resulting in higher traffic volumes in the eastern portion of the corridor. The needs of commuter traffic, the retail traffic near Harbor Boulevard, the residential traffic and the existing crossing arterial timings on both Harbor Boulevard and Fairview Road will need to be evaluated when developing new coordination timings on Baker Street.

Placentia Avenue is a curvilinear street between Adams Avenue and Wilson Street, and the roadway becomes a straight four-lane north-south facility with a two-way left turn lane with typical speed limits of 40 mph. Several speed feedback signs are installed along this corridor to combat potential speeding by motorists. One unsignalized pedestrian crossing is located at the intersection of Placentia Avenue/20th Street. In addition to local traffic, the Placentia Avenue corridor experiences significant school traffic due to the proximity of various schools, and hospital/medical office traffic at its southern terminus. In developing coordination timing for Placentia Avenue special attention must be paid to crossing arterial timings at Adams Avenue and Victoria Street, as well as local needs of school traffic, hospital traffic and the Senior Center related traffic off 19th Street.

**The Victoria Street Corridor**, between SR-55 on the east and Brookhurst Street on the west, includes traffic signals controlled by the Cities of Costa Mesa and Huntington Beach, and by Caltrans. The roadway is generally four lanes throughout the project area. Daily traffic volumes range up to 31,000 vpd. It should be noted that AGA recently developed a street improvement plan and traffic signal modification plan for the Victoria Street/Victoria Place intersection and has previously developed and implemented coordination signal timing plans throughout the Victoria Street/Hamilton Avenue corridor.

Victoria Street carries a significant amount of commuter traffic, particularly heavy eastbound traffic in the AM and westbound traffic in the PM peak hour. Several additional traffic control measures are already in place along the corridor to improve traffic operations and also to combat any potential speeding. The new coordination timings on Victoria Street would need to integrate with crossing arterials timings along Placentia Avenue and Harbor Boulevard. Additionally, development of appropriate timing is critical to minimize queuing and avoid potential gridlock due to the extremely closely spaced signals of Victoria Street at the southbound and northbound Newport Boulevard signals, and the nearby signal of Fairview Road/southbound Newport Boulevard.

**The 17th Street Corridor**, between Dover Drive on the east and Placentia Avenue on the west, includes traffic signals controlled by the Cities of Costa Mesa and Newport Beach, and by Caltrans. The road is generally four lanes throughout the project area, except for the six-lane section in the vicinity of Superior Avenue and Newport Boulevard. Daily traffic volumes range up to 35,000 vpd.

17th Street is a unique corridor as it serves both the commuter traffic via Newport Boulevard as well as local area restaurants and retail/office land uses. Traffic volumes are fairly heavy throughout the day along this corridor. Use of protected/permissive left-turn phasing is predominant along 17th Street. Several unsignalized pedestrian crosswalks are located along the project corridor. Development of coordination timings would need to balance the needs of local traffic use, the high turning traffic volumes at Newport Boulevard, and residential traffic from Irvine Avenue and Dover Drive. Timings at the City controlled signal at 17th Street/Superior Avenue would need to be carefully evaluated to minimize queuing on 17th Street due to the close proximity of the Caltrans signal at Newport Boulevard.

The RFP for the proposed project has a defined Scope of Work which identifies specific tasks to be conducted by the consultant. These tasks include overall project management; assessment of traffic signals and arterial network conditions; preparation of a concise Design Report Memorandum for suggested ITS elements; design and preparation of plans with appropriate specifications for the construction/installation of new and/or upgraded traffic signal control and communication hardware and software; construction and construction management; system integration; development, implementation, and fine-tuning of coordination timing plans; providing and installing a licensed copy of the Synchro 8 program to both Costa Mesa and Newport Beach (as part of the Baker Street/Placentia Avenue Corridor Project); providing ongoing monitoring and maintenance of timing and communication for three years; and preparation of a final report discussing all components of the project. It is important to note that, pursuant to requirements presented in the RFP, this project will be conducted as a "Turn-Key" project, i.e., AGA will be completely responsible for all components of the project as identified above. The AGA Project Team members have discussed this Turn-Key project extensively and have agreed on the following project approach, which is based in general on the RFP; the Orange County Traffic Signal Coordination Program that AGA prepared for OCTA; the Citywide Traffic Signal System Master Plan for Costa Mesa; discussions with traffic engineering personnel of participating cities and Caltrans; and our previous experience in designing, installing, operating and maintaining many multi-jurisdictional interconnected traffic signal systems. Specifics of our approach are based on our recent project experience developing, implementing, fine tuning and monitoring multi-jurisdictional coordination traffic signal timing plans on Euclid Street, Orangethorpe Avenue, and Chapman Avenue, which we conducted for OCTA; and on our specific knowledge of the signal system hardware and software particulars for the cities participating in the projects that we have acquired via our previous citywide and/or multijurisdictional coordination timing projects for both cities.

It is important to recognize that effective traffic signal synchronization consists of appropriate traffic signal infrastructure, optimum intersection capacity, coordinated signal timing, and the maintenance, upkeep and monitoring of this integrated system to ensure that the capacity gained with the initial inter-jurisdictional coordinated system is continued on a long-term basis. AGA proposes to apply this effective approach to traffic signal synchronization while conducting the three corridor projects in order to ensure ongoing benefits for motorists in the Costa Mesa region.

Key strategies available with AGA to create effective traffic signal synchronization include:

- The use of a common time source to synchronize systems clocks time-of-day between each agency's systems, i.e., the use of GPS or WWV time source at each system for accurate time of day.
- The use of a common signal system background cycle length when developing optimized coordination traffic signal timings between jurisdictions.
- The development, implementation, and fine-tuning of optimized signal timing parameters based on prevailing traffic patterns.
- Recognizing the multi-agency common goal of increasing arterial thru-put capacity with reduced stops and delays.
- Achieving improvements in arterial traffic carrying capacities, such as those achieved via traffic signal modifications or minor roadway striping changes.
- Obtaining cooperation and support from cities and Caltrans.
- The use of upgraded signal controllers/assemblies and software and integration with the respective agency central systems to improve efficiencies;
- Providing CCTV traffic surveillance cameras at selection locations.
- Upgrading traffic signal and signal communications (fiber optic, wireless etc.,) along the project route;
- Providing additional fine-tuning and monitoring of signal timings to ensure arterial capacity gains with traffic signal synchronization are sustained on a long-term basis.

The provision of upgraded controllers and communication systems, and integration with the central systems, are very essential for implementation and achievement of optimized coordination signal timings on the three corridors, as well as providing the ability to monitor and fine tune timings on an on-going basis. A key component of AGA's services is to ensure that all of these components are implemented and function as designed in order to maintain the resulting significant benefits.

Each of the agencies along the three corridors operate and maintain independent traffic signal systems. Costa Mesa utilizes the MIST system, which also functions as the front end of the VMS central control system, which the City is phasing out over time. Costa Mesa is shifting to Econolite ASC/3 controllers, which can connect directly to the MIST system via Ethernet communication with Internet

Protocol. CCTV cameras are in place at various locations. The City of Huntington Beach utilizes the QuicNet system as their central control with 170 signal controllers, while Newport Beach has a Centracs central control system and Econolite ASC3 controllers.

The project, in general, consists of providing communication and signal timing/coordination improvements at 47 signalized intersections along the three corridors. As noted, the project will be conducted as a "Turn-Key" project, i.e., all equipment design/purchase/ installation/construction/operation will be provided by the AGA Team, including coordination timing plan development, implementation, fine-tuning and assessment. All cost allocations will be the direct responsibility of the Turn-Key Manager (AGA).

AGA staff experience in integrating the central system hardware (computer servers, workstations, Ethernet switches, modems, port servers, GPS servers) with field elements including interfacing with traffic signal system vendors, communication systems specialists and respective agency Information Technology staff will be key to project success. Additionally, due to our on-going signal system monitoring projects with various agencies, AGA is fully knowledgeable of each of the systems' complexities and key interrelationships of hardware, software, and people.

The following is our detailed Scope of Work for this project.

AGA's results-oriented leadership is key to our management approach and our proven record of project success.

## Project Management

Mr. Chalap Sadam, P.E., T.E., will be AGA's Project Manager for this Project. He will be responsible for adherence to the project schedule and, along with Mr. Al Grover, for maintaining quality control of all project work products, project budget control and invoicing, tracking of project schedule, regular project updates and progress reports, agency comment dispositions and document control and filing.

It is anticipated that all components required to achieve an operating system, including City review times, can be completed within eight months of receipt of notice to proceed, and that the Final Report can be submitted within one year of receipt of notice to proceed, with the three year monitoring and maintenance period to follow. Our preliminary project schedule is included as **Figure 2**. This schedule is based on an assumed Notice to Proceed date of April 1, 2013. Upon receipt of the actual Notice to Proceed, and prior to the project Kick-Off Meeting, AGA will prepare a more detailed project schedule that includes actual start dates, activity durations, product submittal dates, etc., including agency review times.

Agendas and minutes will be prepared before/after all meetings and provided to all meeting attendees. Mr. Sadam's extensive experience in conducting forums and in dealing with traffic engineering problems and political concerns, as viewed from both a consultant's and a city's perspective, will be invaluable in providing guidance for this project. Additionally, our involvement in signal

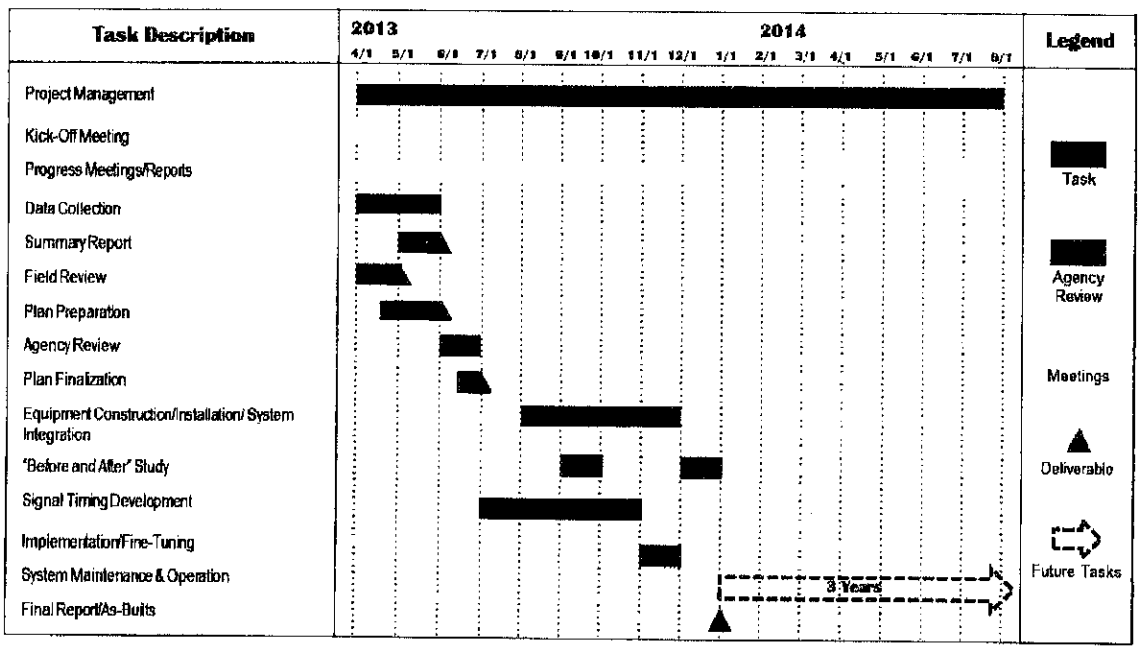



**Figure 2: Costa Mesa Three Corridors Turn-Key Project Schedule**

coordination projects for La Habra, Fullerton, Buena Park, Huntington Beach, Fountain Valley, and most importantly, Costa Mesa provides us a good background for understanding agencies' concerns.

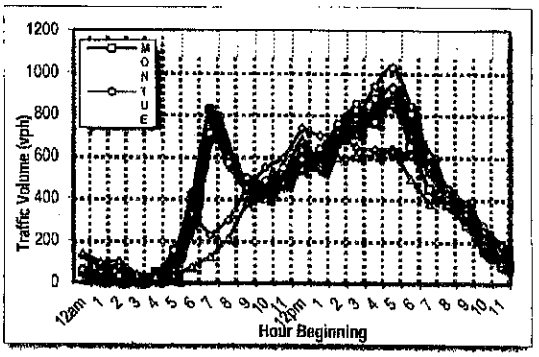
AGA will conduct a project kick-off meeting with all participating agencies to discuss project objectives, scope of work, project schedule, required cooperative agreements, and various budget factors. As this meeting sets the stage for the entire project, our Project Manager (Chalap Sadam), Design/Construction Task Manager (Mark Miller), and Timing Plan Task Manager (Greg Wong) will all attend the meeting. Additionally, AGA will contact the City of Costa Mesa, the City of Newport Beach, the City of Huntington Beach, and Caltrans individually to understand any specific needs or issues/concerns related to this project.

In addition to the Kick-Off Meeting, regular bi-weekly meetings will be held with Costa Mesa staff (and, as appropriate, with the participating cities and Caltrans) during the design and construction phases of the project, and quarterly meetings held during the monitoring and maintenance phase of the project.

Deliverables will include updated project schedule, presentations and meeting attendance, supporting meeting/presentation materials, agendas and minutes, and bi-weekly project reports.

## Data Collection

It is important to obtain all appropriate data elements that are required for the design of various signal system and interconnect communication improvements and the development of optimal coordinated signal timing. Such items include as-built roadway, signal, and communication plans; aerial photos; signal timings and agency preferences; data to better understand prevailing traffic conditions; traffic patterns and peaking characteristics; usage and magnitude of vehicular traffic as well as pedestrians and bicycles; school area traffic; high intensity retail traffic; and any unusual traffic patterns that may be governed by special uses such as with area churches or major parks on the weekends. The following data will be collected:




- Existing signal timing sheets and existing coordination timing plans for the three project corrdors as well as any crossing arterials; as-built roadway, communication and signal plans; aerial photos, maps and collision diagrams; speed data; and any available traffic counts.
- Agency preferences related to signal timing – lead/lag phasing, minimum left-turn splits, cycle lengths, use of preferred or conditional service, coordination time periods, full actuated vs. semi-actuated coordination, use of pedestrian override, weekend coordination, and local timing parameters (Walk, pedestrian clearance, yellow, all red, gap and extension timing).
- Average Daily Traffic 24-hour counts at various critical locations throughout the corridors, because traffic patterns will not be constant throughout the corridors and may change at major cross streets and in the immediate vicinity of freeway interchanges. Additionally, graphs will be developed that show hourly traffic volume variations for weekday and weekends, and by location. A sample hourly traffic volume variation chart is shown on the right.
- Available daily traffic counts from local agencies for all major crossing arterials that have a bearing on corridor traffic flow patterns.
- Information from local agencies on any construction activities on project corridors and other streets in the immediate vicinity.
- Two-hour peak period turning movement counts for the weekday (AM, midday and PM) and weekend (midday) at key project intersections. Additional traffic counts will be collected at school areas where the school closing times may not coincide with typical peaks. In addition, traffic counts will also be collected at major shopping areas, and in the vicinity of other special traffic generators. Additionally, the number of pedestrian and bicycle users, as well as the number of pedestrian actuations occurring by crosswalk, will also be collected. AGA's experienced signal timing engineers will evaluate the above data elements and provide an assessment of prevailing traffic patterns and conditions on the project corridors.

Deliverables will consist of a report summarizing all data collected, including turning movement counts, 24-hour traffic volumes, and drawings of intersection lane geometric features. Separate reports will be prepared for each corridor.

## Field Review

In the development of signal system/ interconnect communication improvement plans and coordination signal timing plans, it is imperative to have appropriate intersection geometrics, signal phasing, arterial link speeds, an understanding of existing traffic signal system and communication equipment and its capabilities, knowledge of closely spaced intersections and its impact, location of major traffic generators, an assessment of existing traffic conditions and any deficiencies at any of the project intersections and along the project corridors. For this project, the field data inventory will be directly overseen by AGA's Project Manager so that the prevailing conditions in the project area are better understood.

The AGA Team will collect field data in sufficient quantity to identify existing deficiencies, existing system capabilities and operations. Using data collected as a starting point (including as-built plans and aerial photos), and with input from the cities and Caltrans, the AGA Team will conduct extensive field reviews throughout the project corridors to identify and assess all components that affect signal coordination, including:

- Intersection lane geometrics, including number, usage of each lane; length of left/right turning lanes; distance between signalized intersections; and corridor lane configurations and lane widths, as appropriate.
- Existing signal operation characteristics – signal phasing, cycle lengths, protected/permissive left-turn operation (including first car detection vs. queue detection), lead-lag phasing, right-turn overlap phasing and U-turn restrictions.
- Traffic signal controller and cabinet type, make, brand, software & version; interconnect equipment, telemetry, modems and switches; maintenance condition of traffic signal equipment including controllers; time referencing setup and daily time clock drift.
- Digital photos of equipment inside traffic signal cabinet and identification of any deficiencies.
- Special characteristics such as proximity to adjacent intersections and any senior centers; presence and location of bus stops (near-side vs. far-side); location of driveways; on-street parking, parking maneuvers, and parking restrictions; adequacy of left-turn and right-turn storage; intersections with high volumes of pedestrians and bicyclists; areas with high volumes of trucks and buses; high volume un-signalized intersections; and impact of freeway access points on the project corridors and in the immediate vicinity on cross streets.
- Over-saturated intersections and measures to improve operations; uneven lane distribution, including impact to saturation flow rate due to a lane drop within a few hundred feet of the intersection; unbalanced traffic distribution of a dual left-turn lane resulting in lower saturation flows; and observations for queuing and queue spillovers, including potential lane blockages.
- Traffic signal detection, both stop bar detectors and advance detectors, their timings and maintenance status; pedestrian push buttons and condition; sensitivity and settings of video detection, particularly for false calls or even dropped calls; and any unusual recall phases and reasons thereof.
- For intersections that may require minor intersection geometric changes or signal modifications, AGA will conduct a detailed Highway Capacity Manual based capacity, timing and queuing analysis to determine appropriate improvements.

## Design Report

Based on our previous projects with the City of Costa Mesa, and the numerous ITS Projects we have implemented over the years, we have developed a comprehensive understanding of available ITS technologies in the market and their applicability in the City of Costa Mesa. Additionally, as a part of the Citywide Traffic Signal Master Plan, we have identified specific improvements that need to be implemented to upgrade the City system. These include the development of two fiber optic core rings that will serve as a communication backbone for the citywide system, parts of which were designed and implemented as a part of Harbor Boulevard TSS Implementation Project. In evaluating what specific improvements will be implemented on the Baker Street – Placentia Avenue Corridor, Victoria Street Corridor and the 17th Street Corridor, AGA intends to take a holistic approach by combining resources from these and other City projects and leveraging existing traffic signal system infrastructure to develop cost effective solutions. Our evaluation and recommendations will be summarized in a design report and presented to the City. Items that will be addressed include:

Traffic Operations Center: Addition of second Brocade Layer 3 Router & Switch; addition of video server; integration of CCTV video and video display systems; use of analog or digital video and encoders/decoders; addition of Ethernet channels in the MIST central signal system; addition of intersection graphics; and complete integration of systems.

Controllers/Cabinets: Identify cabinets that need to be replaced; reuse of certain existing cabinets with new communication D panels; installation of new Econolite ASC/3 controllers;

Fiber Optic Interconnect: Reuse of existing conduits for fiber installation; upgraded pull boxes at specific locations; fiber distribution and splicing; fiber routing to expand the communication core rings and lateral distribution network;

Ethernet Switches: Use of Gigabit Ethernet fiber switches at hub locations; use of 100Mb Ethernet fiber switches or Ethernet copper switches as appropriate for distribution;

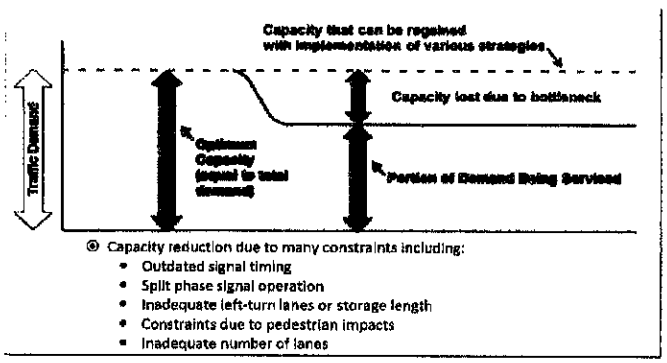
CCTV Cameras: Use of dome versus traditional CCTV cameras; high resolutions HD cameras; analog versus digital; video encoders; and integration with existing systems;

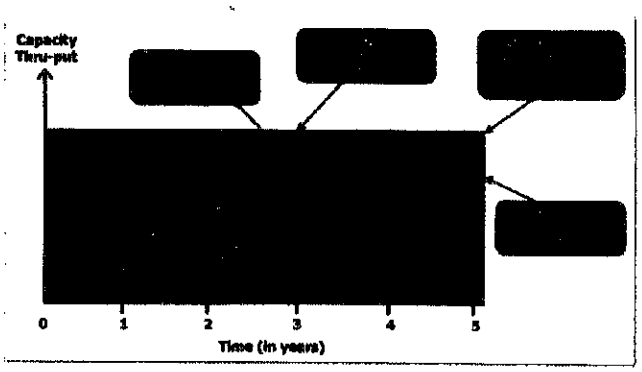
Additional items such as the potential use of City Yard as a secondary communication hub with separate Brocade Layer 3 Communications to supplement the City system will also be evaluated and addressed in the design report.

Additionally, to improve traffic operations along the project corridors, the AGA Team will identify any traffic signal equipment or operational deficiencies, including minor lane striping or signal phasing modifications, removal of split phasing, on-street parking restrictions etc., and provide recommendations with simple low-cost solutions that can be quickly implemented. AGA will also identify all planned and programmed improvements (widening projects, intersection modifications, etc.) along the study corridors that could impact operations, including identifying when such improvements are scheduled to occur.

AGA recognizes that while traffic signal coordination, with supplementary infrastructure improvements and alleviation of bottlenecks, helps in traffic flow conditions, it is equally important to monitor and maintain coordinated timing so as to sustain the increase in capacity on a long-term basis. Two graphics below help illustrate this necessity. The figure on the left shows the impact to arterial capacity due to bottlenecks – constraints that may be due to inadequate left-turn lanes or storage length, split phasing, pedestrian timing constraints, and outdated or even improper timing or unnecessary signal phases. Additionally, the figure on the right illustrates the reduction in arterial traffic carrying capacity if signal timings are not actively monitored or updated with changing traffic volumes.

Deliverables will include a Design Report Memorandum (i.e., summary report) documenting the field review including recommendations for short-term improvements.




## Improvement Plans Preparation

Based on data collected and the Field Review conducted, AGA will develop plans, specifications, and cost allocations as required for our Turn-Key Team's installation of new and/or upgraded traffic signal control and communication equipment and various other ITS elements as specifically detailed in the RFP for this project. Separate plans will be developed on a corridor-by-corridor basis.

Figure 3 graphically displays all three project corridors and identifies which signals along the corridors are controlled by the various agencies. Figure 3 also displays the locations of Costa Mesa's fiberoptic core rings, key components of the overall traffic signal control and communication infrastructure, and a schematic diagram of the City's Traffic Operations Center, including the proposed video server.

Plans for improvements in each city will be prepared by AGA in accordance with City requirements. Construction of all improvements identified on both sets of plans will be part of AGA's Turn-Key responsibility.

The development process for the Turn-Key plans, which in essence will resemble typical plans that would be prepared for an Encroachment Permit, will include utility company reviews and be prepared on 24"x36" mylar sheets, signed and sealed by Mr. Mark Miller, a California licensed Civil Engineer. Detail drawings will be at a 1" = 20' scale. All plans will be prepared and submitted in AutoCAD format. Because of the Turn-Key nature of the project, formal cost estimations will not be provided but, rather, costing will be included in a spreadsheet format detailing the total project costs of all engineering, hardware, software and installation.

Deliverables will include preliminary and final construction plans with appropriate specifications and cost allocations.

### Equipment Construction/Installation/System Integration

Based on the approved plans, the AGA/Crosstown Team will construct/install all new signal controllers, other signal improvements, communication equipment, CCTV cameras and all other ITS components throughout the three corridors. While each individual agency will provide actual inspection services for all work done in their jurisdiction, AGA will provide overall system integration and construction management services. Additionally, for the newly interconnected traffic signals, AGA will assist in Internet Protocol (I/P) communications scheme and addressing for Ethernet communication systems.

Deliverables will include new equipment and system integration and construction management services and, for the Baker Street/Placentia Avenue corridor, two licensed copies of Synchro 8 software – one each for Costa Mesa and Newport Beach.

### "Before and After" Study

The AGA Team will conduct a "before and after" travel time and delay field study for the each corridor for each peak period for which coordinated timing plans are developed. Measures of Effectiveness (MOE) parameters, which will provide a quantitative basis for determining coordination benefits, will include stops, delays, travel times, reds versus greens, average speeds, fuel consumption, and emissions. MOE's will be compiled using Synchro and TruTraffic software and field measurements using the floating-car technique. According to the floating-car technique, the driver floats with the traffic by passing only as many vehicles as pass the test car. A minimum of three floating car runs will be conducted for each direction for each coordination time period.

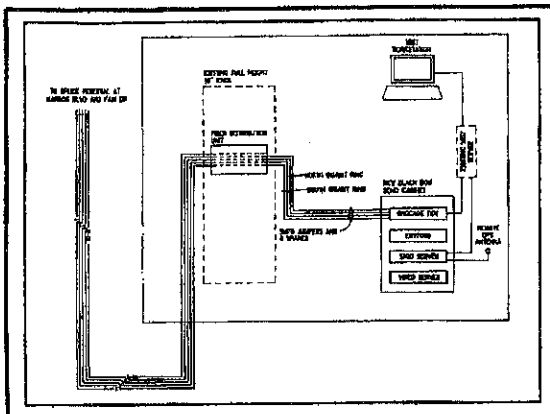
As shown on the Project Schedule (Figure 2), "before" studies are planned to be conducted prior to the completion of construction of various signal system and interconnect communication improvements, and "after" studies conducted after construction, system integration, and new timing plan implementation are completed.

Deliverables will include a Memorandum with the results of the "before" and "after" studies.

### Signal Timing Development

AGA's approach to several key components of the signal timing plan development process is detailed in the following sections.
**Arterial Link Speeds:** AGA proposes to field measure link speeds for signal coordination using the floating car technique. This field measurement is crucial for determining proper and effective coordination between signals.

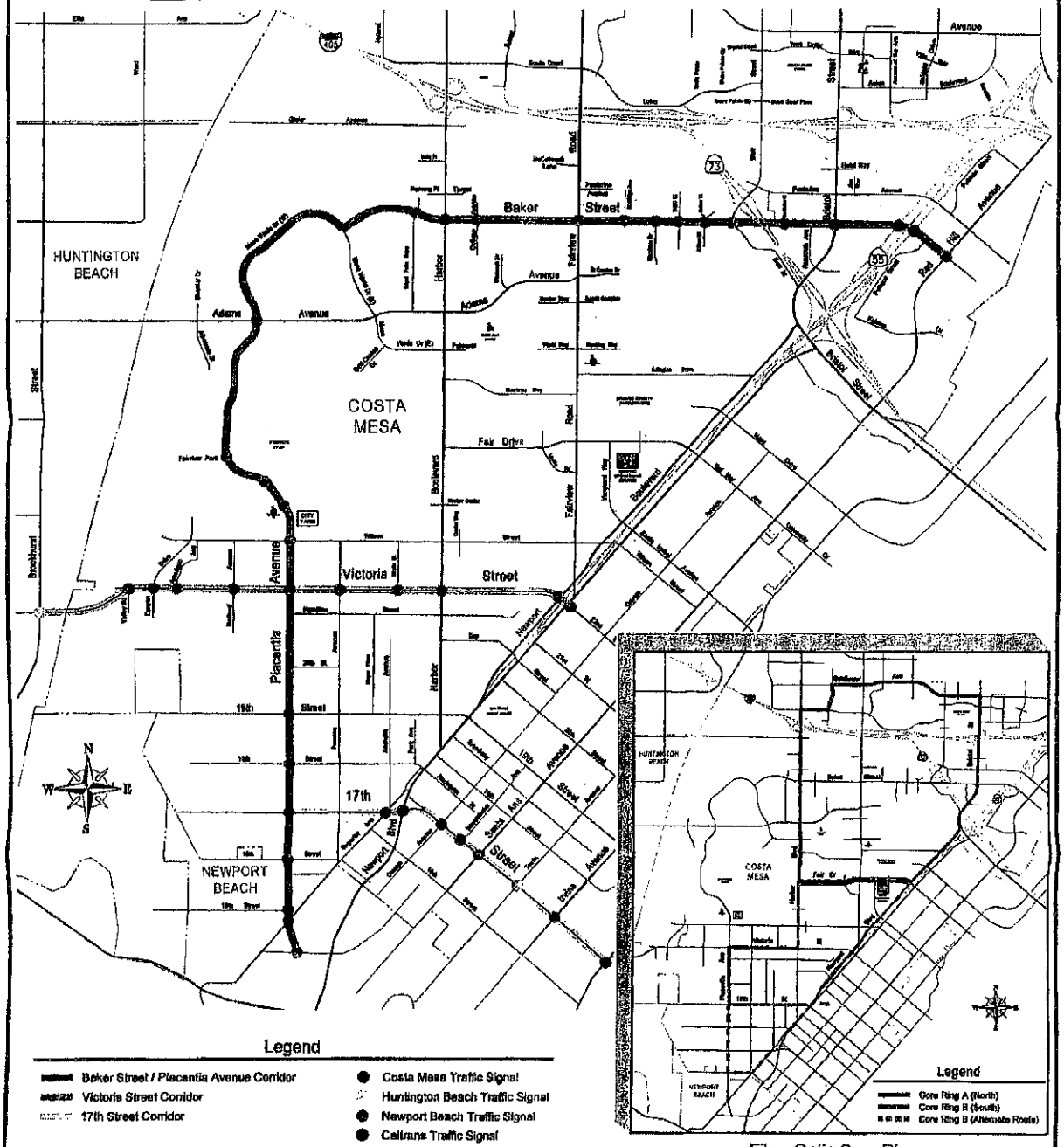
**Saturation Flow Rate Measurements:** AGA proposes to field measure saturation flow rates at several critical locations along the project arterial. These measured values are then used to determine accurate capacity values, which is key to developing efficient signal progression.



Traffic Operations Center

City of Costa Mesa

***Baker Street/Placentia Avenue Corridor***
***Victoria Street Corridor***
***17th Street Corridor***




Legend

- Baker Street / Placentia Avenue Corridor
- Victoria Street Corridor
- 17th Street Corridor
- Costa Mesa Traffic Signal
- Huntington Beach Traffic Signal
- Newport Beach Traffic Signal
- Caltrans Traffic Signal




Fiber Optic Core Rings

ALBERT GROVER & ASSOCIATES

Figure 3

**Signal Timing Software:** Various signal timing analysis and simulation software programs - Synchro, SimTraffic, Webster and TruTraffic programs will be used for this project. AGA proposes to utilize Synchro in addition to other signal timing optimization programs in an interactive manner. The TruTraffic program, a leading industry tool, will be used to prepare time-space diagrams. SimTraffic, a traffic simulation software, will be used at specific locations such as closely spaced intersections with blocking problems or lane change problems, or at congested intersections with large turning movement volumes. Micro simulation analysis programs allow for evaluation of capacity starvation or queue spill-over impacts, evaluation of unusually high turning movement volumes, use of lead-lag left turn phasing, etc.

**Cycle Length and Timing Analysis:** Before developing any timing plans for project intersections, AGA will analyze the complete network to determine system cycle length requirements and subsystem requirements. Every attempt will be made to minimize the number of subsystems required throughout the project area to maximize the benefits of coordination (reduced delay, stops, fuel usage, mobile source emissions, etc.). AGA will also consider existing coordination on many of the crossing arterials. The system cycle length determination is extremely critical, as the cycle length must be minimal to achieve maximum benefits. AGA will identify critical intersections area-wide, and perform detailed capacity/delay analyses using sophisticated delay optimization routines to help establish system/subsystem cycle lengths. When system cycle lengths are arbitrarily selected rather than minimized and optimized, complaints often arise from local side street traffic because of their increased waiting time.

> AGA's experience and expertise in integrating synchronization of project routes with crossing arterials has proven critical to success on previous corridor projects.

Various signal timing programs will be used to help calculate the signal timing information including cycle lengths, splits, phase sequences and offsets for signalized intersections along each corridor to maximize arterial progression and to reduce delay. The different traffic flow conditions will be analyzed and timing plans will be developed accordingly. The optimization will include the analysis of progression based on optimum phase sequences (leading lefts, lead/lag, etc.) to provide the best arterial progression. The results of the progression analysis will be shown on time-space diagrams. The timing analysis will evaluate queue lengths, stops and delays resulting from the impacts/benefits of coordination.

Understanding the traffic patterns, the intersection capacities, natural barriers, and what is optimum given the characteristics of a certain time period, are all important when evaluating if local, arterial or system-wide optimization is desired. Serving the needs of pedestrians is a significant component of timing analysis. Knowing the number of pedestrians helps in defining if appropriate Walk time is being provided, such as in school and downtown areas; knowing how many pedestrian actuations are occurring in a time period will help define if the pedestrian override feature may be deployed to help maximize arterial progression. Proper allocation of left-turn splits is important to avoid excessive queues that may block thru traffic. The potential use of protected/permissive left turn (PPLT) phasing can also effectively improve traffic operations at selected project intersections. After careful review of traffic patterns, elimination of minor deficiencies and assessment of available capacities, AGA will conduct an arterial bandwidth requirement analysis before time-space diagrams are generated so that the timing plans can accommodate the prevailing traffic volumes for each time period.

**Lead/Lag Phasing:** Another factor that will influence the development of coordination timing plans for the project arterials involves lead/lag phasing at protected left turn locations. AGA will investigate the potential use of such phasing. Primarily, it provides for wider bands and allows for progression with both thru and left turn movements. Without lead/lag phasing, left turns are typically NOT coordinated and queues will be longer, so lead/lag phasing can help when pockets are short. The use of time-space diagrams help indicate when lead/lag phasing may be appropriate. AGA's experienced staff will carefully review the actual need for lead/lag phasing at minor intersections and will minimize its usage for better efficiency of actuated operation.

We will also carefully analyze queuing, especially for left turn pockets to ensure that left turn demand does not overflow and block thru traffic, thereby disrupting traffic progression. Adequate time will be provided to the left-turns both to avoid queue spill-over and minimize resident complaints.

**Local Factors:** Knowledge of key local factors, such as the location, operating hours and peak flow conditions related to periods of high commute traffic; various area schools (such as Orange Coast College and various elementary, intermediate and high schools); the Orange County Fair Grounds, Fairview Park and Talbot Recreational Area, which are all significant traffic generators on weekends; Hoag Hospital; South Coast Plaza, etc., are all very important in preparing timing plans. AGA's knowledge of such local factors, combined with input from the cities and Caltrans, will greatly enhance our ability to develop the most appropriate timing plans. Additionally, attention must be given to any crossing that may be interconnected and coordinated when establishing logical break points, if such break points are required.

Consideration will also be given to local streets when developing the cycle lengths, to avoid unnecessary delays to local residents and pedestrians. The side street delays will be kept to a minimum by the usage of double cycle or half cycle where feasible.

AGA will also determine if minor modifications to existing signal operations and striping layouts would improve the level of service at project intersections. Such modifications could include converting split-phase operation to standard leading left turn operation, adding a right turn lane at selected intersections, etc.

**Timing Plan Deliverables:** The RFP requires that coordinated timing plans be developed for the AM, midday and PM weekday traffic conditions, nighttime conditions, and typical weekend midday conditions. The weekend timing plans are especially important in shopping areas and near high-use recreational areas. Historically, one timing plan was typically used for each time period, say one AM plan for 6:30am to 9:00am on a weekday; however, traffic may not be constant throughout this period, but may peak for an hour. Arterial speeds also concurrently vary with the traffic volumes. Because coordination offset is a function of arterial travel speeds, one timing plan with a set speed will not be adequate. The changing speeds, within a time period, warrant different offsets so that a platoon of vehicles can progress without interruption. AGA recognizes this and will provide several additional timing plans over and above those required in the RFP so as to move the traffic as efficiently as possible along each corridor throughout the day, and not be constrained with a limited number of plans that are tailored only for certain traffic conditions. Time-of-day schedules (the appropriate start time for each plan) will be developed based on field observations, 24 hour traffic counts and input from City and Caltrans staff.

After initial development of all signal timing plans, they will be submitted to the appropriate city and/or Caltrans for review. Plans will be revised as required, and any necessary new controller timing sheets will be developed. These revisions are typically minimized because AGA will already have reviewed and manually optimized all timing plans. Time-space diagrams will be prepared for all timing plans, to aid in the review process and to graphically document the finalized timing parameters.

### Implementation and Fine Tuning of Timing Plans

One area where experience with various controllers and central system software is very important is during the implementation of coordination timings. Certain systems, such as the Type 90 (Multisonics VMS System, Econolite, etc.) require phase splits in percent of cycle or in seconds. Eagle SEPAC controllers require coordination timing splits in seconds. Model 170/2070 controllers with BiTrans McCain program require force-offs. The new Caltrans Traffic Signal Control Program (TSCP) for Model 2070 controllers allows the use of green factors or phase force-offs for implementing coordination timing. Similarly, the coordination offsets are referenced differently on various systems, such as at the beginning or end of coordination phase green, and refer to either ring 1 phases or ring 2 phases. Other system and/or controller intricacies, such as the mechanism to accomplish lead/lag phasing, proper phase permissive times, yield points, etc., are all important for successful signal coordination implementation.

> AGA's hands-on experience with a wide variety of controller types and central system software greatly facilitates our implementation of timing plans.

Based on our extensive experience with various systems, AGA will develop customized coordination timing sheets that are controller specific. These customized sheets will eliminate the implementation errors that are typical when software program output is implemented directly on different signal systems. Given the difference in hardware and software systems used by various agencies, development of controller specific timing sheets is critical. AGA will implement timing plans at all Costa Mesa and Huntington Beach controllers and work directly with Caltrans in the field to implement timing at the Caltrans signals. We have done this on many other projects with Caltrans. Implementation at Newport Beach intersections will be conducted by Newport Beach staff. Each timing plan will identify cycle lengths, splits and offsets for all signals along each corridor, and will identify start times and end times of each timing plan.

The new timing will be observed in the field, and will be tested for a minimum of two weeks. Working in conjunction with City and Caltrans staff, adjustments to the timing will be made as necessary and revised timing plan data files will be prepared. After final timing plans are approved by the cities and Caltrans, final Time-Space Diagrams will be prepared and provided for each time of day timing plan. All Synchro data files and other electronic files, including a memorandum documenting the signal timing optimization and implementation, will be provided.

System fine tuning is generally defined as ensuring that the entire system is functioning as a whole, that is, as an inter-jurisdictional multi-agency coordinated system. Our proposed fine tuning of project signals includes the following components: (a) Review of system

functions, (b) Driving of the system signals to visually review the coordination effectiveness, (c) Communicating with responsible maintenance technicians, and (d) Minor modifications of splits and offsets to respond to traffic fluctuations.

Deliverables will include optimized and synchronized traffic signal timing plans and field implementation of optimized traffic signal plans including all required fine-tuning.

### System Maintenance and Operation

System maintenance and operations is generally defined as ensuring that the entire system is functioning as a whole, that is, as an interjurisdictional multi-agency coordinated system.

Communication between a central system and signals will be monitored along the corridor to ensure necessary conditions for signal synchronization. A variety of methods will be used to monitor, maintain, and repair both communications and detections along the project corridor. The upkeep of communication systems and detection systems will be completed working in conjunction with the respective agency signal maintenance staff. A number of techniques will be used including regular drives along the corridors, analysis of central system report output, and discussions with respective agency staff.

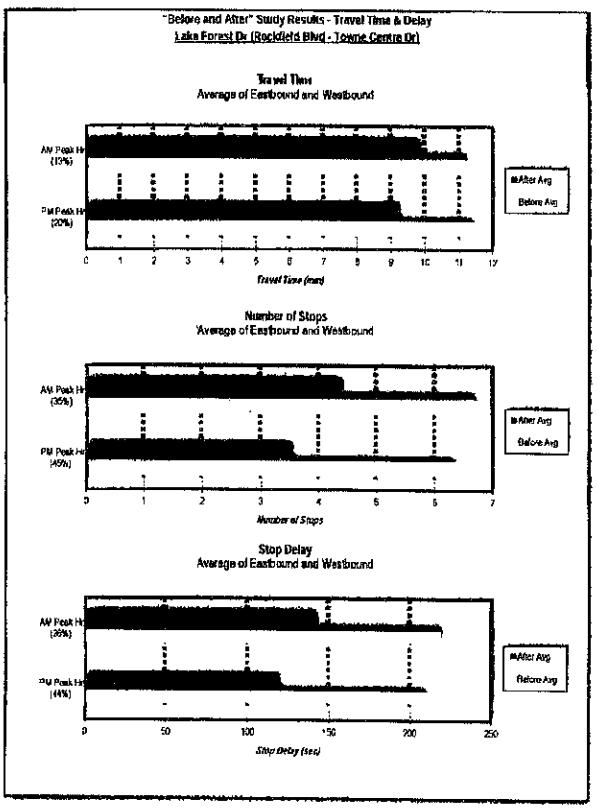
AGA will support the cities and Caltrans staff in the operation of the system, and will provide continuous monitoring/optimizing of system timing of all project intersections for three years following implementation of signal timing plans to further fine tune the system and modify the plans as needed. This will consist of monitoring of the systems from our offices (via telephone modems or VPN) combined with extensive field reviews. This three year operational period will not officially start until coordination timing plans have been implemented.

Deliverables will include revised signal timing plans and a memorandum documenting the changes.

### Project Report/As Built Plans

AGA will prepare a Final Timings and Evaluation Technical Report with an executive summary. The final report will provide a complete documentation of the project, including project objectives, scope and location, findings and recommendations, implementation schedule, improvements accomplished, and procedures for continuing maintenance, surveillance, and evaluation of the coordinated signal system. In addition, the report will include a summary of work performed, data collected, "before" and "after" studies and project benefits achieved in terms of fuel savings, travel time reduction, emissions reduced including Green House Gas (GHG) and other measurable parameters. Project results will also be summarized in the OCTA required Corridor Synchronization Performance Index (CSPI). The report will also include for each project intersection the lane configurations, signal phasing, turning movement data, and cycle lengths for existing and proposed timing for all peak periods. In addition, in a separate binder, all the traffic signal phase sequences, signal timing plans, time-space diagrams, and pedestrian timings will be documented. As-Built plans for all constructed improvements will also be prepared and provided to the appropriate agency. AGA will present the project results at a City Council Study Session and at an OCTA ITS Roundtable meeting.

Deliverables include a Traffic Signal Synchronization Final Report and as-built plans for all constructed improvements.



# APPENDIX A

## Resumes of Key Personnel

ALBERT GROVER & ASSOCIATES

# Chalap K. Sadam, P.E.
## Vice President

### EDUCATION

Master of Business Administration
University of Southern California
Los Angeles, 2002

Master of Science, Civil Engineering (Transportation)
Virginia Polytechnic Institute & State University, Virginia 1990

Bachelor of Engineering, Civil Engineering
Jawaharlal Nehru Technological University
India, 1988

### PROFESSIONAL ASSOCIATIONS

American Society of Civil Engineers
Institute of Transportation Engineers
Intelligent Transportation Systems Council
Transportation Planners Council
Southwestern Region Transportation Model Users' Group
The Urban and Regional Information Systems Association

### PROFESSIONAL REGISTRATION

Registered Civil Engineer in California
CE # 74080
Registered Traffic Engineer in California
TE # 1813

### PROFESSIONAL EXPERIENCE

Mr. Sadam joined Albert Grover & Associates in 1993 as a Transportation Engineer, and provides expertise in the preparation of traffic impact studies, development of transportation planning models to evaluate long range impacts, development of signal coordination master plans, preparation of traffic signal coordination timing plans, design and operation of traffic signal systems, design of intersection improvement plans, traffic signal interconnect plans and Intelligent Transportation System (ITS) plans, traffic accident analysis and recommendation of mitigation measures, and the preparation of freeway interchange feasibility studies and Major Investment Studies (MIS). Mr. Sadam has completed numerous traffic impact and transportation planning studies in Southern California.

Mr. Sadam's additional experience includes in the development of traffic circulation studies and corridor studies, signal synchronization feasibility studies, parking feasibility studies, street lighting master plans, speed studies, traffic engineering software development and project management. Computer skills include experience in the usage of transportation planning and traffic engineering software such as Synchro, Tranplan, Transyt-7F, Passer-II, Passer-IV, HCS and WEBSTER. Mr. Sadam is also familiar with relational database management systems and has used Microsoft Access and Oracle databases along with programming languages such as Visual Basic and C/C++. His expertise includes experience and education in Geographical Information Systems (GIS), and he has extensively used ArcView and ArcCAD GIS software.

Mr. Sadam was instrumental in the development of a microscopic air quality emissions model to quantify the reduction in pollution due to traffic signal coordination. Mr. Sadam was also responsible for the development of AGA's Time-Space Diagram routine using Autolisp in AutoCAD. Additionally, Mr. Sadam developed a computer program based on NCHRP-255 procedures, which predicts future turning movements using link volumes from transportation planning models. Prior to joining AGA, Mr. Sadam was a Transportation Engineer with Mohle, Grover & Associates for four years.

The following is a brief listing of some of Mr. Sadam's projects:

- OCTA Euclid Street Signal Synchronization Demonstration Project and Chapman Avenue and Orangethorpe Avenue TLSP Projects.
- Tier-1 and Tier-2 San Bernardino Valley Coordinated Traffic Signal System Design, Implementation and Management of 650 signals in 15 cities.
- OCTA Bus Rapid Transit and Traffic Signal Synchronization Project on Harbor Boulevard and State College Boulevard.
- Orange County Traffic Signal Coordination Program.
- I-405 Freeway (SR-73 to I-605) Major Investment Study and subsequent PSR/PDS and PA/ED in Orange County.
- Orange County and Southern California Regional ITS Architecture
- San Bernardino Valley Coordinated Traffic Signal System Plan, San Bernardino Associated Governments.
- Coachella Valley Signal Synchronization Feasibility Study, Coachella Valley Association of Governments.
- Fullerton Year 2020 Traffic Projections and Identification of Long Term Roadway Improvement Study.
- Bolsa Chica Corridor Capacity Augmentation Study.
- Indian Canyon Drive, One-Way to Two-Way Conversion Traffic Study, Palm Springs.
- Citywide Transportation Study and Developer Fee Program, Montclair.
- Yuma Drive/I-15 Freeway Interchange Feasibility Study, Norco.
- Soledad Canyon Road Traffic Flow Improvement Study, Santa Clarita.
- Travel Demand Forecasting Models - Cities of Colton and Montclair.
- Lancaster Citywide traffic signal coordination project, which involved coordinating 85 signals on ten crossing arterials.
- Traffic signal synchronization of 260 signals on 22 crossing arterials in the Cities of Fountain Valley, Garden Grove, Huntington Beach, Seal Beach and Westminster.
- Multitude of traffic signal system design and signal coordination projects throughout Southern California.
- Traffic signal synchronization of 113 signals on eight arterials in the Cities of Chino, Montclair, Ontario, Upland and the County of San Bernardino.
- Street Lighting Master Plans for Beverly Hills, Baldwin Park, and Orange.
- Pavement Management Program for Beverly Hills.
- Accident analysis and improvements, separate studies in the Cities of Baldwin Park, Downey, Inglewood, La Habra, Montclair and Palm Springs.

## PAPERS/PRESENTATIONS

**"San Bernardino Valley Coordinated Traffic Signal System – Implementation of Tiers 1 and 2"**
Presented at ITE Annual Conference, Anaheim, California, August 2008

**"Orange County, California's Traffic Signal Coordination Program"**
Presented at ITE District 6 Meeting in Portland, Oregon, 2007

**"Measures to Mitigate Impacts Associated with Temporary Closure of a Major Intersection in Orange County"**
Presented at ITE District 6 Annual Meeting, Honolulu, Hawaii, 2006

**"Developing Coordination Signal Timing Using Software as a Tool"**
Presented at ITE Southern California and RSBTEA Seminars, 2002

**"Development of Traffic Signal Coordination Timing."** Presented at the Riverside-San Bernardino ITE Section Workshop, 2001

**"Quantification of Air Quality Benefits Achieved Through Traffic Signal Coordination"**
Presented at ITE District 6 Annual Conference, Salt Lake City, Utah, 1997

**"A Successful Multijurisdictional Traffic Signal Coordination Project"**
Presented at ITE Annual Conference, Dana Point, California, 1996

**"Multijurisdictional Traffic Signal Coordination - A Pleasant Experience"**
Presented at the 65th Institute of Transportation Engineers Annual Meeting, 1995, Denver, Colorado

ALBERT GROVER & ASSOCIATES

# Albert L. Grover, P. E.
# President & CEO

**EDUCATION**

ME (Civil/Transportation)
Cornell University
Ithaca, NY, 1966

BS Civil Engineering
Cornell University
Ithaca, NY, 1965

**PROFESSIONAL ASSOCIATIONS**

American Society of Civil Engineers
American Public Works Association
Institute of Transportation Engineers
Illuminating Engineering Society
Transportation Research Board

**PROFESSIONAL REGISTRATION**

Registered Civil Engineer in California
CE #18913
Registered Traffic Engineer in California
TE #0860

## PROFESSIONAL EXPERIENCE

As President of AGA, Mr. Grover actively participates in company management, business development, project work, quality control and financial matters. Prior to forming AGA in 1993, Mr. Grover was a Co-Owner and Executive Vice-President of Mohle, Grover & Associates. He joined that firm in 1980. As a consulting principal engineer, Mr. Grover has served as project manager for PSR work, traffic impact studies, parking studies, bike trail design, street alignments, TCD inventories, accident record systems, street light design and conversion, pavement marking programs, traffic signal improvements, CBD traffic circulation and various signal timing projects as well as transportation modeling and developer fee programs. Mr. Grover began conducting traffic signal design/build projects in the early 1980's, which evolved into complete roadway projects including both civil and traffic aspects.

Mr. Grover has also been responsible for developing and distributing various traffic engineering software including CAPSSI and WEBSTER, and has been a speaker at various ITE meetings on such subjects as Capacity Analysis, CAD, Protected/Permissive Left Turn Phasing, Computerized Traffic Control Systems and the Highway Capacity Manual. During the 1990s, Mr. Grover served as one of the 30 international members on the HCM committee that developed the HCM2000 (the forerunner to HCM 2010).

Prior to private sector consulting, Mr. Grover was the Director of Traffic and Parking in the City of Beverly Hills. During this time, he managed the Divisions of Traffic Engineering, Parking Facilities, Traffic Signal Maintenance, Parking Operations and Taxi Administration.

Mr. Grover also served as the Traffic Engineer for the City of Inglewood for five years. He was responsible for planning, design, operations and maintenance of all traffic and parking functions. In 1974 he implemented a computerized traffic control system operating 105 intersections from City Hall via the first application of UTCS on the West Coast.

Mr. Grover was Assistant Director for two years within the Freeway Operations Branch of Caltrans and assisted in the Los Angeles Area Freeway Surveillance and Control Project. This was an $8 million project to test and evaluate innovative ITS techniques and devices that are now being applied in Caltrans control centers statewide as well as on local "Smart Corridors."

During his previous two years as a Caltrans Project Engineer, Mr. Grover developed and implemented the first California system of 35 changeable message signs on the Santa Monica Freeway, instituted the system of providing traffic advisories to nine radio stations, designed a Roadside Radio System for providing traffic advisories and was instrumental in the development of CCTV surveillance along the Santa Monica Freeway.

Mr. Grover also spent the first four years of his career with Caltrans performing freeway design, surveying, construction inspection and drainage studies including: the Harbor Freeway Extension to the Vincent Thomas Bridge; the "Grapevine" portion of I-5; the Hollywood Freeway Extension from Victoria Street to I-5; the Foothill Freeway through La Canada; and the Interchange of Route 2 and I-210.

## PAPERS/PRESENTATIONS

**"Bulb Matrix Changeable Message Signs"**
AASHTO Subcommittee on Communication and Electronic Applications for Highways, 1973

**"Inglewood's Happy Experience" Presentation on Computerized Traffic Control**
32nd Annual California Public Works Conference, April 1980

Traffic Accident Report Programs (TARP) with Computerized Collision Diagram Plotting
Demonstration at International ITE Conference, Chicago, 1982

**"Signal Displays for Protected/Permissive Left Turn Phasing"**
ITE/Southern California Section Report, 1984

**"Intersection Capacity Analysis Using 1985 Highway Capacity Manual; a Simplified Approach"**
Presented at ITE Annual Meeting, Vancouver, BC, Canada, July 1986

CADD - Computer Aided Design and Drafting Workshop
Presented at ITE Southern California Section, Spring 1986

ITS Instructor for "Managing Traffic Growth," 1988

Level of Service Committee, Riverside/San Bernardino ITE Section

Caltrans District 08 Liaison Committee with SANBAG, RCTC and Private Sector
Served as Chairman for two years (1994 and 1995)

**"Protected/Permissive Left Turn Phasing, an Overview"**
Portland ITE, District 6 Annual Meeting, 1994

**"Multijurisdiction Signal Coordination - a Pleasant Experience"**
Denver International ITE Meeting, 1995

SANBAG Subcommittee member for developing Land Use/Transportation guidelines for the CMP update.
OCTA Countywide Advisor to Traffic Signal Forums.

Year 2000 Highway Capacity Manual – participated in developing the HCM 2000 from 1990 to 2000.

ALBERT GROVER & ASSOCIATES

# Mark H. Miller, P. E.
# Executive Vice President

## EDUCATION

BS Civil/Traffic Engineering
California Polytechnic University
Pomona, 1974

Northwestern University
Evanston, Illinois
- Traffic & Transportation Engineering
- Highway Capacity Workshop

Institute of Transportation Studies
Safety Design and Operational Practices for Streets and Highways (FHWA)
- Traffic Signal Equipment & Operations
- Urban Street Design
- Public Works Inspections
- Legal Aspects and Liabilities
- Risk Management & Traffic Safety

## PROFESSIONAL ASSOCIATIONS

American Public Works Association
American Society of Civil Engineers
City Traffic Engineers Association
Institute of Transportation Engineers
Orange County Traffic Engineering Council

## PROFESSIONAL REGISTRATION

Registered Civil Engineer in California
CE #40956
Registered Traffic Engineer In California
TE #1575
Professional Traffic Operations Engineer
PTOE #233

## PROFESSIONAL EXPERIENCE

Mr. Miller joined Albert Grover & Associates in 1993 as Vice President, and provides the firm extensive experience in all phases of ITS design, signal interconnect and coordination plans, CCTV installations, traffic signal/signal system design, and street lighting evaluation and design. Mr. Miller began his consulting career with Mohle, Grover & Associates in January, 1990, as a senior engineer to provide professional traffic engineering and operations services. He is a registered Civil Engineer, Traffic Engineer, and Professional Traffic Operations Engineer with over thirty-five years' experience. This includes more than fifteen years serving as a City Traffic Engineer. Mr. Miller has managed many ITS, traffic signal and street light system projects. He has developed and implemented design standards, specifications and cost estimates for traffic signals, interconnect projects, CCTV projects, and street light projects. He also has experience in preparing traffic signal coordination and timing plans. Additionally, Mr. Miller has provided expert witness testimony on a variety of issues. He has served as both a member and the Chairman of the City Traffic Engineers Association (CTE) and, as such, has been instrumental in conducting workshops to educate Traffic Commissioners and Planning Commission from Cities throughout Southern California on various aspects of traffic engineering. Mr. Miller has provided on call as-needed traffic engineering services to the Cities of Cerritos, La Habra, Montclair, Torrance, and Victorville, and is serving as the Contract Traffic Engineer for the City of Fullerton (since 1998).

While employed as City Traffic Engineer for the City of Pomona, he was responsible for a $3,000,000 operations and capital improvement budget, and managed 14 subordinates in the traffic engineering division. Mr. Miller has "hands on" experience with programming all models of traffic signal controllers. He has developed numerous traffic signal coordination and timing plans for use with a wide variety of central control and local controller software.

His experience also includes four years with the City of Pasadena as an Assistant Engineer in Traffic. He was responsible for the preparation and review of major transportation studies. He also assisted in the preparation and implementation of the Rose Bowl Major Event Traffic and Parking Study, Madison Heights/Oakknoll Neighborhood Traffic Study, various bikeway studies, traffic control device inventories and traffic safety studies. He also developed a traffic accident recording system.

From 1979 to 1982, Mr. Miller was a Civil Engineer with the Illinois Department of Transportation. During this time, he worked in the Bureau of Traffic and the Bureau of Bridges. He had responsibility for establishing policies and contracts for maintenance of major interstate signing projects. He also managed various statewide hazard elimination safety projects. He was responsible for developing traffic signing and pavement marking standards for the Illinois Manual of Traffic Control Devices.

Mr. Miller's engineering experience began when he was an Engineering Assistant in the City of San Dimas, California, for two years. He was involved with the preparation and review and inspection of municipal street improvement projects. He managed a variety of pavement maintenance projects from major street reconstruction to slurry sealing. He performed various traffic engineering functions such as speed surveys, school zone signing, and signing and striping projects, in addition to a wide array of street lighting projects.

The following is a brief listing of specific consulting projects for which Mr. Miller has been responsible:

- Certification testing of various electronic equipment.
- Interconnect Analysis, Design and Coordination - Cities of Bakersfield, Cerritos, Chino, Colton, La Habra, Lancaster, Loma Linda, Montclair, Palm Springs, Pomona, Rialto, San Bernardino, Santa Clarita, Temecula, Upland, and Visalia.
- Multijurisdictional Traffic Signal Synchronization - S.C.A.Q.M.D and Orange County Growth Management Area No. 6.
- Various Traffic Signal Design, CCTV, Striping & Street Light Design Projects for Cities, Counties, and State.
- Montclair Plaza Traffic Operations Study - City of Montclair.
- Roadway Signal Improvements - Cities of Cerritos, Chino, Claremont, Cypress, Ontario, and Upland.
- Congestion Management Plan - City of Santa Ana.
- Bridge Design and Load Limit Determination, Statewide, State of Illinois.
- Annual Statewide Interstate Maintenance Signing Project, State of Illinois.
- Statewide Hazard Elimination Project for Narrow Bridges, State of Illinois.
- Identification of High Accident Locations - Cities of Downey, Inglewood and Pomona.
- Annual Citywide Pavement Maintenance Projects - City of San Dimas.
- Computerized Traffic Accident Record System - City of Pasadena.
- Annual Monitoring of Traffic Signal Timing - Cities of Colton, Fullerton, Loma Linda, Montclair, Palm Springs and Rialto.
- Speed Zone Surveys - Cities of Baldwin Park, Buena Park, Cathedral City, Cerritos, Chino, Cypress, Fountain Valley, Fullerton, Gardena, Hawthorne, Hermosa Beach, Huntington Park, La Habra, Lancaster, Long Beach, Norco, Ontario, Palm Springs, Pomona, San Dimas, San Marino, Santa Ana, Santa Clarita, Santa Fe Springs, Santa Monica, Torrance, and Yucaipa; California State Universities of Fullerton, Long Beach, and Los Angeles; and Antelope Valley Community College.
- School Safety Studies and Development of Safe Route to School Programs.

## PAPERS/PRESENTATIONS

**"Three Year Experience with Flashing Yellow Arrow Display"**
Presented at ITE Annual Conference, Anaheim, California, August, 2008

**"Effectively Slowing Drivers – Speed Feedback Signs"**
Presented at ITE District 6 Annual Meeting, Honolulu, Hawaii, 2006

**"School Area Traffic Safety"**
Presented at City Traffic Engineers Traffic Commissioners Workshop, 2004

**"Quantifications of Air Quality Benefits Achieved Through Traffic Signal Coordination"**
Presented at ITE District 6 Annual Meeting, Salt Lake City, Utah, July 1997

**"A Successful Multijurisdictional Traffic Signal Coordination Project"**
Presented at ITE Annual Conference, Dana Point, California, March 1996

**"Minimize Delay Maximize Progression with Protected Permissive Lead/Lag Phasing"**
Presented at ITE Inland Empire Section Technical Workshop, December 1995

**"Microwave Traffic Signal Interconnect - A Viable Alternative to Land Lines"**
Presented at ITE District 6 Annual Meeting, Portland, Oregon, July 1994
(Best Paper Award)

ALBERT GROVER & ASSOCIATES

# Greg Wong, P.E.
## Senior Transportation Engineer

**EDUCATION**

BS, Civil Engineering
University of California
Irvine, 1996

Certified Geographical Information Systems
Westech College
Irvine1997

**PROFESSIONAL ASSOCIATIONS**

Institute of Transportation Engineers

**PROFESSIONAL REGISTRATION**

Registered Professional Engineer in California
CE # 64349

**PROFESSIONAL EXPERIENCE**

Mr. Wong rejoined Albert Grover & Associates (AGA) in July 2001, as a Transportation Engineer. He had previously worked for AGA for several years prior to leaving to obtain experience working in the public sector. His duties at AGA include the preparation of ITS design plans, traffic impact studies/analyses, GIS analysis/design/implementation projects, parking circulation analyses, traffic signal coordination timing plans, and traffic signal designs. Mr. Wong has extensive experience in using a variety of transportation planning and traffic engineering software, such as Synchro, VISSIM, HCS, and WEBSTER. Other software's include GIS (ArcView), AutoCAD and Microstation.

Prior to rejoining AGA, Mr. Wong worked for the City of Los Angeles Department of Transportation as a Transportation Engineering Associate and the Los Angeles County Public Works Department as a Civil Engineering Assistant. As a Transportation Engineering Associate, Mr. Wong worked in the Bureau of Traffic Management. His duties were to divert and control the flow of cut-through traffic from residential areas on to arterials and to monitor the Safe Route to School program. He also prepared the AB 1475 Grant application for the installation of Smart Crosswalks at 50 uncontrolled intersections in the City of Los Angeles. As a Civil Engineering Assistant for the County of Los Angeles, Mr. Wong prepared and reviewed traffic signal coordination timing plans, traffic signal modification plans, striping and marking layouts, maps utilizing GIS (ArcView), and left-turn studies. He was a key participant in numerous projects that involved the state, local cities and private agencies. These included County TSSP projects, street and highway improvement projects, local city projects and County signal upgrades.

The following is a brief listing of some of the projects on which Mr. Wong has been involved:

- La Habra/Brea Signal Timing Coordination Project: Signal timing and coordination for 74 signals on 8 arterials in the Cities of La Habra and Brea. Currently in the development of timing plans.
- City of Burbank: Signal timing and coordination of 25 signals (including one Caltrans signal) on two arterials (Magnolia Street and Garden Grove Boulevard). Currently implementing and fine tuning the timing.
- OCTA Orangethorpe Avenue TLSP Project: Signal timing and coordination for 48 signals in the Cities of La Palma, Buena Park, Fullerton, Anaheim and Placentia, including Caltrans. Currently implementing and fine tuning the timing.

- San Bernardino Associated Governments Signal Coordination Project: Signal interconnect, timing and coordination of approximately 650 signals throughout 12 Cities. Currently monitoring the timing.
- City of Fullerton General Plan Update: Assist the City of Fullerton in the traffic analysis of the update to the General Plan. Analysis includes the traffic impacts to 96 intersections and development of long term mitigation needs.
- Orange County Transportation Authority Bus Rapid Transit Project: Signal timing and coordination of 157 signals on three arterials (Harbor Blvd, Chapman Avenue and State College Boulevard) in the Cities of Brea, Fullerton, Anaheim, Garden Grove, Santa Ana, Fountain Valley and Costa Mesa.
- Los Angeles County Traffic Signal Synchronization Projects: Analysis and recommendations on upgrading signals along Artesia Boulevard, Studebaker Road, Wilmington Avenue, and Vincent/Glendora/Hacienda Boulevard.
- City of West Hollywood, Sunset Boulevard Signal Timing Project (12 intersections): Convert BI-Tran 233 program timing to BI-Tran 2033 program timing. Modify/fine tune existing timing plans and/or create additional timing plans where needed.
- Costa Mesa/Santa Ana Signal Timing Coordination Project: Signal timing and coordination for 41 signals on 5 arterials in the Cities of Costa Mesa and Santa Ana.
- OCTA Chapman Avenue TLSP Project: Signal timing and coordination for 52 signals in the Cities of Orange and Garden Grove, including Caltrans.
- OCTA I-405 Widening Project (I-605 to SR-73): Freeway, ramp and arterial intersections evaluations/analyses.
- Fullerton Transportation Center Project: Assist the City of Fullerton in the traffic impact analysis of the Fullerton Transportation Center. Run the City's model and analyze the impacts of the project and develop mitigations.
- City of Burbank: Signal timing and coordination of 37 signals on two arterials (Hollywood Way and Buena Vista Street).
- City of Huntington Beach: Signal timing and coordination of 51 signals on five arterials.
- City of Fountain Valley: Signal timing and coordination of 55 signals on nine arterials.
- Orange County Transportation Authority Euclid Street Signal Synchronization Project: Signal timing and coordination of 62 signals on Euclid Street in the Cities of Fullerton, Anaheim, Garden Grove, Santa Ana and Fountain Valley.
- City of Pasadena: VISSIM Modeling and signal timing for the Pasadena Light Rail (Gold Line).
- Multijurisdictional Traffic Signal Coordination Timing Project: Coordination of 50 signals on one arterial for the Cities of Pico Rivera, Downey, South Gate, and Paramount.
- Los Angeles County: Multijurisdictional signal timing and coordination of signals on Atlantic Boulevard, Garfield Avenue, and Sepulveda Boulevard.
- City of Fullerton: Citywide Traffic Impact Analysis and Long Term Mitigation Needs.
- City of Lancaster Signal Timing Project: Signal timing and coordination of 85 signals on 10 arterials.
- Multijurisdictional Traffic Signal Coordination Timing Project: Coordination of 56 signals on two arterials for the Cities of Fullerton, Placentia, and Yorba Linda.
- City of La Habra traffic impact studies at various locations.
- Coachella Valley Association of Governments: Signal Interconnect Master Plan Cost Analysis.

- Assisted in preparing signal modification plans for projects in the Cities of Yucaipa, Cerritos, and La Habra.
- City of Beverly Hills Street Lighting System Master Plan: Data gathering and analysis.
- DataBase & Software Development - Accident Surveillance, Traffic Sign Inventory, Collision Diagrams & Training of staff for the Cities of: Brea, Murrieta, Taft, San Fernando, Newport Beach, and the County of Monterey. Traffic Study Reports and Traffic Impact Reports for various agencies in California.
- Analysis for Build-Out & Projected Year 2020 and Regional Traffic Plan RTP 2030 as part of the General Circulation Plan for the City of Murrieta.
- Design of the "Parabolic Vertical Curve program", "Time Space Diagram", "Collision Diagram", and many other computer programs and routines.

ALBERT GROVER & ASSOCIATES

# Leo Grimes
# Senior Signal Systems Specialist

**EDUCATION**

Signal Technician Level 3 Training (Microprocessor)
Signal Technician Level 2 Training
Management/Training Seminars
High School, Gentry, Arkansas

## PROFESSIONAL EXPERIENCE

Mr. Leo Grimes joined Albert Grover & Associates in 2000, after having spent ten years working with Signal Maintenance, Inc. (SMI), most recently as a Lead Man. Mr. Grimes routinely monitors signal operations and coordination along the streets of various cities that have contracted with AGA to provide such on-going signal monitoring services, looking for both hardware related and timing related problems. He also quickly responds to requests from various cities on an as-needed basis. His unique expertise in both signal timing software and signal hardware enables AGA to quickly identify the actual cause of the problem and take definitive action to provide the appropriate solution.

Since joining AGA, Mr. Grimes has been responsible for conducting field reviews of hundreds of signalized intersections, including physically opening controller cabinets and pull boxes to assess the condition and usability of existing equipment. Mr. Grimes has implemented both local and coordination timing plans in hundreds of signal controllers, including nearly every brand of controller in use in Southern California. Mr. Grimes has been responsible for fine-tuning of timing plans at hundreds of locations, and for daily monitoring of signal systems in the Cities of La Habra, Fullerton, Loma Linda, Fountain Valley, and Seal Beach. He has also been responsible for purchasing and installing hardware and software in local agencies' Traffic Management Centers, including a wide range of central control systems: QuicNet, CTNET, ACTRA, ARIES, CENTRACS, TACTICS, and others. He has resolved signal system communication problems, addressing both internal communication issues and multijurisdictional issues. Mr. Grimes' familiarity with signal maintenance contractor's procedures and personnel greatly assists AGA in the implementation, fine-tuning, operation and monitoring of various signal systems.

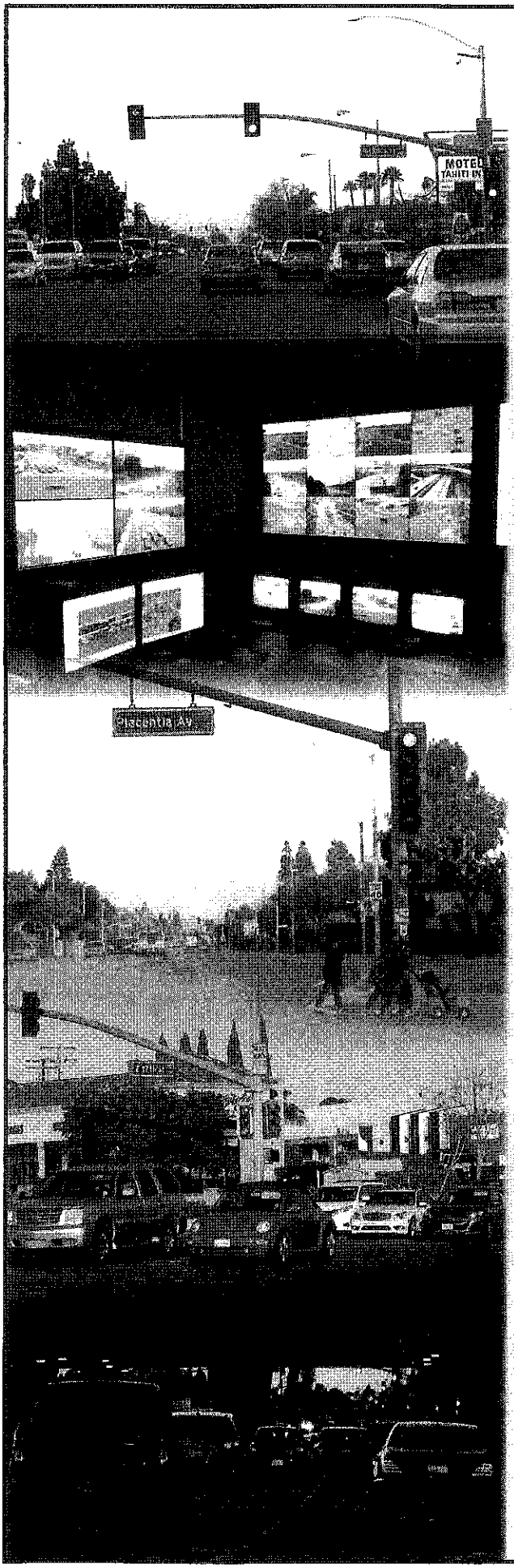
Mr. Grimes provides technical expertise in the design of new, and upgrading existing, Traffic Management Centers. He is especially well versed in the utilization of various communication techniques such as fiberoptics, radios, Ethernet over copper, etc., including previous generation equipment utilizing serial and FSK communication. His experience includes assistance in designing CCTV systems for various cities, along with utilizing video detection cameras to provide live video feeds to city Traffic Management Centers. Mr. Grimes has also been involved in the development and design of IP schemes for cities' traffic signal related equipment, including assisting in the configuration of Layer 3 switches.

Mr. Grimes also provides AGA with expertise in the research of new products such as communication hardware and software, signal control equipment, computers, servers, etc. to ensure that proposed system designs are not only state-of-the-art but also capable of compatible integration with existing IT Department software and hardware at various local agencies. His long-term relationships with a wide assortment of equipment manufacturers ensures that clients obtain the best equipment at the best price.

Prior to joining AGA, Mr. Grimes' duties for SMI involved supervision and training of employees as Signal Technicians, including all phases of troubleshooting, maintenance, repairs, and record keeping for thousands of traffic signal installations throughout Southern California. He was also responsible for coordination between SMI's office personnel and the appropriate City maintenance and engineering forces. Mr. Grime's duties also included scheduling, product evaluations and job performance reviews. As Lead Man for supervision and training, Mr. Grimes was also responsible for operation, maintenance and troubleshooting of problem signals at various locations throughout the Los Angeles area.

# EXHIBIT B

# FEE SCHEDULE




# FEE PROPOSAL

TO PROVIDE

## PROFESSIONAL CONSULTANT SERVICES

FOR THE

## BAKER STREET/PLACENTIA AVENUE CORRIDOR PROJECT

SUBMITTED TO

**CITY OF COSTA MESA**

TRANSPORTATION SERVICES DIVISION

MARCH 13, 2013

SUBMITTED BY

ALBERT GROVER & ASSOCIATES

ALBERT GROVER & ASSOCIATES

March 13, 2013

Mr. Raja Sethuraman
Transportation Services Manager
Transportation Services Division
Fourth Floor City Hall
77 Fair Drive
Costa Mesa, California 92628

**RE: Baker Street/Placentia Avenue Corridor Project Fee Proposal**

Dear Mr. Sethuraman:

Albert Grover & Associates (AGA) is pleased to respond to the City of Costa Mesa's Request for Proposal (RFP) dated December 11, 2012 to provide professional Turn-Key services for design, equipment purchase and installation, construction management, system integration, and ongoing monitoring/maintenance to improve coordination signal timing on approximately 17.5 miles of Baker Street/ Placentia Avenue encompassing 27 traffic signals controlled by three separate governmental agencies in Orange County.

Enclosed please find our Fee Proposal to provide the required services. AGA's total fee for this project amounts to **$580,000.00**, which includes both hardware/software improvements and engineering efforts for the Baker Street/Placentia Avenue Corridor. Our Fee Proposal consists of two primary components:

- Table 1A: The "General Fee Schedule", including lump sum cost for signal coordination, assessments, modeling, "before and after" studies, reports, etc.; lump sum construction cost for Costa Mesa intersections; lump sum construction cost for Newport Beach intersection; lump sum cost for record drawings, PS&E, and procurement; an annual and three-year cost for maintenance; and a cumulative not-to-exceed fee.

- Table 1B: A breakdown detailing hourly cost of personnel per task, along with a cumulative not-to-exceed amount for the project.

As supporting documentation, we have included Table 2, a detailed cost estimate for purchase/installation of communication, CCTV hardware improvements, controller units, cabinets, and various other equipment on an intersection-by-intersection basis.

AGA looks forward to working with the Cities of Costa Mesa and Newport Beach jointly with Caltrans on this very important project. If you have any questions or require amplification on any aspect of this

proposal, please call me. This Fee Proposal is valid for a period of 90 days from the date of submittal, and I am authorized to negotiate and contractually bind AGA.

Respectfully submitted,

ALBERT GROVER & ASSOCIATES

[redacted]

Rob Kuehn
*Director of Project Development*

Proposals\Costa Mesa\Baker-Placentia\Cost Proposal\Baker-Placentia Cost Letter.docx

# Table 1A
# GENERAL FEE SCHEDULE
## Albert Grover & Associates
## Baker Street-Placentia Avenue Corridor
### March 13, 2013

| | | | | |
|---|---|---|---|---|
| **Part 1** – Signal Coordination, Assessments, Modeling, Before and After Studies, Reports and Documents for OCTA Reporting | | | Lump Sum | $123,652 |
| **Part 2** – Work for Costa Mesa Intersections | | | Lump Sum | $326,007 |
| **Part 3** – Work for Newport Beach Intersections | | | Lump Sum | $10,000 |
| **Part 4** – Preparation of Record Drawings, Project Plans Specifications and Estimate, and Procurement | | | Lump Sum | $73,544 |
| **Part 5** – 3 Years Follow-Up Maintenance | Per Year | $ 15,599 | Maintenance Total | $46,797 |
| | | **CUMULATIVE NOT-TO-EXCEED FEE** | | **$580,000** |

Additive Work Scope

| | | | | |
|---|---|---|---|---|
| Traffic Counts at Intersections Weekday (6-hour) | Per Intersection | 1 person $285<br>2 person $470 | Intersection Total | $7,965 |
| Traffic Counts at Intersections Weekend (2-hour) | Per Intersection | 1 person $120<br>2 person $220 | Intersection Total | $3,420 |
| Install 3" Conduit | Per Lineal Foot | $32 | | |

**Table 1B**

**City of Costa Mesa - Baker Street/Placentia Avenue Traffic Signal Coordination Project**
**Estimated Fee Schedule - Hourly Cost of Personnel Per Task**
**Albert Grover & Associates**
**March 13, 2013**

| | | TASK/HOURS | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | **Personnel Positions** | Project Management | Data Collection | Field Review | Improvement Plans Preparation & As-Builts | Equipment Construction/Installation/ System Integration | Before/After Study | System Timing Development | Implementation and Fine Turning of Timing Plans | System Maintenance & Operation | Project Report | TOTAL HOURS | Hourly Rate | TOTAL COST |
| Chalap Sadam | Project Manager/Vice President | 22 | 4 | 4 | 24 | 24 | 6 | 16 | 8 | 21 | 6 | 135 | $ 218 | $ 29,430 |
| Albert Grover | President/CEO | 8 | 0 | 0 | 4 | 0 | 0 | 6 | 0 | 0 | 2 | 20 | $ 272 | $ 5,440 |
| Mark Miller | Vice President | 8 | 2 | 2 | 12 | 12 | 0 | 8 | 2 | 0 | 2 | 48 | $ 218 | $ 10,464 |
| Rob Kuehn | Director of Project Development | 8 | 2 | 0 | 0 | 0 | 0 | 6 | 2 | 0 | 6 | 24 | $ 218 | $ 5,232 |
| Greg Wong | Senior Transportation Engineer | 4 | 4 | 4 | 8 | 8 | 20 | 40 | 11 | 27 | 4 | 130 | $ 182 | $ 23,660 |
| Ignacio Sanchez | Senior Design Engineer | 4 | 0 | 8 | 56 | 28 | 6 | 16 | 4 | 0 | 0 | 122 | $ 163 | $ 19,886 |
| Roland Hizon | Transportation Engineer | 16 | 4 | 4 | 36 | 24 | 0 | 16 | 0 | 24 | 4 | 128 | $ 156 | $ 19,968 |
| Natali Eid | Senior Associate | 4 | 4 | 0 | 0 | 0 | 6 | 28 | 4 | 0 | 0 | 46 | $ 156 | $ 7,176 |
| Leo Grimes | Signal Systems Specialist | 0 | 0 | 8 | 28 | 24 | 0 | 20 | 8 | 36 | 0 | 124 | $ 127 | $ 15,748 |
| Ruben Perales | Assoc. Transportation Engineer | 0 | 0 | 8 | 48 | 24 | 0 | 8 | 0 | 36 | 8 | 132 | $ 127 | $ 16,764 |
| Chad Veinot | Transportation Engineering Associate | 0 | 0 | 8 | 48 | 24 | 0 | 8 | 0 | 15 | 0 | 103 | $ 127 | $ 13,081 |
| David Chen | Design Engineer | 0 | 0 | 8 | 8 | 0 | 10 | 32 | 4 | 0 | 6 | 68 | $ 138 | $ 9,384 |
| Phillip Fuentes | Signal Systems Specialist | 0 | 0 | 12 | 0 | 20 | 0 | 10 | 12 | 72 | 0 | 126 | $ 120 | $ 15,120 |
| Felipe Ortega | Signal Systems Specialist | 0 | 0 | 12 | 0 | 20 | 0 | 10 | 12 | 72 | 0 | 126 | $ 120 | $ 15,120 |
| Sally Nguyen | Associate Engineer | 0 | 8 | 8 | 0 | 0 | 10 | 36 | 8 | 24 | 10 | 104 | $ 109 | $ 11,336 |
| Hieu Nguyen | Associate Engineer | 0 | 8 | 8 | 0 | 0 | 10 | 36 | 8 | 24 | 10 | 104 | $ 109 | $ 11,336 |
| | Hourly Total | 74 | 36 | 94 | 272 | 208 | 68 | 296 | 83 | 351 | 58 | 1540 | | $ 229,145 |
| | Task Cost | | | | | | | | | | | | | |
| Subcontractors & Control System Hardware | | | | | | | | | | | | | | |
| Weekday & Weekend Turning Movement Counts | | | $ 11,385 | | | | | | | | | | | $ 11,385 |
| 24-Hour ADT Counts | | | $ 823 | | | | | | | | | | | $ 823 |
| Before & After Study | | | | | | | $ 2,640 | | | | | | | $ 2,640 |
| Control System Hardware - Costa Mesa | | | | | | $ 326,007 | | | | | | | | $ 326,007 |
| Control System Hardware - Newport Beach | | | | | | $ 10,000 | | | | | | | | $ 10,000 |
| | | | | | | | | | | | | | SUB-TOTAL | $ 350,855 |
| | | | | | | | | | | | | | **TOTAL** | **$ 580,000** |

Table 2
Baker/Placentia Traffic Signal Synchronization Project
**Costa Mesa Project - Proposed Equipment/Improvements with Costs**



| Item No. | Item | Unit | Qty | Labor | Material | Tax | Total | Comments |
|---|---|---|---|---|---|---|---|---|
| 1 | **Baker St at Red Hill Avenue** | | | | | | | |
| | ASC/3 Controller | EA | 1 | $ 700.00 | $ 2,492.00 | $ 199.36 | $ 3,391.36 | Econolite |
| | D-Panel | EA | 1 | $ 700.00 | $ 495.00 | $ 39.60 | $ 1,234.60 | Econolite |
| | DSL Switch (Ethernet on Copper) | EA | 1 | $ 345.00 | $ 1,460.00 | $ 116.80 | $ 1,921.80 | Crosstown |
| | Two Extra DSL Switches (Bristol/Red Hill and Bristol/Newport) | EA | 2 | $ 345.00 | $ 1,460.00 | $ 116.80 | $ 3,843.60 | Crosstown |
| | **Total - Baker St at Red Hill Avenue** | | | | | | **$ 10,391.36** | |
| 2 | **Baker St at SR-55 NB Ramps** | | | | | | | |
| | **Total - Baker St at SR-55 NB Ramps** | | | | | | **$ -** | |
| 3 | **Baker St at SR-55 SB Ramps** | | | | | | | |
| | Provide and Install GPS Unit | EA | 1 | $ 220.00 | $ 1,000.00 | $ 80.00 | $ 1,300.00 | Crosstown |
| | GPS Configuration Fee by Caltrans | EA | 1 | $ 1,600.00 | $ - | $ - | $ 1,600.00 | Caltrans |
| | **Total - Baker St at SR-55 SB Ramps** | | | | | | **$ 2,900.00** | |
| 4 | **Baker St at Bristol Street** | | | | | | | |
| | ASC/3 Controller | EA | 1 | $ 700.00 | $ 2,492.00 | $ 199.36 | $ 3,391.36 | Econolite |
| | Communication D Panel | EA | 1 | $ 700.00 | $ 495.00 | $ 39.60 | $ 1,234.60 | Econolite |
| | CCTV Camera | EA | 1 | $ 2,175.00 | $ 8,300.00 | $ 664.00 | $ 11,139.00 | Crosstown |
| | DSL Switch (Ethernet on Copper) | EA | 1 | $ 345.00 | $ 1,460.00 | $ 116.80 | $ 1,921.80 | Crosstown |
| | Ethernet Fiber Switch | EA | 1 | $ 345.00 | $ 1,460.00 | $ 116.80 | $ 1,921.80 | Crosstown |
| | Fiber Distribution Unit (FDU) | EA | 1 | $ 780.00 | $ 300.00 | $ 24.00 | $ 1,104.00 | Crosstown |
| | Duplex Fiber Jumper | EA | 2 | $ - | $ 40.00 | $ 3.20 | $ 86.40 | Crosstown |
| | Cat 5 cable | EA | 1 | $ - | $ 5.00 | $ 0.40 | $ 5.40 | Crosstown |
| | **Total - Baker St at Bristol Street** | | | | | | **$ 20,804.36** | |
| 5 | **Baker St at Fire Station #2** | | | | | | | |
| | ASC/3 Controller | EA | 1 | $ 700.00 | $ 2,492.00 | $ 199.36 | $ 3,391.36 | Econolite |
| | Communication D Panel | EA | 1 | $ 700.00 | $ 495.00 | $ 39.60 | $ 1,234.60 | Econolite |
| | DSL Switch (Ethernet on Copper) | EA | 1 | $ 345.00 | $ 1,460.00 | $ 116.80 | $ 1,921.80 | Crosstown |
| | **Total - Baker St at Fire Station #2** | | | | | | **$ 6,547.76** | |
| 6 | **Baker St at Bear Street** | | | | | | | |
| | DSL Switch (Ethernet on Copper) | EA | 1 | $ 345.00 | $ 1,460.00 | $ 116.80 | $ 1,921.80 | Crosstown |
| | Additional DSL Switch for Bear/Paularino | EA | 1 | $ 345.00 | $ 1,460.00 | $ 116.80 | $ 1,921.80 | Crosstown |
| | Cat 5 cable | EA | 1 | $ - | $ 5.00 | $ 0.40 | $ 5.40 | Crosstown |
| | CCTV Camera on Existing Pole on SE Corner | EA | 1 | $ 2,175.00 | $ 8,300.00 | $ 664.00 | $ 11,139.00 | Crosstown |
| | **Total - Baker St at Bear Street** | | | | | | **$ 14,988.00** | |

Table 2
Baker/Placentia Traffic Signal Synchronization Project
**Costa Mesa Project - Proposed Equipment/Improvements with Costs**



| Item No. | Item | Unit | Qty | Labor | Material | Tax | Total | Comments |
|---|---|---|---|---|---|---|---|---|
| **7** | **Baker St at Milbro Street** | | | | | | | |
| | ASC/3 Controller | EA | 1 | $ 700.00 | $ 2,492.00 | $ 199.36 | $ 3,391.36 | Econolite |
| | Communication D Panel | EA | 1 | $ 700.00 | $ 495.00 | $ 39.60 | $ 1,234.60 | Econolite |
| | Repaint Cabinet & Service | EA | 1 | $ 500.00 | $ - | $ - | $ 500.00 | Crosstown |
| | DSL Switch (Ethernet on Copper) | EA | 1 | $ 345.00 | $ 1,460.00 | $ 116.80 | $ 1,921.80 | Crosstown |
| | Cat 5 cable | EA | 1 | $ - | $ 5.00 | $ 0.40 | $ 5.40 | Crosstown |
| | **Total - Baker St at Milbro Street** | | | | | | **$ 7,053.16** | |
| **8** | **Baker St at Babb Street** | | | | | | | |
| | ASC/3 Controller | EA | 1 | $ 700.00 | $ 2,492.00 | $ 199.36 | $ 3,391.36 | Econolite |
| | D-Panel | EA | 1 | $ 700.00 | $ 495.00 | $ 39.60 | $ 1,234.60 | Econolite |
| | DSL Switch (Ethernet on Copper) | EA | 1 | $ 345.00 | $ 1,460.00 | $ 116.80 | $ 1,921.80 | Crosstown |
| | Cat 5 cable | EA | 1 | $ - | $ 5.00 | $ 0.40 | $ 5.40 | Crosstown |
| | **Total - Baker St at Babb Street** | | | | | | **$ 6,553.16** | |
| **9** | **Baker St at Mendoza Drive** | | | | | | | |
| | ASC/3 Controller | EA | 1 | $ 700.00 | $ 2,492.00 | $ 199.36 | $ 3,391.36 | Econolite |
| | D-Panel | EA | 1 | $ 700.00 | $ 495.00 | $ 39.60 | $ 1,234.60 | Econolite |
| | DSL Switch (Ethernet on Copper) | EA | 1 | $ 345.00 | $ 1,460.00 | $ 116.80 | $ 1,921.80 | Crosstown |
| | Cat 5 cable | EA | 1 | $ - | $ 5.00 | $ 0.40 | $ 5.40 | Crosstown |
| | **Total - Baker St at Mendoza Drive** | | | | | | **$ 6,553.16** | |
| **10** | **Baker St at Coolidge Avenue** | | | | | | | |
| | ASC/3 Controller | EA | 1 | $ 700.00 | $ 2,492.00 | $ 199.36 | $ 3,391.36 | Econolite |
| | D-Panel | EA | 1 | $ 700.00 | $ 495.00 | $ 39.60 | $ 1,234.60 | Econolite |
| | DSL Switch (Ethernet on Copper) | EA | 1 | $ 345.00 | $ 1,460.00 | $ 116.80 | $ 1,921.80 | Crosstown |
| | Cat 5 cable | EA | 1 | $ - | $ 5.00 | $ 0.40 | $ 5.40 | Crosstown |
| | **Total - Baker St at Coolidge Avenue** | | | | | | **$ 6,553.16** | |
| **11** | **Baker St at Fairview Road** | | | | | | | |
| | DSL Switch (Ethernet on Copper) | EA | 1 | $ 345.00 | $ 1,460.00 | $ 116.80 | $ 1,921.80 | Crosstown |
| | Cat 5 cable | EA | 1 | $ - | $ 5.00 | $ 0.40 | $ 5.40 | Crosstown |
| | **Total - Baker St at Fairview Road** | | | | | | **$ 1,927.20** | |
| **12** | **Baker St at College Avenue** | | | | | | | |
| | ASC/3 Controller | EA | 1 | $ 700.00 | $ 2,492.00 | $ 199.36 | $ 3,391.36 | Econolite |
| | Communication D Panel | EA | 1 | $ 700.00 | $ 495.00 | $ 39.60 | $ 1,234.60 | Econolite |
| | DSL Switch (Ethernet on Copper) | EA | 1 | $ 345.00 | $ 1,460.00 | $ 116.80 | $ 1,921.80 | Crosstown |
| | **Total - Baker St at College Avenue** | | | | | | **$ 6,547.76** | |

Table 2
Baker/Placentia Traffic Signal Synchronization Project
**Costa Mesa Project - Proposed Equipment/Improvements with Costs**



| Item No. | Item | Unit | Qty | Labor | Material | Tax | Total | Comments |
|---|---|---|---|---|---|---|---|---|
| 13 | **Baker St at Harbor Boulevard** | | | | | | | |
| | DSL Switch (Ethernet on Copper) | EA | 1 | $ 345.00 | $ 1,460.00 | $ 116.80 | $ 1,921.80 | Crosstown |
| | CCTV Camera | EA | 1 | $ 2,175.00 | $ 8,300.00 | $ 664.00 | $ 11,139.00 | Crosstown |
| | **Total - Baker St at Harbor Boulevard** | | | | | | **$ 13,060.80** | |
| 14 | **Baker St at Royal Palm Drive** | | | | | | | |
| | ASC/3 Controller | EA | 1 | $ 700.00 | $ 2,492.00 | $ 199.36 | $ 3,391.36 | Econolite |
| | Communication D Panel | EA | 1 | $ 700.00 | $ 495.00 | $ 39.60 | $ 1,234.60 | Econolite |
| | DSL Switch (Ethernet on Copper) | EA | 1 | $ 345.00 | $ 1,460.00 | $ 116.80 | $ 1,921.80 | Crosstown |
| | **Total - Baker St at Royal Palm Drive** | | | | | | **$ 6,547.76** | |
| 15 | **Placentia Ave at Adams Avenue** | | | | | | | |
| | ASC/3 Controller | EA | 1 | $ 700.00 | $ 2,492.00 | $ 199.36 | $ 3,391.36 | Econolite |
| | D-Panel | EA | 1 | $ 700.00 | $ 495.00 | $ 39.60 | $ 1,234.60 | Econolite |
| | Ethernet Fiber Switch | EA | 1 | $ 345.00 | $ 1,460.00 | $ 116.80 | $ 1,921.80 | Crosstown |
| | Duplex Fiber Jumper | EA | 2 | $ - | $ 40.00 | $ 3.20 | $ 86.40 | Crosstown |
| | Fiber Splicing and Connect to Hub at Baker/Harbor | LS | 1 | $ 1,000.00 | $ - | $ - | $ 1,000.00 | |
| | **Total - Placentia Ave at Adams Avenue** | | | | | | **$ 7,634.16** | |
| 16 | **Placentia Ave at Fairview Park** | | | | | | | |
| | ASC/3 Controller | EA | 1 | $ 700.00 | $ 2,492.00 | $ 199.36 | $ 3,391.36 | Econolite |
| | D-Panel | EA | 1 | $ 700.00 | $ 495.00 | $ 39.60 | $ 1,234.60 | Econolite |
| | DSL Switch (Ethernet on Copper) | EA | 1 | $ 345.00 | $ 1,460.00 | $ 116.80 | $ 1,921.80 | Crosstown |
| | **Total - Placentia Ave at Fairview Park** | | | | | | **$ 6,547.76** | |
| 17 | **Placentia Ave at Estancia North** | | | | | | | |
| | ASC/3 Controller | EA | 1 | $ 700.00 | $ 2,492.00 | $ 199.36 | $ 3,391.36 | Econolite |
| | Communication D Panel | EA | 1 | $ 700.00 | $ 495.00 | $ 39.60 | $ 1,234.60 | Econolite |
| | Repaint Service | EA | 1 | $ 500.00 | $ - | $ - | $ 500.00 | Crosstown |
| | DSL Switch (Ethernet on Copper) | EA | 1 | $ 345.00 | $ 1,460.00 | $ 116.80 | $ 1,921.80 | Crosstown |
| | **Total - Placentia Ave at Estancia North** | | | | | | **$ 7,047.76** | |
| 18 | **Placentia Ave at Estancia South** | | | | | | | |
| | ASC/3 Controller | EA | 1 | $ 700.00 | $ 2,492.00 | $ 199.36 | $ 3,391.36 | Econolite |
| | Communication D Panel | EA | 1 | $ 700.00 | $ 495.00 | $ 39.60 | $ 1,234.60 | Econolite |
| | DSL Switch (Ethernet on Copper) | EA | 1 | $ 345.00 | $ 1,460.00 | $ 116.80 | $ 1,921.80 | Crosstown |
| | **Total - Placentia Ave at Estancia South** | | | | | | **$ 6,547.76** | |
| 19 | **Placentia Ave at Wilson Street** | | | | | | | |
| | ASC/3 Controller Assembly | EA | 1 | $ - | $ 20,000.00 | $ 1,600.00 | $ 21,600.00 | Econolite |
| | Install Cabinet on Existing Foundation | EA | 1 | $ 2,500.00 | $ - | $ - | $ 2,500.00 | Econolite |
| | Type III Service | LS | 1 | $ 8,000.00 | $ - | $ - | $ 8,000.00 | Crosstown |
| | CCTV Camera | EA | 1 | $ 2,175.00 | $ 8,300.00 | $ 664.00 | $ 11,139.00 | Crosstown |
| | DSL Switch (Ethernet on Copper) | EA | 2 | $ 345.00 | $ 1,460.00 | $ 116.80 | $ 3,843.60 | Crosstown |
| | **Total - Baker St at Milbro Street** | | | | | | **$ 47,082.60** | |

Table 2
Baker/Placentia Traffic Signal Synchronization Project
**Costa Mesa Project - Proposed Equipment/Improvements with Costs**



| Item No. | Item | Unit | Qty | Labor | Material | Tax | Total | Comments |
|---|---|---|---|---|---|---|---|---|
| **20** | **Placentia Ave at Victoria Street - Crossing Arterial** | | | | | | | |
| | DSL Switch (Ethernet on Copper) | EA | 1 | $ 345.00 | $ 1,460.00 | $ 116.80 | $ 1,921.80 | Crosstown |
| | Duplex Fiber Jumper | EA | 2 | $ - | $ 40.00 | $ 3.20 | $ 86.40 | Crosstown |
| | Cat 5 cable | EA | 1 | $ - | $ 5.00 | $ 0.40 | $ 5.40 | Crosstown |
| | **By Others** | | | | | | | |
| | ASC/3 Controller Assembly | EA | 1 | | $ 20,000.00 | $ 1,600.00 | | By Others (Victoria Project) |
| | Ethernet Fiber Switch | EA | 1 | $ 345.00 | $ 1,460.00 | $ 116.80 | | By Others (Victoria Project) |
| | Fiber Distribution Unit (FDU) | EA | 1 | $ 780.00 | $ 300.00 | $ 24.00 | | By Others (Victoria Project) |
| | SMFO Breakout Cable | EA | 1 | $ 220.00 | $ 40.00 | $ 3.20 | | By Others (Victoria Project) |
| | 6E Pullbox and Concrete | EA | 1 | $ 1,090.00 | $ 380.00 | $ 30.40 | | By Others (Victoria Project) |
| | Fiber Splice Enclosure Assembly | EA | 1 | $ 780.00 | $ 400.00 | $ 32.00 | | By Others (Victoria Project) |
| | CCTV Camera | EA | 1 | $ 2,175.00 | $ 8,300.00 | $ 664.00 | | By Others (Victoria Project) |
| | **Total - Placentia Ave at Victoria Street** | | | | | | **$ 2,013.60** | |
| **21** | **Placentia Ave at 19th Street** | | | | | | | |
| | ASC/3 Controller Assembly | EA | 1 | $ - | $ 20,000.00 | $ 1,600.00 | $ 21,600.00 | Econolite |
| | Install Cabinet on New Foundation | LS | 1 | $ 4,000.00 | $ - | $ - | $ 4,000.00 | Crosstown |
| | Type III Service | LS | 1 | $ 8,000.00 | $ - | $ - | $ 8,000.00 | Crosstown |
| | CCTV Camera | EA | 1 | $ 2,175.00 | $ 8,300.00 | $ 664.00 | $ 11,139.00 | Crosstown |
| | Ethernet Fiber Switch | EA | 1 | $ 345.00 | $ 1,460.00 | $ 116.80 | $ 1,921.80 | Crosstown |
| | Fiber Distribution Unit (FDU) | EA | 1 | $ 780.00 | $ 300.00 | $ 24.00 | $ 1,104.00 | Crosstown |
| | SMFO Breakout Cable | EA | 1 | $ 220.00 | $ 40.00 | $ 3.20 | $ 263.20 | Crosstown |
| | Duplex Fiber Jumper | EA | 2 | $ - | $ 40.00 | $ 3.20 | $ 86.40 | Crosstown |
| | Cat 5 cable | EA | 2 | $ - | $ 5.00 | $ 0.40 | $ 10.80 | Crosstown |
| | 6E Pullbox and Concrete | EA | 1 | $ 1,090.00 | $ 380.00 | $ 30.40 | $ 1,500.40 | Crosstown |
| | Fiber Splice Enclosure Assembly | EA | 1 | $ 780.00 | $ 400.00 | $ 32.00 | $ 1,212.00 | Crosstown |
| | **Total - Placentia Ave at 19th Street** | | | | | | **$ 50,837.60** | |
| **22** | **Placentia Ave at 18th Street** | | | | | | | |
| | ASC/3 Controller | EA | 1 | $ 700.00 | $ 2,492.00 | $ 199.36 | $ 3,391.36 | Econolite |
| | Ethernet Fiber Switch | EA | 1 | $ 345.00 | $ 1,460.00 | $ 116.80 | $ 1,921.80 | Crosstown |
| | Duplex Fiber Jumper | EA | 2 | $ - | $ 40.00 | $ 3.20 | $ 86.40 | Crosstown |
| | Fiber Distribution Unit (FDU) | EA | 1 | $ 780.00 | $ 300.00 | $ 24.00 | $ 1,104.00 | Crosstown |
| | SMFO Breakout Cable | EA | 1 | $ 220.00 | $ 40.00 | $ 3.20 | $ 263.20 | Crosstown |
| | Cat 5 cable | EA | 1 | $ - | $ 5.00 | $ 0.40 | $ 5.40 | Crosstown |
| | 6E Pullbox and Concrete | EA | 1 | $ 1,090.00 | $ 380.00 | $ 30.40 | $ 1,500.40 | Crosstown |
| | Fiber Splice Enclosure Assembly | EA | 1 | $ 780.00 | $ 400.00 | $ 32.00 | $ 1,212.00 | Crosstown |
| | **Total - Placentia Ave at 18th Street** | | | | | | **$ 9,484.56** | |

Table 2
Baker/Placentia Traffic Signal Synchronization Project
**Costa Mesa Project - Proposed Equipment/Improvements with Costs**



| Item No. | Item | Unit | Qty | Labor | Material | Tax | Total | Comments |
|---|---|---|---|---|---|---|---|---|
| **23** | **Placentia Ave at 17th Street - Crossing Arterial** | | | | | | | |
| | Duplex Fiber Jumper | EA | 2 | $ - | $ 40.00 | $ 3.20 | $ 86.40 | Crosstown |
| | Cat 5 cable | EA | 1 | $ - | $ 5.00 | $ 0.40 | $ 5.40 | Crosstown |
| | **By Others** | | | | | | | |
| | ASC/3 Controller Assembly | EA | 1 | $ - | $ 20,000.00 | $ 1,600.00 | | By Others (17th St Project) |
| | Install Cabinet on Existing Foundation | LS | 1 | $ 2,500.00 | $ - | $ - | | By Others (17th St Project) |
| | Ethernet Fiber Switch | EA | 1 | $ 345.00 | $ 1,460.00 | $ 116.80 | | By Others (17th St Project) |
| | Fiber Distribution Unit (FDU) | EA | 1 | $ 780.00 | $ 300.00 | $ 24.00 | | By Others (17th St Project) |
| | SMFO Breakout Cable | EA | 1 | $ 220.00 | $ 40.00 | $ 3.20 | | By Others (17th St Project) |
| | 6E Pullbox and Concrete | EA | 1 | $ 1,090.00 | $ 380.00 | $ 30.40 | | By Others (17th St Project) |
| | Fiber Splice Enclosure Assembly | EA | 1 | $ 780.00 | $ 400.00 | $ 32.00 | | By Others (17th St Project) |
| | CCTV Camera | EA | 1 | $ 2,175.00 | $ 8,300.00 | $ 664.00 | | By Others (17th St Project) |
| | **SMFO Installation - Placentia Avenue (17th Street to 16th Street)** | | | | | | | |
| | Replace existing TWP copper cable with 24-strand SMFO in existing conduits on Placentia Ave between 16th St and 17th St to connect to 17th St Corridor Signals Via 16th St and Superior Ave | LF | 5000 | $ 2.00 | $ 0.42 | $ 0.03 | | By Others (17th St Project) |
| | **Total - Placentia Ave at 17th Street** | | | | | | **$ 91.80** | |
| **24** | **Placentia Ave at 16th Street** | | | | | | | |
| | ASC/3 Controller Assembly | EA | 1 | $ - | $ 18,000.00 | $ 1,440.00 | $ 19,440.00 | Econolite |
| | Install Cabinet on Existing Foundation | LS | 1 | $ 2,500.00 | $ - | $ - | $ 2,500.00 | Econolite |
| | Type III Service | LS | 1 | $ 7,700.00 | $ - | $ - | $ 7,700.00 | Crosstown |
| | Ethernet Fiber Switch | EA | 1 | $ 345.00 | $ 1,460.00 | $ 116.80 | $ 1,921.80 | Crosstown |
| | Duplex Fiber Jumper | EA | 2 | $ - | $ 40.00 | $ 3.20 | $ 86.40 | Crosstown |
| | Fiber Distribution Unit (FDU) | EA | 1 | $ 780.00 | $ 300.00 | $ 24.00 | $ 1,104.00 | Crosstown |
| | SMFO Breakout Cable | EA | 1 | $ 220.00 | $ 40.00 | $ 3.20 | $ 263.20 | Crosstown |
| | Cat 5 cable | EA | 1 | $ - | $ 5.00 | $ 0.40 | $ 5.40 | Crosstown |
| | **By Others** | | | | | | | |
| | 6E Pullbox and Concrete | EA | 1 | $ 1,090.00 | $ 380.00 | $ 30.40 | | By Others (17th St Project) |
| | Fiber Splice Enclosure Assembly | EA | 1 | $ 780.00 | $ 400.00 | $ 32.00 | | By Others (17th St Project) |
| | **Total - Placentia Ave at 16th Street** | | | | | | **$ 33,020.80** | |
| **25** | **Central System Improvements** | | | | | | | |
| | Central System integration and configuration of the 24 City's intersections into the MIST system with graphics | EA | 24 | $ 500.00 | $ - | $ - | $ 12,000.00 | AGA |
| | MIST Integration by Telvent | LS | 1 | $ 8,000.00 | $ - | $ - | $ 8,000.00 | Telvent |
| | **Total - Central System Improvements** | | | | | | **$ 20,000.00** | |

Table 2
Baker/Placentia Traffic Signal Synchronization Project
**Costa Mesa Project - Proposed Equipment/Improvements with Costs**



| Item No. | Item | Unit | Qty | Labor | Material | Tax | Total | Comments |
|---|---|---|---|---|---|---|---|---|
| **26** | **SMFO Installation - Placentia Avenue (Victoria Avenue to 17th Street)** | | | | | | | |
| | Replace existing TWP copper cable with 24-strand SMFO in existing conduits | LF | 7400 | $ 2.00 | $ 0.42 | $ 0.03 | $ 18,156.64 | Crosstown |
| | **Total - SMFO Installation** | | | | | | **$ 18,156.64** | |
| **27** | **Pullboxes** | | | | | | | |
| | Upgrade existing interconnect pullboxes to Number 6 | EA | 6 | $ 920.00 | $ 246.00 | $ 19.68 | $ 7,114.08 | Crosstown |
| | **Total - Pullboxes** | | | | | | **$ 7,114.08** | |
| | | | | | | | | |
| **Newport Beach Project Improvement List (assume $10,000 of work)** | | | | | | | | |
| **1** | **Placentia Ave at 15th Street** | | | | | | | |
| | Not identified at this time | LS | 1 | $ 3,500.00 | $ - | $ - | **$ 3,500.00** | By Others |
| **2** | **Placentia Ave at Superior Avenue** | | | | | | | |
| | Not identified at this time | LS | 1 | $ 3,500.00 | $ - | $ - | **$ 3,500.00** | By Others |
| **3** | **Placentia Ave at Hospital Road** | | | | | | | |
| | Not identified at this time | LS | 1 | $ 3,000.00 | $ - | $ - | **$ 3,000.00** | By Others |
| | **Construction Total - Baker/Placentia Traffic Signal Synchronization Project** | | | | | | **$ 336,006.76** | |

# EXHIBIT C

# CITY COUNCIL POLICY 100-5

| 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.